Introduction To Medical Informatics

Mobile health (mHealth)
Lecture: 9

M.Sc. Qusai Al-Durrah

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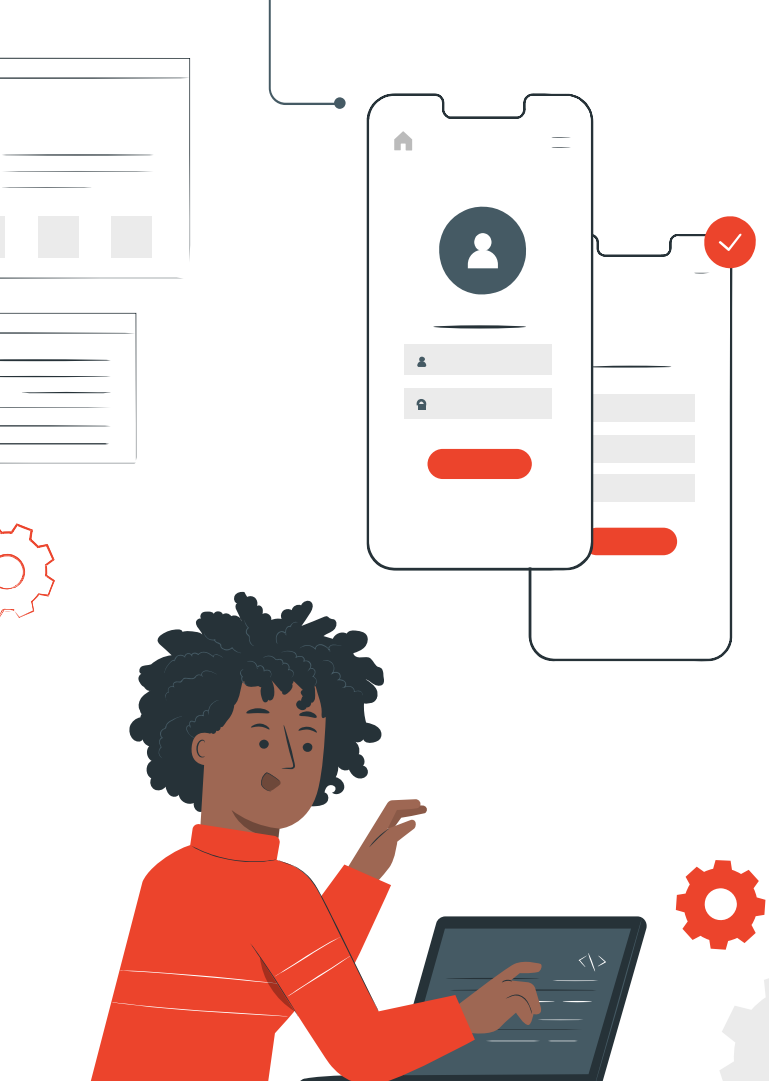


01

Introduction

Introduction

- Medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices.
- Mobile Health, or mHealth, describes the use of mobile and wireless communication technologies to improve healthcare delivery, outcomes, and research.
- Mobile health (mHealth) is an essential element of electronic health (eHealth)
- MHealth is important because it makes healthcare practices accessible to the public through mobile communication technologies in a variety of ways (e.g., providing healthcare information, collecting health data, observing patients, etc.)

Introduction

- mHealth aims to improve care by making health information easily accessible for patients with long-term conditions (chronic disease) such as diabetes.
- There are currently more than 165,000 mobile health apps publicly available in major app stores.
- The vast majority of which are designed for patients.
- The top 2 categories are wellness management and disease management apps.
- other categories include: self diagnosis, medication reminder, and electronic patient portal apps.

02

Smartphones advantages

Smartphones advantages

Mobile technologies, particularly smartphones, are extremely popular to all members of the healthcare team. So, there are some advantages of smartphones such as:

- Improved speed, memory, wireless connectivity and small size.
- Affordable
- Constantly improving features

Smartphones advantages

- Defined as having an operating systems capable of hosting medical software or it Internet capable
- Cloud computing allowed more medical programs of higher complexity to be accessed.
- Provide a light weight method to access Internet and EHR system

03

Mobile Technology and Patients

Mobile Technology and Patients

Personal health record

Medication reminders

Fitness coach

Telemedicine

Diagnostics

Connect with healthcare system

Mobile Technology to Track Health Habits and Physiological Signs

One of the most basic ways to use mobile devices to monitor your health is to measure your vital signs, such as heart rate, blood pressure, oxygen saturation, and body temperature. Many smartphones and smartwatches have built-in sensors that can capture these data, or you can use external devices that connect to your phone via Bluetooth or USB. Some examples of apps that can record and analyze your vital signs are Instant Heart Rate, Blood Pressure Monitor, Pulse Oximeter, and Thermometer.

These apps can help you detect any abnormalities, trends, or changes in your health status, and alert you or your doctor if needed.

Mobile Technology to Track Health Habits and Physiological Signs

- New movement (“wearable HIT” and “self-tracking”), example (Smart watches)
- New devices and sensors to monitor diet, exercise, sleep, heart rate, oxygen level, skin temperature, hydration, etc.
- Medical sensors communicate with smartphone via Bluetooth
- Support personalized medicine

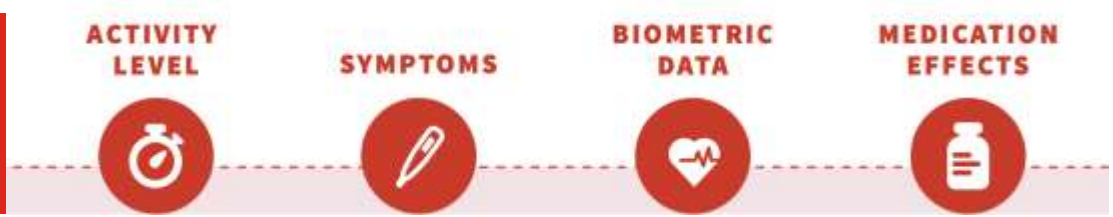
04

Patient Generated Health Data (PGHD)

Patient Generated Health Data (PGHD) Issues

PGHD is a Health-related data created and recorded by or from patients outside of the clinical

EXAMPLES OF PGHD



EXAMPLES OF P G H D Sources

WHAT ARE THE **BENEFITS** OF PGHD USE?

FOR PATIENTS & CAREGIVERS

Allow patients to better manage their health and actively participate in their health care

FOR CLINICIANS

Provides a view of patients' health over time and enables shared decision-making about care plans

FOR RESEARCHERS

Provides access to More expansive and Diverse datasets to aid in clinical research

Software Development Kits (SDKs) for mHealth

Apple

- HealthKit: for iOS and Watch OS. Use APIs to integrate app with OS
- Care Kit: open source SDK for patient monitoring
- Research Kit: iOS app can be used for research

Software Development Kits (SDKs) for mHealth

Android

- Google Fit: SDK to build apps using APIs
- Research Stack: for research
- Research Droid: research using Android smartphones

Thanks!

Do you have any questions?