Cardiac Wearables: Bridging Technology and Cardiac Care

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"Tell me, and I forget. Teach me, and I remember. Involve me, and I learn." —Benjamin Franklin

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No Disclosures

Objectives

- To understand indications for wearable devices in cardiac care.
- To identify limitations of wearable cardiac monitoring.
- To distinguish between the types of devices and their utility in clinical practice.

Indications for Wearable Devices

- Arrhythmias: Detecting irregular heart rhythms.
- Conduction Disease: Monitoring electrical signaling problems in the heart.
- Evaluation of Syncope: Assessing fainting or loss of consciousness.
- Lightheadedness, Chest Pain, Dyspnea: Assessing symptoms that could indicate a cardiac issue.
- Heart Rate Monitoring
- Assist in identifying chronotropic incompetence

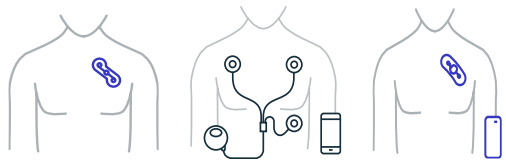
Types of Short-term Medical Grade Wearable Devices

Holter

- 24-48 hours of continuous monitoring.
- Requires patient to complete a diary.
- Requires verification of symptoms captured.
- Some devices interrupt daily routine
  -i.e. bathing, patch sensitivity, bulky batteries

Extended Medical Grade Wearable Monitors

- Longer duration compared to Holter.
- Trigger function available for symptom capture.
- Some may require maintenance or interrupt daily life



How I look after my 5th PVC notification in the middle of the night!

Other medical devices you may encounter

- **LifeVest**

Implantable Device

- **Implanted device for continuous monitoring.**
- **3-year battery life.**
- **Trigger device available for event recording.**

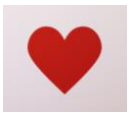
Pulse Oximetry

- **Pulse monitoring**

Blood Pressure monitors with rhythm notification

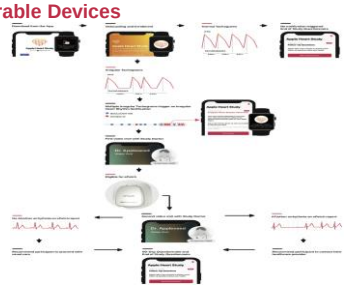
- **Pulse monitoring**
- **Rhythm notification**

Important to note inaccuracy with irregular rhythms. Best practice is to listen apically for clinical correlation. Radial pulse may not be beneficial in these rhythms either.



Commercially Wearable Devices

- **Apple Watch: ECG capabilities, heart rate monitoring, and irregular rhythm notifications.**



Commercially Wearable Devices

- **KardiaMobile: Portable ECG device for home use.**

Commercially Wearable Devices

- **Fitbit: Basic heart rate tracking, activity monitoring.**
- **Fitbit Sense: ECG**
- **Detection of Atrial Fibrillation in a Large Population Using Wearable Devices: The Fitbit Heart Study.**

Note: These devices provide valuable data for personal health but may not replace clinical-grade

Limitations of Wearable Devices

- **Infrequent Symptoms: Limited diagnostic value for patients with occasional symptoms.**
- **Poor Compliance: Issues with patients wearing the device as instructed.**
- **Poor Quality of Recordings: Inconsistent or low-quality data that might impact diagnostic accuracy.**
- **Limited Data: Devices may not provide enough data for a comprehensive clinical assessment.**

Clinical Utility and Practice

- **Wearable devices can complement traditional diagnostic tools, offering real-time data.**
- **They are especially useful in outpatient settings and for patients with intermittent symptoms.**
- **Clinical teams should be aware of the limitations of data quality and patient compliance.**
- **Integration of wearable device data with electronic health records (EHR) can enhance patient care.**

Conclusion

- **Wearable cardiac monitors offer valuable insights into heart health.**
- **Choosing the right device depends on patient symptoms, the desired monitoring duration, and clinical needs.**
- **While these devices offer convenience and continuous monitoring, there are limitations in terms of data quality and patient compliance.**
- **Further advancements and research will continue to improve their utility in clinical practice.**

Thank you!