

# Delivering Healthy Ambitions Better for Less



## Overview.

Simple primary care measures to identify patients at high risk of stroke due to Atrial Fibrillation (AF), and their subsequent treatment with oral anticoagulation could prevent over 600 strokes in our region. Relative to the costs incurred in the first year following a stroke this has the potential to deliver savings of over £100k per PCT.

Strokes due to AF are eminently preventable. Primary care treatment with oral anticoagulants is a highly cost-effective way of reducing stroke and can reduce risk of stroke and death by up to 70%.

# Why Atrial Fibrillation?

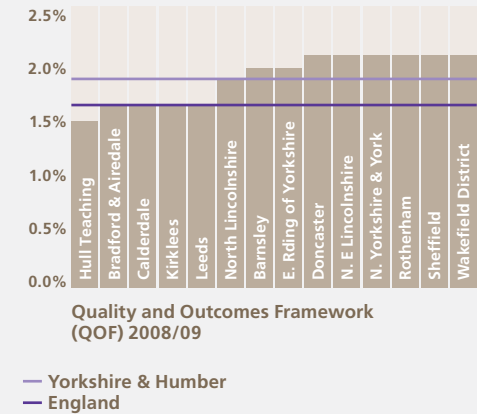
Atrial Fibrillation (AF) is a major cause of ischaemic stroke, accounting for approximately 14% of all strokes. People suffering from an ischaemic stroke who are also in atrial fibrillation suffer larger strokes associated with more disability in the acute phase, a higher level of mortality and significantly more on-going disability. They require more rehabilitation and one in two will be discharged to ongoing care or rehabilitation.

In 2009/10 a total of 7,222 patients had a stroke across the region of these (14%) 1,011 strokes are thought to be directly attributable to AF.

AF is the most common sustained heart arrhythmia with a prevalence rate of 1.2%, which equates to approximately 64,200 patients across Yorkshire and the Humber. It occurs as a result of uncoordinated electrical activity within the heart's upper chambers and results in irregular rhythm. The failure of appropriate contraction of the atria, in addition to changes in the structure of the atria and the composition of blood predisposes to clot formation which can then embolise from the heart to cause a stroke.

Preventing strokes is a major priority area for the NHS. The National Stroke Strategy puts forward a 10-point plan, with stroke prevention featuring high on the list. Healthy Ambitions identified stroke as "an area of concern" a significant number of PCTs within the region diagnose more strokes than the national average. There is also large variation in prevalence rates across the region from 1.5% in Hull to 2.1% in almost half of the region's PCTs. The average prevalence rate for Yorkshire and the Humber is 1.9%, compared to the national average of 1.7%.

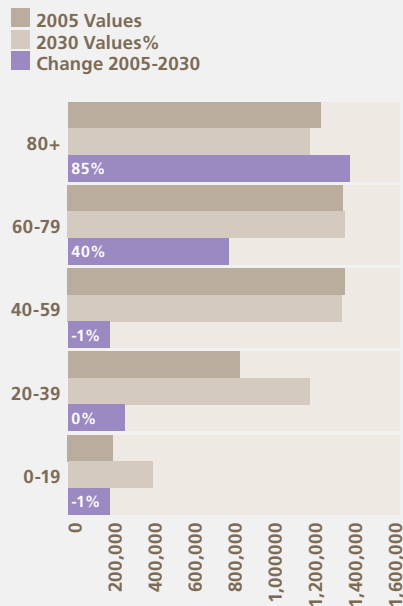
**Figure 1.**  
Stroke Prevalence rates by PCT 2008/09



## What is the challenge?

Evidence suggests that AF gets more common and the risk of AF associated stroke increases as people age. In later life AF becomes a more significant risk factor for stroke as compared to hypertension, heart failure or diabetes. There is major change predicted in the demographics across the Yorkshire and Humber region, by 2030 it is predicted that the number of over 60-79 year olds is set to increase by 40% and the number of over 80s is expected to increase by over 80%.

**Figure 2.**  
Changes in population by age group in Yorkshire & Humber

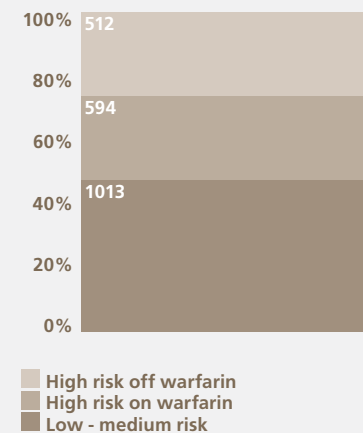


Source: University of Leeds, Yorkshire & Humber 2030 population projections: age and ethnicity, Yorkshire Futures, 2006.

Based on these predictions and current prevalence rates, the numbers of people with AF across the region by 2030 would be over 74,000 and the number of AF-related strokes (assuming current incidence rates) would equate to 1,168 strokes.

The National Institute for Health and Clinical Excellence (NICE) estimates that 46% of patients that should be on oral anticoagulation are not receiving it and only 24% of stroke patients with AF were discharged from hospital with this treatment. Similar findings were reported following an audit conducted in Leeds across 151,000 patients in primary care which highlighted that 44% of patients deemed at high risk of stroke and with AF were not receiving oral anticoagulation.

**Figure 3.**  
Primary Care Audit of 2,119 patients with AF



Source: NHS Improvement 2009 – Commissioning for Stroke Prevention in Primary Care – The role of Atrial Fibrillation

## How could we provide better care for less?

Reducing the number of strokes through better detection and treatment of AF in primary care requires a coordinated approach across general practice, PBCs and PCTs. The areas to focus on are:

1. Diagnosing people with AF
2. Stratifying the risk of stroke and the potential risk of therapy
3. Ensuring that those patients for whom anticoagulation therapy is appropriate receive treatment and that people identified with AF have ongoing risk assessments to ensure that any change in risk of stroke or bleeding is reflected in their therapy choices.

### 1. Diagnosing people with AF

In many patients AF does not cause overt symptoms and only comes to light after a pulse or ECG is recorded incidentally. Opportunistic screening for AF in primary care is thought to be a cost-effective approach and could be delivered by simply placing a flag on the general practice database highlighting patients who require a pulse taking on attendance at their next appointment. Alternatively assessing a patient's pulse on attendance at a flu vaccination clinic has also been shown to be an effective approach.

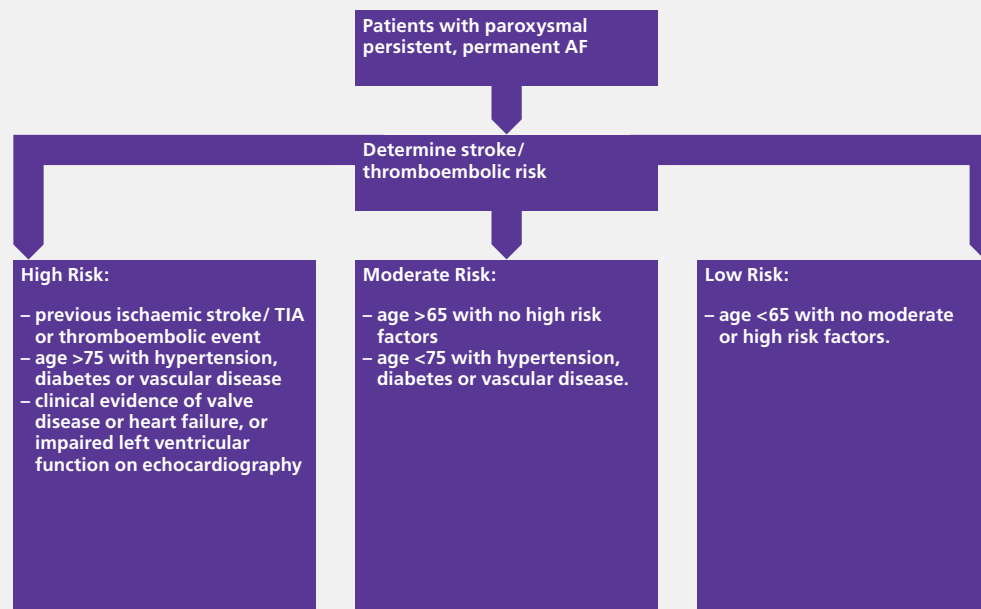
An example of this approach is through the screening project undertaken by the Bedfordshire and Hertfordshire heart and stroke network, the network worked with PCTs to develop a local enhanced service (LES) to encourage wider uptake of opportunistic screening at flu vaccination clinics. A total of 23 practices used the LES with 6000 patients screened resulting in 122 new patients being added to the AF register.

### 2. Stratifying the risk of stroke and the potential risk of therapy

A number of factors are associated with an increased risk of stroke. NICE identified independent risk factors as:

- A history of previous stroke or TIA
- Being elderly (age over 75)
- Structural heart disease
- Hypertension
- Previous myocardial infarction.

**Figure 4.**  
NICE algorithm to identify stroke risk as low, intermediate or high



Source: National Institute for Health and Clinical Excellence (2006), Atrial Fibrillation; the management of atrial fibrillation. London. NICE [www.nice.org.uk/CG036](http://www.nice.org.uk/CG036). Reproduced with permission.

Warfarin is recommended for high risk individuals and aspirin for low risk, with either being appropriate for intermediate risk.

An alternative approach for assessment of risk is based on a simple clinical risk score known as the CHADS<sub>2</sub> score.

Congestive heart failure	1
History of hypertension	1
Age >75	1
Diabetes	1
Stroke/ TIA	2
<b>Warfarin indicated when CHADS<sub>2</sub> score ≥2</b>	

A CHADS<sub>2</sub> score of two or more approximates to the high risk group in the NICE algorithm and can be regarded as an indication for Warfarin.

A database interrogation tool, Guidance on Risk Assessment and Stroke Prevention in Atrial Fibrillation (GRASP-AF) has been developed by the West Yorkshire Cardiac and Stroke Network to aid identification of patients already known to have AF who are at increased risk of stroke and not on Warfarin.

The tool is compatible with all major primary care databases and runs a search on a practice's clinical system to identify patients with AF and calculates their CHADS<sub>2</sub> score producing an Excel spreadsheet with information on all patients deemed as high risk and not on Warfarin. The tool is available to use free of charge and can be accessed at [www.improvement.nhs.uk/stroke](http://www.improvement.nhs.uk/stroke)

### 3. Ensuring patients receive oral anticoagulation and on-going risk assessment

People with atrial fibrillation whether paroxysmal, persistent or permanent have an increased risk of stroke. This risk is present whether the atrial fibrillation is symptomatic or not and is persistent despite a return to normal sinus rhythm by cardioversion or ablation. However less than 40% of people who would benefit from therapy as suggested by the risk stratification tools discussed above are currently receiving it. This is because the decision to commence oral anticoagulants is complex with the need to balance the risks and benefits, the relationship with the patient and the perceived responsibility of the clinician.

The recent European Society of Cardiology (ESC) guidance demonstrates the clear benefits of oral anticoagulant therapy over anti-platelet agents such as aspirin. The ESC guidance refers to the HAS-BLED score as a method to stratify people as regards their potential to bleed. A HAS-BLED score of greater than 3 would suggest that more supervision of the patient is required. However, a higher HAS-BLED score should not preclude a patient from receiving anticoagulants.

The cardiovascular networks and the Atrial Fibrillation Association have produced a number of support documents which can be used to help patients balance the risks and benefits of oral anticoagulation. The support material can be found at [www.atrialfibrillation.org.uk](http://www.atrialfibrillation.org.uk).

## Financial benefits

In England, stroke is estimated to cost the economy around £7 billion per year. This comprises direct costs to the NHS of £2.8 billion, costs of informal care (costs of home nursing and care borne by patient's families) of £2.4 billion and costs because of lost productivity and disability of £1.8 billion.

The management of patients with AF and associated high risk of stroke with oral anticoagulation such as Warfarin is a highly cost effective way of reducing stroke. NICE estimates the total cost of maintaining a patient on Warfarin for one year, including monitoring is £383.

The number of patients needed to treat (NNT) for one year to prevent one stroke in a mixed population comprising primary and secondary prevention patients is 25. Based on these figures and the cost of one year's anti-coagulant therapy, the cost of preventing one stroke is estimated at £9,575.

An audit of primary care patients with AF found that 52% of patients were classified as at high risk of stroke. Based on AF prevalence rates of 1.2% this equates to 33,387 individuals across the region. Increasing Warfarin prescribing to cover the 46% of people currently considered eligible but not in receipt has the potential to avert 614 strokes in Yorkshire & the Humber.

The cost of treating one patient in the first year after suffering a stroke is estimated at £11,900. Accounting for the costs of prescribing Warfarin to avoid one stroke (£9,575), the potential savings per PCT from this intervention are approximately £100,000, a total saving of approximately £1.4m for the region.

**Figure 5.**  
Estimated cost impact of increased Warfarin prescribing

PCT	Saving from strokes averted (£000)	Cost of prescribing Warfarin (£000)	Net savings (£000)
Barnsley	323	260	63
Bradford & Airedale Teaching	712	573	139
Calderdale	282	227	55
Doncaster	411	331	80
East Riding of Yorkshire	435	350	85
Hull Teaching	397	319	77
Kirklees	548	441	107
Leeds	1,094	880	214
North East Lincolnshire Care Trust Plus	228	183	45
North Lincolnshire	224	181	44
North Yorkshire & York	1,104	888	216
Rotherham	341	274	67
Sheffield	745	600	146
Wakefield District	467	375	91
<b>Yorkshire &amp; the Humber</b>	<b>7,310</b>	<b>5,882</b>	<b>1,428</b>

## Key Facts

1. Atrial fibrillation prevalence rates in primary care is 1.2% and affects approximately 62,200 patients across the region.
2. The annual risk of stroke is five to six times greater in AF patients 1,011 strokes per year in the region are thought to be directly attributable to AF.
3. The treatment of AF with oral anticoagulation reduces the risk of stroke by up to 70% and could prevent 614 strokes.
4. The estimated total cost of maintaining one patient on anticoagulation therapy (Warfarin) for one year, including monitoring, is £383 with a NNT of 25 this equates to a total cost of £9,575 to avoid one stroke.
5. The cost saving as a result of preventing one stroke is £11,900 accounting for costs of prescribing and monitoring Warfarin the total potential savings as a result of avoided stroke across the region equates to £1.4m.

# References

Quality and Outcomes Framework (QOF) 2008/09

University of Leeds, Yorkshire & the Humber 2030 population projections: age and ethnicity, Yorkshire Futures 2006

NHS Improvement 2009 – Commissioning for Stroke Prevention in Primary Care – The role of Arterial Fibrillation.  
[www.improvement.nhs.uk](http://www.improvement.nhs.uk)

NHS Improvement – Guidance on Risk Assessment and Stroke Prevention for Atrial Fibrillation (GRASP – AF).  
[www.improvement.nhs.uk/graspaf/](http://www.improvement.nhs.uk/graspaf/)

National Institute for Health and Clinical Excellence (2006) Atrial Fibrillation; the management of atrial fibrillation; London NICE. [www.nice.org.uk/CG036](http://www.nice.org.uk/CG036)

Boehringer Ingelheim, Preventing Stroke, Special Report Health Service Journal Supplement (June 2010). [www.hsj.co.uk](http://www.hsj.co.uk)

European Society of Cardiology, Guidelines for the management of atrial fibrillation (2010)

# Contacts

## Clinical

Matt Fay  
GP and National Clinical Lead  
Stroke Improvement Programme  
[matthew.fay@bradford.nhs.uk](mailto:matthew.fay@bradford.nhs.uk)

Campbell Cowan  
Consultant Cardiologist and National  
Clinical Lead NHS Heart Improvement  
Programme Stroke and Arrhythmia  
[campbell.cowan@leedsth.nhs.uk](mailto:campbell.cowan@leedsth.nhs.uk)

## Cardiovascular Network

Adele Graham  
Network Development Manager  
West Yorkshire Cardiovascular Network  
[adele.graham@bradford.nhs.uk](mailto:adele.graham@bradford.nhs.uk)

## Strategy

Sajid Azeb  
NHS Yorkshire and the Humber  
[sajid.azeb@yorksandhumber.nhs.uk](mailto:sajid.azeb@yorksandhumber.nhs.uk)

## Economic modelling

Helen Mercer  
NHS Yorkshire and the Humber  
[helen.mercer@yorksandhumber.nhs.uk](mailto:helen.mercer@yorksandhumber.nhs.uk)

## Better for Less briefings

All NHS Yorkshire and the Humber Better  
for Less briefings are available from:

[www.healthyambitions.co.uk/betterforless](http://www.healthyambitions.co.uk/betterforless)