MEDICAL RECORDS CENTRALIZATION AND PDR

## Background

As patients often see the data of their medical histories scattered among various medical records hosted in several health-care establishments, the purpose of our research was to define a pragmatic and secure on-demand based system able to gather this information, with no risk of breaching confidentiality, and to relay it to a medical professional who asked for the information via a specific search engine or teleportal

## Methods

Scattered data are often heterogeneous, which makes the task of gathering information very hard. Two methods can be compared: trying to solve the problem by standardizing and centralizing all the information about every patient in a single Medical Record system or trying to use the data "as is" and find a way to obtain the most complete and the most accurate information. Given the failure of the first approach, due to the lack of standardization or privacy and security problems, for example, we propose an alternative that relies on the current state of affairs: an on-demand system, using a specific search engine that is able to retrieve information from the different medical records of a single patient.

## Results

We describe the function of {name}, which are able to retrieve all the available information regarding a patient who has been hospitalized in different hospitals and to provide this information to health professionals upon request. It uses pseudonymized patient identities and thus never have access to the patient's identity. However, though the system would be easy to implement as it by-passes many of the difficulties associated with a centralized architecture, the health professional would have to validate the information, i.e. read all of the information and create his own synthesis and possibly reject extra data, which could be a drawback. We thus propose various feasible improvements, based on the implementation of several tools in our on-demand based system.

## Conclusions

A system that gathers all of the currently available information regarding a patient on the request of health-care professionals could be of great interest. This low-cost pragmatic alternative to centralized medical records could be developed quickly and easily. It could also be designed to include extra features and should thus be considered by health authorities.

However to start this, we need to start from the point of what the patient know of him/herself. This relies mostly on the following categories of data attributes; BMI, blood group, allergies, sugar levels, cancer, viruses and many more.

This can then be fed to a centralized domain system that has state of art encryption, storage and presentation of data. The preferred delivery authorizations involves both biometrics and shared preference block chain technology.

# Introduction

Setting up an effective secure way to share information embedded in medical records between the different Health Structures (HS) involved in patients' care would greatly improve the quality of health care. This assertion is one of the main reasons for the development of Electronic Medical Records (EMR) over the last three decades. However, though the desire to provide professionals with access to all of the information related to patients is almost universally shared, in order to implement an effective system various difficulties have to be foreseen and overcome. This can be done early during the elaboration, since two architectural options can be compared: a single centralized, systematized, secure EMR system used by all Health Structures and including every patient, *vs*. a pragmatic secure system, able to retrieve information from the current non-centralized, non-standardized, non-structured EMRs and, most of all, only when needed and only for a particular request, *i.e*. an "on-demand" system.

The choice of approach depends on various criteria such as health care policies, governments' willingness, social and political context, *etc*. First of all, we are not aware of a country that has successfully implemented a standardized, centralized, secured, privacy-compliant and reliable EMR system. This is one of the many reasons why we have chosen to promote a non-centralized, non-standardized, on-demand system that relies on one main concept: to search for and retrieve distributed heterogeneous medical data.

## Problem

Medical records and data are scattered across several independent EMRs used by several hospitals across the world.

## Objective

Analyze the current the current existing medical records and design and develop a single based middle ware search engine that takes up unique personal identities and build the health profile.

Design and build a personal digital health records database accessible and to patients only on demand basis.

## Scope

This is separated into two:

Version 1 – Digital health records asset system that contains the basic information about the patient and uses both block chain and biometrics to provide access to authorized health personals.

Version 2 – Health records search engine that can be used to search for patient information across different facilities.

## Risks and Bottlenecks

1. Centralization needs standardization, and standardization has needs
2. Vulnerabilities and access management difficulties