Detecting Atrial Fibrillation Using Smartphone Technology

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What is Atrial Fibrillation

• Irregular heartbeat
• Causes atria to “quiver”
• Blood does not flow regularly through the heart, creating blood clots
• Increases patients chance of stroke

Symptoms:
• Fatigue
• “fluttering” chest
• Shortness of breath
• Weakness
• Sweating
• Chest pain
Who is at risk?

• Anyone of old age
• Patients with high blood pressure
• Patients with other forms of heart disease
• Patients with a family history of Afib
Current methods of diagnosing AFib

• Electrocardiogram (EKG)
• Stress test
• Echocardiography
• Chest X-Ray
• Blood tests
Electrocardiogram (EKG)

• Painless test that records the heart’s electrical activity
• For a common 12-lead EKG, 12 electrodes are placed on the body
• The 12 electrodes pick up the heart’s natural electric current from different angles
• The electric reading is translated to a graph, showing when our heart is beating and when it is at rest
Normal ECG

Atrial Fibrillation

https://www.myvmc.com/diseases/atrial-fibrillation-af/
Kardia

• AliveCor portable EKG
• Uses electrode sensors similar to normal EKG machines
• Sends recorded data to Kardia App
• Doctors can then read the information from the app and diagnose
• Can stick to the back of your phone for easy accessibility
Kardia vs. current methods of diagnosis

• Study in Wales compared Kardia to having patients visit a doctor as they normally would

• 1000 subjects over the age of 65 were observed over a period of one year

• Patients who used Kardia were prescribed to use it two times a week and record the results

• Patients seeing a doctor would go and proceed with the doctors instructions on when to go back
Results

• After the one year period, 20 cases of Atrial Fibrillation were detected using Kardia, while only 5 were diagnosed by visiting the doctor
Discussion

• Pros: easy to use, accurate readings, and convenience

• Cons: there is a chance of technical issues, the price depending on the patient’s insurance company can be expensive, and the chances of devices such as this becoming obsolete

• Kardia is an effective EKG device for the current time period

• Major companies such as Apple have discussed incorporating the same technology into their popular device, the apple watch
Questions?