



**Application number/Title:** 35900 - Automated analysis of abdominal aortic calcification in DXA VFA images

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**Keywords provided by the Applicant PI to describe the research project:**  
aorta, calcification, cardiovascular, dxa, quantification, screening

**Application Lay Summary:**

Cardiovascular diseases, such as strokes and heart attacks, are among the most common causes of death in the UK. These diseases are caused by a build of fat in the walls of the blood vessels near the heart. When this fat continues to develop, calcium starts to build up as well. Calcium in the walls of the aorta, abdominal aortic calcification (AAC), can be seen on x-ray images and is an indicator of similar build-ups in smaller vessels around the heart. Dual-energy x-ray absorptiometry (DXA) images are x-ray images taken to check for bone thinning in older people, they incidentally show this AAC and can be used to measure it. This is time consuming for radiologists and so not consistently done.

This project aims to teach a computer to measure the AAC and use it to better predict who is at risk of having a heart attack or stroke so that treatment can be started earlier for these people. The computer will be tested by getting it to predict the scores that a radiologist would give for the same images. Once the computer can match the scores of a human, then it can be trained to do better than a human by testing it to predict which people have had heart attacks or strokes since the scan.