FibScan: Ambulatory detection of Atrial Fibrillation

Basic overview
Our technology provides a portable system for detecting Atrial Fibrillation (AF) in the community. AF is the most common heart arrhythmia worldwide, affecting 0.95% of the general population. Its prevalence increases with age, reaching 9% prevalence in those aged 80 years and older. AF is often asymptomatic, however no means of testing for it currently exist, independent of the primary care setting.

This product aims to use a light based sensor that detects the heart rate signal and/or the pulse waveform and apply this to a novel algorithm for determining the presence of AF. By detecting more cases of AF, treatment rates to prevent the associated risk of stroke can be improved. As stroke is one of the greatest cost burdens on healthcare systems in the developed world, this technology has potential to substantially reduce healthcare costs.

What Problem does it Solve/Advantages
This technology provides a fast and simple route for AF screening, without the need for traditional ECG lead attachment. A simple user-interface would provide an output of the result, with additional guidance if the result is positive. Current comparable technologies focus on the use of algorithms within ECG machinery for detection, which limits its use to stationary areas, predominantly hospitals and the primary care setting. This product is novel because it allows for use within portable systems in the community, thus eliminating the need for screening via the doctor. This technology is particularly advantageous to Healthcare systems due to reduced cost burden of associated cost and to pharmaceutical companies, due to increased detection and treatment of AF.

Possible Applications
- Portable counter-top device for use in Pharmacy/Post-office/ other identified outlet frequented by target population (older persons), using a pay-as-you-go approach.
- Smartphone application incorporating novel detection technologies, for accurate detection or application incorporating information to educate the user on pulse detection for self-awareness.
- Marketable device for diagnosis in primary care setting, if detection accuracy proved greater than that of physicians.
- Of the shelf device for home based AF detection.

Current System
Patient

ECG

Time

Doctors ECG interpretation

Current detection

Proposed System
Community

FibScan

Guidance based on AF result.

Proposed Screening

Advantages of Proposed system
- Greater number of people exposed to system.
- Cost effective means of screening.
- Faster means of testing a greater number of people.
- Applicable to multitude of healthcare systems.

Technology and Patent Status
A number of technological approaches have to date been investigated, including pulse pressure, pulse oximetry, finger plethysmography and electrocardiogram signals. Algorithm accuracies using one such technology exceed 95% (both sensitivity and specificity). Patent Pending.

The opportunity
This technology is currently in development and aims to begin prototype development within the next 6 months. This product has potential for use worldwide and in a diversity of environments. Please contact us if you are interested in joining our team to extend development and commercialise this innovative and novel technology.