

Mobile Health (m-Health)

Description

Mobile health (also called e-health or m-Health) is the use of wireless technologies to connect, communicate, and promote health and wellness for the user. m-Health gathers and transmits data from electronic devices such as wearables, mobile devices, and smartphone apps. Smartphone compatible attachments connect with applications and collect health parameters including blood pressure, blood sugar, oxygen saturation and more. As telehealth increases, the use of standard applications on smartphones such as the microphone, flashlight or camera have also been used to support remote assessment

Purpose

The use of mobile wireless technologies for public health, or mHealth, is an integral part of eHealth, which refers to the cost-effective and secure use of information and communication technologies in support of health and health-related fields.

Patient Population

mHealth is frequently used in the treatment and management of chronic illnesses like asthma, cardiovascular disease, and diabetes. It is now being used with many populations including the elderly, women's health, pediatrics, and those with mental health issues. Wearables and other electronic monitoring devices are being used to collect and transfer vital sign data including blood pressures, cardiac stats, oxygen levels, and respiratory rates. Women more than men, adults younger than 55, and urban dwellers are the most likely to wear trackers, but many devices are easily available for purchase by providers or individuals.

Additional equipment to consider

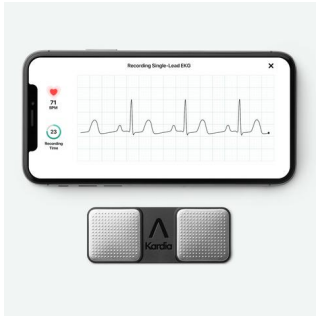
Equipment for m-Health is expanding rapidly and includes blood pressure monitors, glucometers, pulse oximeters, EKGs, stethoscopes, otoscope, and electroencephalography (EEG) sensors to date. Many vendors are selling devices to the general public to measure health parameters, and a lot of them can be connected to smartphones. Reviewing the quality prior to purchase is necessary.

Reimbursement Considerations

Using mobile devices to assess health is usually done through a telehealth visits and is reimbursable in the same way. No specific reimbursement exists for patient transmitted data unless it is associated with a visit.

Equipment needed (varies depending on what is being monitored)

Smartphones, tablets, and computers with access to the internet, a camera and a microphone are the minimum requirements for a telehealth visit. Other types of technology that are part of m-Health include smartwatches, fitness trackers and peripherals such as an EKG pad, and the mobile health applications required to use them (see image below for an example).



The AppleWatch (from version 4 forward) also monitors EKGs from a person's wrist. Click this [link to see a video of how the watch works](#).

Glucose monitors that do not require finger sticks are also available for many patients. Click this [link to see a demonstration of how this technology works](#).

Using m-Health during a telehealth visit requires a fast internet connection, or there can be delays in audio, video and/ or connected peripherals. Smartwatches and fitness trackers usually require the user to create and synch with an application on a computer or smartphone. Be aware that peripherals may not work on all operating systems or devices.

Vendor Examples

These sites include a list of m-Health vendors. Devices are changing daily, and are dependent on the type of platform (ie Apple, Windows, Android, etc.).

<https://www.fda.gov/medical-devices/digital-health/device-software-functions-including-mobile-medical-applications>

<https://www.healthcareitnews.com/news/guide-telehealth-vendors-age-covid-19>

Considerations

- Applications and peripherals are rapidly changing, and often need to be upgraded.
- Applications and peripherals are not always interchangeable between operating systems.
- Consider using readily available applications such as the device's camera and microphone before investigating more expensive peripherals
- Patients will need some education before they can accurately report data from many of these devices. For example, not wearing a fitness tracker correctly can over or under estimate steps and heart rate.
- Cost can be an important factor as many devices and peripherals come in a variety of price points.

Select Resources

Articles

Baxter C., Carroll JA., Keogh B., & Vandelanotte C. (2020). Assessment of mobile health apps using built-in smartphone sensors for diagnosis and treatment: Systematic survey of apps listed in international curated health app libraries. *JMIR Mhealth Uhealth*, 8 (2):e16741.

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WHO. (26 March 2018). mHealth Use of appropriate digital technologies for public health. Retrieved from https://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_20-en.pdf

Select Websites

<https://mhealthintelligence.com/tag/telehealth-tools>

<https://www.nhs.uk/apps-library/>

<http://myhealthapps.net/>

