mHealth (Mobile Health)

Foundational Curriculum:
Cluster 6: System Connectivity
Module 11: Telehealth, Telemedicine and mHealth
Unit 2: mHealth (Mobile Health)
FC-C6M11U2

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Unit Objectives

- Define mHealth
- Explain the use of mobile and portable technology devices in healthcare to facilitate communication, information exchange, and interoperability
- Identify the basic concepts of mHealth (mobile health) in enabling patient care
- Describe how mobile health technologies can be used to contribute to improvements in quality of care
- Discuss the relationship that mHealth technologies have to health organizations and users of health information
**mHealth** (or mobile health) refers to the subset of telehealth that is a method of utilising mobile and wireless technologies to support health objectives.

- The focus of mHealth is primarily on applications, used by and targeted to users instead of clinicians. This often includes no required input from clinicians.
- Other examples of recent fields that have used mobile telecommunications technology include mobile banking, shopping, and education. These are all examples of consumer-driven (instead of expert- or professional-driven) apps.
- This includes mobile self-care, self-monitoring, and education.

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Communication and Information Exchange in mHealth

- Mobile health is a subset of telematics, which improves telecommunication.
- Mobile health facilitates further communication and information exchange by spreading health awareness to users.

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Standards and Interoperability in mHealth

• It is important to maintain standards in mHealth if information gathered from mHealth devices and apps are to be later utilised by clinicians

• Enabling the use of interoperability between mHealth apps and EHRs therefore makes the benefits of the mHealth device and app increase

• Standards need to be integrated in mHealth devices
  – These standards we have covered in earlier units, such as HL7, XML and ISO
Since important health data can be stored in mHealth apps, it is vital that these apps have security and privacy for the users. However, the certification process established in the Medical Device Directive (MDD) is seldom applied to mHealth apps. Since app makers can claim their mHealth apps are not intended to attain a medical purpose, they do not need to apply to the MDD. Further security, privacy, and data protection can be may apply in Europe based on MDD and the GDPR. In order to maintain security:

- Apps can require passwords
- Apps are often encrypted

• In order to maintain privacy rights:

- When apps ask information than is required or ask for specific health information, GDPR and the MDD should apply in the EU
- When asking for specific health information in the US, HIPAA may apply
The Use of mHealth by Health Organisations

- Health organisations can use mobile health applications to communicate, disseminate organisation-based information.
- mHealth uses in Organisations include in Nurse stations and administration offices.
- According to a recent survey conducted by Vanson Bourne on behalf of JAMF, “Ninety-five percent of organisations that have implemented a mobile health device protocol have seen improved patient satisfaction.”
mHealth Uses in Low and Middle Income Countries

- mHealth can aid in the reduction, diagnosis, support and treatment of illnesses in low and middle income countries. For example, mHealth applications can potentially:
  - Diagnose malaria, HIV, and tuberculosis via smartphone apps
  - Informing patients of healthcare options
  - Aid in weight loss and chronic disease management
  - Educate patients in health conditions and more

- However, it will be vital in the near future to analyse the impact of mHealth technologies, as the reach, the benefits, and overall impact of these technologies in supporting healthcare across the world are still unclear.

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Although the focus of mHealth is on the user/consumer/patient, it also aids in patient care from providers. mHealth enables patient care in the following ways:

- Contacts and services over a mobile phone, such as SMS for the doctor or consultation between two practitioners, independent of the place, even intercontinental consultation is possible.
- Remote diagnostics over a smartphone: e.g. ECG signal measured on the phone memory and sent over to a cloud service for the practitioner to evaluate.
mHealth: Improving Quality of Care

- Mobile health applies to many different areas of healthcare
- The following health areas can be aided by mobile applications:
  - Chronic care management e.g. blood pressure, diabetes, cancer, mental health
  - Medical Apps e.g. alerts, medical references and diagnostics
  - Healthcare and Fitness e.g. nutrition, health-tracking, fitness and weight loss
  - Women’s Health e.g. pregnancy, fertility and breastfeeding
  - Medication Management
  - Personal Health Records e.g. medical conditions data, allergies, sharing information with doctors

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mHealth: Improving Quality of Care (Cont’d)

• Use of mHealth aids in Clinical Quality Measures (CQM): measures of processes, experiences and/or outcomes of patient care, observations or treatment that relate to one or more quality aims for health care. mHealth can compare quality levels in smoking cessation, weight checks, and diabetes management.

• Currently mobile and telehealth technologies are not widely available in all phases of the care process, but they can be enhanced to provide a more active role for the patient, as well as to enable more integrated care models.

• These applications enable more ways to communicate between the customer and the provider, streamlines care processes and enhances the patient experiences.
Examples of mHealth Apps

In January 2015 the MobiHealthNews website listed the top ten mHealth apps for Android devices as rated by physicians. They were:

1. Weight Watchers Mobile (Weight Watchers International)
2. White Noise Lite (TMSoft)
3. Lose It! (FitNow)
4. First Aid (American Red Cross)
5. RunKeeper - GPS Track Run Walk (FitnessKeeper)
6. Emergency First Aid/Treatment (Phoneflips)
7. Instant Heart Rate (Azumio)
8. Fooducate - Healthy Food Diet (Fooducate)
9. Glucose Buddy - Diabetes Log (Azumio)
10. Pocket First Aid & CPR (Jive Media)

All together there are more than 100,000 health and wellness apps available. Their quality varies. The regulators are not able to inspect every app and one must apply precaution before recommending an app to a patient.
Unit Review Checklist

- Defined mHealth
- Explained the use of mobile and portable technology devices in healthcare to facilitate communication, information exchange, and interoperability (IL03)
- Identified the basic concepts of mHealth (mobile health) in enabling patient care (IB01)
- Described how mobile health can be used to contribute to improvements in quality of care (IE02)
- Discussed the relationship mHealth technologies have to health organizations and users of health information (IN02)
Unit Review Exercises

1. Where could mobile technologies be used in health care?
2. What benefits could be gained by using mobile technologies in health care?
3. Activity: Search for currently available mobile applications for the application areas defined in question 1. (Hint: Check Google Play store, iOS market, or just plain old internet search engine)
1. What regulation is used in the EU in evaluation of mobile medical devices?
   a) MDD
   b) MDR
   c) IVDR
   d) MGGR

2. True or False: Mobile patient records are only useful in rural areas or developing countries
   a) True
   b) False
3. Which of the following is not an example of a possible eHealth device or app:
   a) Apps for food content or eating habits
   b) Monitoring of your heart for arrhythmias
   c) Fitness monitoring
   d) Advise on lifestyle and relationships

4. True or False: The focus of mHealth is primarily on applications used by and targeted to users or consumers.
   a) True
   b) False

5. True or False: Telemedicine is a subset of mHealth.
   a) True
   b) False