The SOS-AF Service

Implementation of a Secondary Care Service for Screening, Optimisation and Support for Stroke Prevention in Atrial Fibrillation

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AF & risk of stroke

- AF results in a *fivefold* increase in the risk of stroke

- 20 - 25% of all strokes are caused by AF

- Average age of stroke patients: 82 (10 years ago was 75)

- Age >80: 30-40% of strokes are cardioembolic
AF & risk of stroke

All ischaemic strokes in CUH between 1 Oct 2017 till 30 Sept 2018 (from SSNAP database):

Total ischaemic strokes: 632 (not including haemorrhagic strokes)

Known AF: 136

Known AF not on anticoagulation at the time of admission: 48%

New AF: 41

Total strokes secondary to AF: 177 (28%)
AF-induced stroke

AF-induced stroke is typically more severe than stroke caused by other aetiologies in all age groups.

AF doubles the severity of stroke.
AF: The silent epidemic

AF affects nearly 2% of the population, a number that is rising fast.
What can we do about AF epidemic?

• Screen for AF

• Assess the risk of stroke

• Reduce the risk of stroke
Figure 3. Diagrammatic representation of key points on screening.

Enrichment is the use of additional risk factors or biomarkers to either increase the proportion with unknown AF in the screened population or increase the risk of stroke in those with AF detected by screening in that population. Patients who are undertreated are patients with known AF who are not receiving oral anticoagulant according to guidelines. (see page 1859 section, Screening for Undiagnosed Known AF). Although this is not strictly speaking screening, such patients will be detected by population screen.
Launch of AF White Paper
Professor A. John Camm & Ed Harding

Professor Camm announced the launch of the “White Paper on inequalities and unmet needs in the detection of atrial fibrillation (AF) and use of therapies to prevent AF-related stroke in Europe”, and handed over to Ed Harding, Health Policy Network, who co-ordinated the content for the White Paper to highlight its four critical recommendations:

Recommendation 1: Build awareness and understanding of AF. Public awareness of AF as a cause of stroke is worryingly low and comes at a high price. We need population-wide information campaigns with simple, targeted messages to address this. This should cover AF as a common cardiac condition, the link between heart conditions such as AF and stroke, and the importance of effective therapy in dramatically reducing stroke risk in people with AF. People diagnosed with AF should receive therapeutic education to build their knowledge of the condition and be involved in shared decision-making with healthcare professionals.

Recommendation 2: Increase opportunistic detection of AF among high-risk groups. Too many cases of AF are undetected, and all too often AF is diagnosed too late, for example following a stroke. Pulse rhythm checks are recommended by European Society of Cardiology guidelines as a quick, affordable and proven method to test for AF when followed by an electrocardiogram for confirmation. Pulse rhythm checks can be performed opportunistically (e.g. during a routine health check), as well as in almost any community or social setting. Yet it is rare for them to be recommended by national guidelines, and adoption in everyday practice is highly variable.

Recommendation 3: Increase knowledge and skills of healthcare professionals. Awareness of AF as a stroke risk factor and effective knowledge of first-line therapies for stroke prevention in AF are often inadequate outside of specialist cardiology settings. A wider range of healthcare professionals (e.g. GPs) must therefore be ready to play a key role in identifying AF and overseeing AF-related stroke prevention. To help achieve this, we must develop tailored guidelines for non-specialists, such as GPs, internists and nurses, and embed simple practices in everyday care.

Recommendation 4: Ensure policy leadership to drive equitable access to best practice. We must ensure local and national policies are in place to tackle the structural barriers behind persistent inequalities in the detection of AF and access to first-line therapies for AF-related stroke. To achieve this, we must also raise awareness and understanding of AF among decision-makers at all levels of the health system including administrators, managers and payers.
Screening in higher risk population – NICE recommendation


National Screening Committee (NSC) did not recommend population screening.

Evidence from a systematic review indicates that case detection in high risk AF patients, using an opportunistic approach, is as effective as population screening but at a significantly lower cost.

Topic experts and NSC feedback indicated that a new question in the guideline could be appropriate to include multiple components. These include:

- Targeting at risk individuals with other pathologies predisposing to AF, such as related cardiovascular conditions.

- The optimal means of detection including new technological developments, such as through pulse rhythm checks and with the use of the new handheld ECG monitors.

www.nice.org.uk/guidance/cg180
Screening for AF

• Targeted high risk groups:
  - Patients with stroke
  - Medical inpatients

• Larger-scale screening in population
  - ? Selected higher risk groups
Screening for AF after an ischaemic stroke

Find-AF Study

- Acute ischaemic stroke within 7 days, age 60 yr or older
- Randomised in a 1:1 ratio to prolonged monitoring (i.e., 10-day Holter-ECG at baseline, and at 3 months and 6 months of follow-up) or standard care (i.e., at least 24 h monitoring)
- After 6 months:
  - Prolonged monitoring group: 27 of 200 patients (14%)
  - Control group: 9 of 198 patients (5%), absolute difference 9·0%; p=0·002; number needed to screen 11

EMBRACE Study:

- Patients 55 or older, recent cryptogenic stroke or TIA, noninvasive ambulatory ECG 30 days
- AF 30 seconds or longer detected in 45 of 280 patients (16.1%) in the intervention group, as compared with 9 of 277 (3.2%) in control group (absolute difference 12.9 percentage points; 95% CI, 8.0 to 17.6; P<0.001; number needed to screen, 8)

CRYSTAL-AF Study:

- 441 patients, 40 years of age or older
- By 6 months, AF detected in 8.9% of patients in the ILR group (19 patients) versus 1.4% of the control group (3 patients) (hazard ratio, 6.4; 95% CI, 1.9 to 21.7; P<0.001)

Wachter et al Lancet Neurol 2017
Screening for AF after an ischaemic stroke

- Cardiac monitoring on HASU: 24-72 hours
- Interrogation of PPM
- OP Holter: 24 h, 48 h, 72 h or longer
- Ambulatory AF detection devices, such as Zio patch (2 weeks)
- ILR
Screening for AF

• Targeted high risk groups:
  - Patients with stroke
  - Medical inpatients

• Large-scale screening in general population
  - Selected higher risk groups
Burden of AF in medical admissions

Literature:

• Lip et al: Treatment of AF in a district general hospital
  Glasgow, 1994
  2686 patients emergency admissions over 6 months: 170 AF cases (6%)
  Mean age 73.5

• Zarifis et al: Acute admissions with AF in a British multiracial hospital population
  Birmingham, 1997:
  Prospective survey of all acute medical admissions over 6 months: 7451 admissions,
  245 had AF (3%)
  Mean age 74.4

Lip et al. Brit Heart J. 1994
Burden of AF in medical admissions

The increasing burden of atrial fibrillation in acute medical admissions, an opportunity to optimise stroke prevention

I Induruwa¹, E Amis², N Hannon³, K Khadjooi⁴

Abstract

Background Atrial fibrillation is a major risk factor for ischaemic stroke. We investigated whether active screening for atrial fibrillation in secondary care, followed by careful evaluation of risk factors and communication to general practitioners from stroke specialists, could increase appropriate anticoagulation prescription.

Methods Between 1/9/14 and 28/2/15 all acute medical admissions were screened for atrial fibrillation at Cambridge University Hospital. Individualised letters were sent to the general practitioners of patients who it was felt would benefit from anticoagulation.

Results In total, 847 patients with atrial fibrillation (15% prevalence, 52% female, median age 81.9 years, median CHADS²-VASc 4.4) were identified; 671 (79.2%) had known atrial fibrillation, and 176 (20.8%) were diagnosed on admission. After screening and identifying ‘at risk’ patients, 112 individualised letters were sent to GPs. A 91% response rate was achieved, resulting in an additional 43 individuals being appropriately anticoagulated.

Conclusions Atrial fibrillation prevalence is significantly increasing among acute hospital admissions; these patients have high risk of cardioembolic stroke. Careful screening and identification in secondary care can lead to improved rates of anticoagulation.

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Burden of AF in medical admissions

• Screened all acute medical admissions to CUH for AF Sept 2014 - Feb 2015

• Total of 5700 patients screened: 847 identified with AF

• Median age: 81.9

• Existing AF: 671 (79.2%)

• New AF: 176 (20.8%)

• Median CHA2DS2-VASc score: 4.4

• Only 6 (0.7%) had CHA2DS2-VASc score of 0

Induruwa et al, J RCP Edinburgh 2018
Burden of AF in medical admissions

- Known AF: 56% were on OAC on admission
  
  Our work in 2012-13 revealed local AF-anticoagulation rates of ~50%

- Of the remaining 44% not on OAC on admission and excluding those who died: 78% (192) were discharged without initiation of OAC

- Only 42% of newly diagnosed AF were started on OAC prior to discharge

- GPs needed support with complex anticoagulation decisions and were responsive to stroke specialist recommendations (91% GP response rate, an additional 43 patients anticoagulated).

Induruwa et al, J RCP Edinburgh 2018
Burden of AF in medical admissions

• The burden of AF is growing rapidly in patients admitted acutely to secondary care:
  15% of acute medical admissions to CUH in 2014-2015 had AF

• A stark contrast to previous estimates of burden of AF on acute admissions: ~3-6%

• On average, at least 1 new AF/ day diagnosed in our medical inpatients: 365 per yr

• Patients admitted to hospitals: older, multiple comorbidities, at very high risk of
  ischaemic stroke (median CHA₂DS₂-VASc score of 4.4)

Induruwa et al, J RCP Edinburgh 2018

SOS-AF Service - June 2019 - KK
Screening for AF in medical admissions

Screening & Optimising Stroke Prevention in AF Service (SOS-AF) at CUH:

- Active screening for AF in acute medical admissions
- Risk stratification, balancing benefits and risks and starting anticoagulation
- Advice and support for patients, enabling informed decision-making
- Support for secondary care and primary care for challenging cases
- Patient and colleague education
SOS-AF service at CUH

• Started in October 2017

• 2 specialist nurses, supported by Stroke Physicians

• Systematic screening of all acute medical admissions for AF using electronic notes and admission 12-lead ECG

• Holistic risk-assessment of individual’s suitability for anticoagulation, coordinate with medical teams and patients to ensure those appropriate receive anticoagulation without delay

• The service accepts referrals primary and secondary care, seen either in a 2-weekly outpatient clinic or discussed at MDT meeting

• Database updated daily: continuous audit and evaluation
SOS-AF service at CUH

Patient engagement and education events:

- Patient education day
- 2 AF-awareness public engagement events at CUH
- GP education sessions

All with excellent feedback
SOS-AF service at CUH

In the first 12 months, 14920 medical admissions have been screened:

- 402 new AF cases identified
- Total AF (new and old): 3300
  The burden of AF in CUH acute medical admissions has risen further to 22.1% (from 15% in 2015)
- Known AF on OAC on admission: 65%
- We advised medical team/GPs on 628 occasions with regards to consideration of starting/re-starting anticoagulation or changing to appropriate dose
- Medical teams followed our advice on 83% of occasions
- We advised medical teams/GPs not to anticoagulate 158 patients, where the risks outweigh the benefits, with clear documentation for future guidance
SOS-AF service at CUH

• Total number initiated on appropriate stroke prevention following our advice: 401 patients

• Total number of potentially devastating strokes prevented in 12 months: 16

• Based on conservative estimates in general population, 25 patients need to be anticoagulated to prevent 1 stroke, but patients in secondary care are at much higher risk than general population.
SOS-AF service at CUH

- Median length of stay of a cardioembolic stroke in CUH: 15.9 days

- Preventing 16 cardioembolic strokes: reducing 254 bed days annually, a saving to the Trust of £89,000

- Direct savings to the NHS and wider social care costs: approximately £350,000 in the first-year post-stroke

Calculations based on preventing 16 strokes at £13,340 direct NHS costs and £8,503 additional social care costs per patient/1-year (SSNAP data). These figures do not take into account savings on long-term effects of large AF-related strokes (psychosocial, loss of income, effects on families, etc.)
Conclusion

SOS-AF service delivers:

• Cost-effective screening: all medical inpatients have an ECG

• Targets a high-risk population: secondary care medical patients are older, multiple comorbidities, at very high risk of ischaemic stroke (median CHA₂DS₂-VASc score of 4.4)

• Provides specialist advice to primary and secondary care

• Provides individualised patient care and education using multidisciplinary expertise

• Significant financial savings to the health economy: preventing 16 cardioembolic strokes
Conclusion

The burden of AF on medical inpatients has increased considerably: 22.1%

Secondary care must play a more active role in stroke prevention in AF.
Any Questions?