# Should We Screen For Atrial Fibrillation?

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No country has yet established a National Screening Programme (NSP) for atrial fibrillation (AF), including the UK. However, there is an increasing body of evidence suggesting screening may be beneficial, prompting recommendations from prominent expert bodies to screen for AF1. Despite these data, the UK National Screening Committee (NSC) has not recommended systematic population screening. The review in 2014 concluded ‘it is not clear that those identified as at risk through screening would benefit from early diagnosis2.’ The Committee also identified a need to improve clinical management and standardise the treatment services currently available to those with diagnosed AF. The British Cardiovascular Society issued a subsequent statement in response to the decision questioning the interpretation of the evidence and suggesting that it would be in the public interest to reconsider their decision3. A further review by the UK NSC is scheduled for 2017/2018.

## The main arguments for AF Screening

Atrial fibrillation (AF) is the most common cardiac arrhythmia, present in around 1% of the population and 5% of over 65’s4. Approximately 1 million people are affected by AF in England and Wales and data from the USA suggests the incidence may double by 20505.

The most important clinical significance of AF is the associated five-fold increase in the risk of stroke. Furthermore, AF-related strokes tend to be more severe and have higher mortality6. Treatment of AF with anticoagulation is highly effective at reducing this excess risk of stroke1. Population-based screening for AF thus has the potential for consideration as part of a public health initiative, meeting many of the National Screening Committee (NSC) criteria. It is estimated that 7,100 AF-related strokes and 2,100 AF-related deaths could be prevented annually in the UK if everyone with AF was appropriately managed7.

Several factors have led to an increased interest in AF screening8:

1. The prevalence of AF is increasing due to a combination of population ageing, changing patterns of risk factors and improved survival rates in other, contributory forms of cardiovascular disease.
2. Newer treatments are available in the form of Novel Oral Anticoagulants (NOACS) which are safer, at least as effective as the existing treatment mainstay of Vitamin K antagonists, and simpler to use (as they do not require regular blood tests).
3. A number of relatively inexpensive screening devices for detecting AF in the community have been developed and the field may evolve rapidly as new technologies and algorithms emerge.

## The main issues with AF screening

Although the case for screening is strong, there are several key outstanding issues and in particular:

* There is a lack of high quality RCT evidence that screening for silent AF in a high-risk population who may or may not be already interacting with the healthcare system saves lives or reduces morbidity. Is the risk of stroke in someone with screen detected AF the same as someone with AF detected because of clinical presentation?

Although the RCT evidence is lacking, a large UK cohort study showed that untreated incident asymptomatic atrial fibrillation resulted in a stroke rate of 4% and mortality of 7% in the first 1.5 years after diagnosis9 and these patients would not be considered low risk. Oral anticoagulant ± antiplatelet therapy received by 51% in the year following diagnosis was associated with adjusted hazard ratio of 0.35 for stroke, and 0.56 for death compared to no therapy.

* Is screening for AF cost effective? Several cost-effectiveness analyses have been published since the NSC report, which conclude that screening is cost effective. However, they relied on untested assumptions of prognosis and treatment effect in screen detected AF, and on time lag before a screen detected AF would become diagnosed without screening.
* The uptake of anticoagulation for established AF in the UK is poor. Results published in August 2014 in the first report of the Sentinel Stroke National Audit Programme (SSNAP) found that only 36% of patients with known AF admitted to hospital with a stroke were taking anticoagulants10.

Other issues that need considering include:

* Workload in general practice – this has increased significantly and thus there are concerns as to whether an AF screening programme would be sustainable11.
* Many primary care professionals cannot accurately detect atrial fibrillation on an electrocardiogram12. Diagnosis of atrial fibrillation in the community needs to factor in the reading of electrocardiograms by appropriately trained people.
* Should the screening include screening for paroxysmal atrial fibrillation (pAF)? Early results from the STROKESTOP study13 suggest that if pAF is sought, this will greatly increase the yield of screening. However, question marks remain as to whether pAF carries the same stroke risk as permanent AF14.

**Conclusions**

Before we can introduce a national screening programme, we need to know from randomised trials whether or not AF screening is effective at reducing cardiovascular morbidity and mortality. There are ongoing trials exploring this question in Sweden and the Netherlands, and more are planned. If screening is effective, there are several operational issues that need to be addressed before a national screening programme can be introduced: What is the optimal target population? What is the optimal screening technology? How best to confirm that screen positive people do have atrial fibrillation? How to ensure fully informed patient choice, both with regard to acceptance of screening, and subsequent treatment if found to have AF?

There is strong potential for public health gain in screening for AF, but as yet, the evidence base is unlikely sufficient for a national programme.

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