We are very pleased to provide this foreword to the AF Association - Healthcare Pioneers Report - Showcasing Best Practice in Atrial Fibrillation (AF).

AF (atrial fibrillation) is the most common arrhythmia or heart rhythm disorder. About 2% of the general population have atrial fibrillation, and at least one in four adults over 40 years old will develop this problem before we die. It may cause distressing symptoms or remain silent; the patient being completely unaware of the potentially dangerous arrhythmia that has developed. Irrespective of symptoms, AF is associated with severe complications unless it is managed and treated expertly. AF-related stroke, sudden death, heart failure, dementia and frequent hospital admissions are all much more common in patients with poorly managed and untreated AF. Correct and expert treatment reduces these complications, almost back to the status of patients who have normal heart rhythm. It is therefore vital that all patients with AF are identified as early as possible after the arrhythmia begins, and that those with AF are actively and expertly assessed so that valuable anticoagulation therapy and treatment can begin as soon as possible.

AF Association was established specifically to help patients and their families or carers to understand the disorder and to obtain the best expert advice. There are many effective therapies and treatments available, but some of the older approaches to this arrhythmia are completely out of date and do not help the patient much. Because these older treatments are still in use in some places, and because the pace of change is so rapid in this field of medicine, the AF Association set up an award for Healthcare Pioneers working in this field. The idea is to identify innovative and helpful advances in the way in which diagnosis, anticoagulation therapy and treatment for AF has been established in leading centres.

These ideas can then be reported and made available as models on which other centres can develop the way that care is provided in their hospitals and practices.

The AF Association – Healthcare Pioneers Report 2018 includes 38 articles describing ways of finding patients with undiagnosed AF using, for example smartphones or simple pulse checks, methods to ensure that adequate assessment is undertaken to define underlying causes and potential complications, treatment techniques involving antiarrhythmic drugs to suppress the development of AF, anticoagulant drug therapy to prevent AF-related stroke, left atrial ablation (a technique to try and prevent further attacks of AF), and more. Many of these innovative ideas have been developed by enthusiastic teams who have been eager to offer the best possible service to their patients with this arrhythmia. We are publishing them now for others to read about these very good ideas and implement those that will improve their own service.

We would like to take this opportunity of thanking all those who submitted the case studies and to the 38 winners demonstrating outstanding good practice and development of AF services to improve patient outcomes and quality of life.

Applications for the AF Association - Healthcare Pioneers Report 2019 will open in March 2018. We encourage all to share examples of best practice. For more details about how to enter, please go onto our website www.afa.org.uk.
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FORMATION OF AF-SCREEN INTERNATIONAL COLLABORATION, AND ITS FIRST TWO YEARS: DETECT, PROTECT

Professor Ben Freedman (on behalf of the steering committee of AF-SCREEN)

AF-SCREEN INTERNATIONAL COLLABORATION

BACKGROUND: The background for the formation of AF-SCREEN borrows heavily on the first 2 words included in the campaign of AF Association/Arrhythmia Alliance: Detect, Protect, Correct. The essential motivation for many of those who joined AF-SCREEN was seeing so many potentially preventable severe AF-related strokes. The latest registry data indicates that approximately 10% of all ischemic strokes occur in patients with AF diagnosed first at the time of stroke. Because silent asymptomatic AF is common, it is intuitive to believe that finding it and treating it before stroke happens could make major inroads into stroke prevention (Detect). That is made possible because AF-related stroke is largely preventable by appropriate anticoagulant treatment, with an almost 2/3 reduction in stroke rate (Protect). Unfortunately, many people with AF do not receive appropriate anticoagulation, so that approximately 20% of all ischemic strokes occur in patients with known AF who are not receiving anticoagulant therapy according to AF guidelines. Thus the aim of AF-SCREEN has been to advocate for “Detect and Protect,” i.e. screening for ‘actionable AF.’

DESCRIPTION OF SERVICE: The aims of this collaborative group as stated on the website (http://www.afscreen.org/) are “to promote discussion and research about screening for unknown or under-treated atrial fibrillation as a way to reduce stroke and death.” “We will provide advocacy for implementation of AF screening programs, tailored to the medical systems of individual countries. Our efforts will include the role of AF detection technologies, implementation in health systems for AF screening, and the role of oral anticoagulant therapy to prevent stroke in individuals found to have previously unknown AF.”

OUTCOMES: A major early success was to have a symposium on screening for AF sponsored by the Arrhythmia Alliance at the Heart Rhythm Congress in Birmingham in October 2016. Following closely on this meeting, the AHA agreed to have a joint symposium of AF-SCREEN and the American Heart Association at its Annual Scientific Sessions in New Orleans in November 2016. This symposium was well attended and received. This led to a request to have a follow-up joint symposium with the American Heart Association at its next meeting in November 2017 in Anaheim, and illustrates that the group and its activities are gaining traction. At the ESC conference in 2017, as well as many significant presentations in symposia and poster sessions, for the first time there will be two presentations of studies on AF screening in hotline sessions of late breaking trials, and late breaking registries respectively, both from members of AF-SCREEN.

Probably the most significant outcome was publication in the 9th May 2017 issue of Circulation, of the AF-SCREEN collaboration white paper on Screening for AF. Circulation is the premier cardiovascular journal of the American Heart Association. The key points agreed by members at and following the Rome meeting, were highlighted in the white paper. This document will become a reference point for all groups advocating screening for AF followed by effective treatment for untreated AF to prevent AF-related stroke. Figure 1 illustrating the key points summarized in the Circulation white paper is attached. It will be very influential for patient groups like AF Association/Arrhythmia Alliance and StopAfib.org, as well as major medical groupings in their efforts to recommend opportunistic screening to detect unknown AF. The final key point in the white paper was “There is a need to perform large randomized controlled studies using hard endpoints (including stroke/systemic embolism and death), of strategies for screening, to strengthen the evidence base to inform guidelines and national systematic screening strategies.” This will be the main issue discussed at the 2nd AF-SCREEN meeting to be held in Barcelona, immediately preceding the 2017 ESC meeting.

CONCLUSION: The work of AF-SCREEN has focused the efforts of key people who may be able to change practice globally, through discussion and research aimed to develop the evidence required for widespread adoption of the “Detect and Protect” mission of the AF Association/Arrhythmia Alliance to reduce the suffering that results from AF-related stroke.
Figure 1

Whom to screen

- People aged >65
- Patients with AF who are undertreated

Where to screen

- Non-medical healthcare practitioners, pharmacy
- General population, various venues
- Patient-activated devices: BP/PPG
- Opportunistic pulse then ECG
- Single time point: single-lead ECG
- External long-term +/- enrichment
- Implanted devices with enrichment
- Patient activated ECG (2 week) > 75 or younger if high risk
- Primary care or Specialist clinics (country specific)
- Post-stroke ESUS: long-term continuous

How to screen

Special cases

AF-SCREEN preferred
Possible with further data
Currently too expensive at scale
Wider changes have been identified following a formal evaluation:

- Increased shared decision making with patients using online toolkits
- Increased prescribing confidence amongst GPs
- Upskilling of other healthcare professionals
- Design and implementation of wider Quality Improvement strategies

Additionally, DWAC received very positive feedback regarding Patient and Public Involvement - an integral element of the project design.

**Other outputs included:**

- Clinical skills training for GPs and practice staff
- Establishment of a clearly articulated AF treatment pathway within each practice
- QI training to sustain and continually upgrade the approach
- A website containing toolkits for use by clinicians and patients - http://www.dontwaittoanticoagulate.com/
- Coaching and support for GP practice staff

Most recently the approach has been implemented across 48 GP practices in Bristol revealing 724 patients reviewed, 134 starting anticoagulation treatment, with an estimated 6 AF-related strokes saved.
ADVANCING ATRIAL FIBRILLATION DIAGNOSIS AND MANAGEMENT IN EAST MIDLANDS

Martin Cassidy and Dr Yassir Javaid
EAST MIDLANDS CARDIOVASCULAR CLINICAL NETWORK, UK

INTRODUCTION: Since April 2013, East Midlands Cardiovascular Clinical Network has been working with the 19 Clinical Commissioning Groups in East Midlands to support them to improve the diagnosis and management of atrial fibrillation and implement an effective AF-related stroke prevention pathway.

AF ADVANCE QUALITY IMPROVEMENT PROGRAMME:
The Clinical Network has worked with CCGs to support GP practices to implement a quality improvement programme with the following key elements:

• Ambassador - funding of clinical ambassador (GP champion) roles within each CCG and GP practice to enable them to take a leadership role in driving improvements.

• Diagnosis - improving clinical expertise in AF diagnosis and management through funding of GP and nurse upskilling which has motivated clinicians to undertake opportunistic case finding.

• Variation - production of AF infographics highlighting variation within CCGs and individual practices in AF diagnosis and management making a compelling case for action.

• Audit and Action Planning - supporting GP practices to use Grasp AF tool to inform Action Plans and re-audit to review changes and improvements made.

• Normalise - anticoagulation as the default treatment by funding GP upskilling to ensure clinicians have the knowledge and confidence to deliver evidence based AF care.

• Clinical Template - supporting use of an evidence based AF clinical template by GP practices which supports delivery of on-going best practice care.

• Evaluate - improvements in care through re-audit at GP practice and CCG levels and across East Midlands.

RESULTS AND CONCLUSIONS: The AF Advance Programme has delivered the following improvements in East Midlands:

• Percentage of high risk AF patients on anticoagulation treatment increased from 64.3% in March 2013 (below England average: 65.1%) to 80.3% in March 2016 (above England average: 77.9%)

• East Midlands has 3 of the top 10 CCGs and 7 of the top 20 performing CCGs in England in anticoagulation treatment

• 11,857 additional people diagnosed with AF. AF prevalence increased from 1.58% to 1.79% (13% increase)

• 29,331 additional high risk AF patients are on anticoagulation medication compared to March 2013 (+ 111%)

• This will prevent an estimated 793 strokes, 264 deaths and £1.89m admission costs avoided per year

CURRENT QUALITY IMPROVEMENT WORK IN ATRIAL FIBRILLATION WITHIN EAST MIDLANDS IN 2017-18:

East Midlands Clinical Network are working jointly with East Midlands Academic Health Science Network, Public Health England, Health Education East Midlands, Arrhythmia Alliance, AF Association & British Heart Foundation to further support CCGs in 2017-18 in stroke prevention in AF:

• Providing tailored support to the 6 CCGs in East Midlands with the lowest anticoagulation treatment rates to help them achieve anticoagulation uptake of 85% by March 2018.

• Increase AF diagnosis by 10% by March 2018 in 8 CCGs through the effective deployment of 520 Alivecor Kardia mobile ECG devices.
FOOT PULSE CHECKS IN PATIENTS WITH DIABETES IDENTIFIES NEW AF CASES

Kate Mackay and Linda Hicks
COUNTY DURHAM & DARLINGTON FT PODIATRY DEPT. UK

INTRODUCTION: In the North East and North Cumbria region 76,800 people are estimated to be living with AF, with approximately 25,600 of those currently undetected. The Academic Health Science Network for the North East and North Cumbria (AHSN-NENC), in conjunction with the Northern England Clinical Networks, is running an AF programme which aims to reduce the number of AF-related strokes and deaths in the region by treating AF as early as possible.

Patients with diabetes undergo an annual review. This includes a foot check where pulses are assessed. Therefore any patient with an irregular pulse can be detected as part of the review process.

OUTLINE OF SERVICE: County Durham and Darlington Foundation Trust Podiatry Department (covering North Durham CCG, Darlington CCG and Durham Dales Easington and Sedgefield CCG areas) were interested to run a pilot project examining how many patients with previously unknown AF could be detected in the diabetes foot check. The pilot project ran for 3 months, from 1st January 2016 – 31st March 2016. The team of 45 podiatrists were trained prior to the project starting and continue to have updates.

CARE PATHWAY AND/OR TREATMENT: Any patients detected with an irregular pulse, detected by podiatrists, were referred back to their GP for a 12-lead ECG to confirm or rule-out AF.

RESULTS: 5,000 patients had their feet checked within the 3 month period. Ten patients were identified with previously unknown AF.

CONCLUSION: Extrapolating figures from 3 months to 12 months indicates that 40 new patients with AF could be identified annually across North Durham, Darlington and DDES CCGs. 1 in 20 patients with untreated AF will have a stroke. Therefore, this would prevent 2 strokes per year – a cost-saving of £46,630 (based upon National Audit Office data, 2010 which states a stroke costs £23,315 to include inpatient, post discharge, rehabilitation and long term care costs). Extrapolation shows that for every 500 patients with diabetes having their feet checked, one new case of AF could be identified. In 2013, the National Diabetes Information Service (NDIS), YHPHO estimated 231,777 people in the North East, North Cumbria, Hambleton and Richmondshire area with diabetes. Therefore 463 patients could be found with AF, preventing 23 AF-related strokes and saving £539,742 or in excess of £0.5M (minus the cost of anticoagulation treatment). Podiatry staff are already taking pulses and this would appear to be well placed opportunity to ensure patients with irregular pulses are being identified.
Over the last two years, we have implemented a range of measures to improve the identification, diagnosis and treatment of atrial fibrillation for the people living in Rushcliffe. Public health data suggested we had 1000 people with undiagnosed AF, coupled with some of the lowest anticoagulation rates in the East Midlands.

This inspired us to take the following steps:

- Asking GPs to counsel 95% of people with AF and a CHA2DS2-VASc score of >1 on anticoagulation choices. The standard for GPs nationally (via Quality Outcomes Framework) is 70%. All GP practices in Rushcliffe achieved this in the last 2 years.

After the first year we realised that our diagnosis and anticoagulation rates still weren’t good enough, so from April 2016 we went further:

- A programme of educational events delivered by Dr Yassir Javaid, the East Midlands Cardiovascular Lead, using local data to illustrate our areas for improvement. He didn’t pull any punches, and undoubtedly had an impact on our clinical practice, generating a real “buzz” amongst clinical teams in the area.

- AF case-finding project from September 2017 onwards consisting of the following elements:
  - Incentivising GP practices & community nurse teams to opportunistically pulse rhythm check all 65s, including in Flu clinics.
  - Prompts on GP clinical systems to check pulse rhythm if not recorded in the previous year.
  - Purchase and training on the use of AliveCor smartphone ECG devices for GP practices and community nurse teams- allowing immediate assessment for people with an irregular pulse.

The results of these steps speak for themselves, and are detailed in the graphics below. We are now linking up with our neighbouring CCGs in Greater Nottinghamshire to spread their impact.
INCREASING THE UPTAKE OF ANTICOAGULATION FOR ATRIAL FIBRILLATION IN PRIMARY CARE THROUGH PHARMACIST-LED VIRTUAL CLINICS

Dr Helen Williams
SOUTHWARK HEALTH AND SOCIAL CARE, LONDON, UK.

INTRODUCTION: Suboptimal anticoagulation in patients with AF is associated with increased risk of AF-related stroke. Across two local clinical commissioning groups (CCGs) the unmet need in AF-related anticoagulation was established in 2013/14. In Lambeth (47 practices) of 2,233 people on the Quality Outcomes Framework (QOF) AF register only 782 (63%) were anticoagulated. In Southwark (45 GP practices) of 2,042 people on the QOF AF register, only 764 (60.9%) were anticoagulated. Rates of anticoagulation were lower than the average for CCGs across South London (mean: 63.5%; range: 57.7% - 71.2%). The introduction of the CHA2DS2-VASc score to assess stroke risk indicated that more AF patients would require anticoagulation.

PROJECT AIMS:

• To ensure all patients on the AF register have had an assessment of stroke risk using CHA2DS2-VASc in line with the new QOF indicators from 2015/16
• To ensure all patients considered at risk are offered appropriate anticoagulant therapy including reviewing any patients currently treated with aspirin for AF-related stroke prevention
• To educate practice staff on the use of stroke risk assessment tools, bleeding risk assessment tools and the role of anticoagulation in AF-related stroke prevention

PROJECT DELIVERY: Two specialist anticoagulation pharmacists were commissioned to deliver virtual clinics in every GP practice to review patients on the AF register not currently anticoagulated, to assess stroke and bleeding risk and identifying those suitable for anticoagulant therapy in line with national guidance. A standardised search was set up to identify the correct patients for review. The review was included as an essential part of the GP Delivery Scheme / Prescribing Improvement Scheme to encourage GP engagement.

RESULTS: 1,340 patients reviewed in virtual clinics across Lambeth and Southwark from Oct 2015 to Dec 2016. During the study an additional 1,292 patients have been anticoagulated. 81% of high risk AF patients are now receiving anticoagulation across the two CCGs (with no exception reporting), an increase of 19% from baseline.

CONCLUSION: This virtual clinic model using specialist pharmacists has increased the proportion of patients with AF who are receiving anticoagulation. It is estimated that the CCGs will see up to 45 AF-related strokes prevented per annum, AF-related stroke rates fell by 13% during 2015/16 (results for 2016/17 not yet available).
PHARMACISTS’ CONTRIBUTION TO EARLY DETECTION OF ATRIAL FIBRILLATION (AF) – A PROOF OF CONCEPT IN TEN COUNTRIES


IPACT AND AF ASSOCIATION

The pharmacist is a healthcare professional who has a long history of contributing to public health. The first initiatives of the pharmacy profession worldwide were more commonly taken in the identification of suspects of diabetes or of hypertension and subsequent referral to the family physician. Pharmacists have been active in health education on many topics, contributing to increased awareness and health literacy.

Pharmacists are ideally located within communities and can easily reach members of the community.

The International Pharmacist for Anticoagulation Care Taskforce (iPACT) created a partnership with the AF Association whereby pharmacists are actively involved in opportunistic screening for AF. During the 2017 Arrhythmia Alliance World Heart Rhythm Week, community pharmacists from 10 countries embraced this initiative and contributed to raise the awareness of AF and to identify and refer suspects of AF.

PHARMACIST’S TRAINING: An e-learning platform was developed to support education and dissemination of materials for display in pharmacies. A secure web based application was developed for all pharmacists to enter patient relevant data and findings.

PHARMACIST’S INTERVENTION: Pharmacists were instructed to take the pulse manually, assess symptoms and risk factors. Whenever an abnormal heart rate or rhythm was detected, the patient was referred to a physician with a referral letter containing additional information. In some countries, the manual pulse check undertaken at the pharmacy was additionally confirmed using a mobile single-lead ECG.

RESULTS: Ten countries, across 4 continents, participated in the initiative where 3974 participants were involved in the awareness campaign. For the screening event, individuals where no demographic data was recorded, those younger than 40, and already receiving oral anticoagulation were excluded. A total of 2573 patients were included in the iPACT analysis. The majority were female (68.9%; n=1773); mean age was 64.71±12.95, ranging from 40 to 101 years, median 66. The most common risk factor identified was: hypertension (n=1258; 48.9%), followed by diabetes (n=508; 19.8%) and peripheral heart disease (n=397; 15.4%). The least common was having had a stroke, Transient Ischaemic Attack (TIA) or Thromboembolism (TE), which had only occurred in 26 patients (1.1%).

Mean heart rate detected was 72.7±12.0, ranging from 32 to 134. Bradycardia was detected in 107 patients (<55 bpm) and tachycardia in 14 patients (>100 bpm). An irregular pulse was detected in 212 patients (8.3%). So far, atrial fibrillation has been confirmed in 35 individuals, corresponding to a detection rate of 1.4%.

DISCUSSION: Opportunistic screening has been recommended for patients 65 or older. The experience gained from conducting this initiative in various health care settings suggests that community pharmacies may be a good location for such events to be developed. However, investment on the referral pathways must be ensured, especially in countries where interprofessional collaboration is still developing.
EARLY DETECTION OF ATRIAL FIBRILLATION BY PHARMACISTS IN DIFFERENT CARE SETTINGS, A PILOT EXPERIENCE IN PORTUGAL

IPACT AND AF ASSOCIATION

AIMS: This project wanted to explore the feasibility of having pharmacists actively involved in opportunistic screening for AF in three different settings.

SETTING: Opportunistic screening events were held in one pharmacy, one hospital and one nursing home.

METHODS: The pharmacist invited all patients to participate, explaining the aims and methods and requesting written consent. Data collection was undertaken using a password protected app where presence of symptoms, medical diagnoses, previous medical history and current therapy were collected. The pharmacist then used a single-lead mobile ECG to identify heart rhythm and rate. Whenever AF was identified or an unclassified trace was obtained, the patient was referred to the cardiologist and judged if additional tests were necessary. Whenever appropriate a 12-lead ECG was requested and therapy initiated upon confirmation of diagnosis. The study was ethically approved by Comissão Ética Egas Moniz (Proc. 517) and Comissão Hospital de Santa Marta and notified to Data Protection Committee (Ofício 15354).

Main outcome measures: Detection of AF.

RESULTS: 147 individuals were screened in the three venues. The majority were female (69.39%; n=102); mean age in the overall sample was 67.18±14.38, ranging from 40 to 94 years. There were significant age differences between venues, where in the pharmacy younger people were found (61.54±12.63), in the hospital younger elderly (73.04±9.84) and older elderly in the nursing home (86±5.04) (p<0.05). The most common risk factor identified was: hypertension (n=64; 43.54%), followed by peripheral heart disease (n=45; 30.61%), diabetes (n=26; 17.69%) and heart failure (n=16; 10.88%). The least common was having had a stroke, Transient Ischaemic Attack (TIA) or Thromboembolism (TE), which had only occurred in 15 individuals (10.2%) or having had a heart attack (n=10; 6.8%).

28 individuals had an irregular pulse at the time of screening (19.05%); the mean heart rate detected was 71.95±13.67, ranging from 41 to 132. Bradycardia was detected in 12 individuals (<55 bpm) and tachycardia in two individuals (>100 bpm).

The mean CHA2DS2VASC score estimated in the overall sample was 2.9±1.73, with significant differences found among the three settings: pharmacy (2.56±1.56), hospital (3.68±1.87) and nursing home (4.74±1.42).

DISCUSSION AND CONCLUSION: So far, in the overall sample, AF has been confirmed in eleven cases, representing 8.16% of the individuals screened. The rate of detection was much higher in the hospital (32.0%), reflecting a biased sample. This was intentional as the main purpose of this venue was to verify the sensitivity of the device, which has been found to be in line with NICE published data. All suspects identified in the hospital had a 12-lead ECG performed to confirm the AF identified using a single-lead mobile ECG.

Regarding the other two venues, the rate of detection found in the nursing home was 13.04% and 1.0% in the pharmacy. The main advantage of the pharmacy was the possibility to reach individuals who had never heard of AF and as such contribute to increase their awareness. The drawback was the difficulty in following the patient pathway and ensuring feedback from the physician was obtained. Comparing with other studies conducted in other countries with similar methods, the number of confirmed cases were lower, but also the number of participants and respective follow-up. Individuals with other cardiac rhythm diseases were detected and instructed to check for a cardiologist. In the nursing home, interprofessional collaboration was easier to achieve and efficient information flow; the difficulty in this venue was the need to displace a technician who could perform a 12-lead ECG to confirm suspects identified.
ONE THIRD OF REGISTERED PATIENTS AGED 65 YEARS AND OVER ARE PULSE CHECKED DURING FLU CLINICS IN DORSET - AN UPDATE ON THE SPECIFICATION FOR OPPORTUNISTIC SCREENING FOR IDENTIFICATION OF ATRIAL FIBRILLATION IN FLU CLINICS IN DORSET

Nichola Arathoon
DORSET CLINICAL COMMISSIONING GROUP, UK

With a population of over 750,000 which includes 187,456 over 65-year olds registered with GP practices (March 2016) and a higher prevalence of Atrial Fibrillation (AF) at 2.89% compared to the National prevalence of 1.93%, Dorset CCG have embarked on a four-year project to opportunistically screen and identify people with Atrial Fibrillation whilst attending flu vaccination clinics.

65% of the 98 Practices in Dorset undertook the offer in 2016/17 which resulted in 60,634 (48%) patients aged 65 or over receiving a manual pulse check whilst attending for a flu vaccination. When extrapolated to include the total number of registered population over 65 years of age in Dorset, this amounts to a third (32%) of all over 65-year olds in Dorset receiving a pulse check whilst attending a flu vaccination clinic.

Of these, 2,514 (4.1%) patients were referred for an ECG at which 469 new patients were diagnosed with new AF. This has built on the successes of the first three years of the project with a total of 1,266 patients being diagnosed with new AF through opportunistic screening at flu clinics in Dorset.

However, identifying patients with AF is only half the story, regular patient review to ensure optimisation of anticoagulation and time in therapeutic range is necessary to further prevent AF-related strokes. The June 2017 Dorset CCG GRASP-AF Summary shows progress in this area as well;

• 65 practices have uploaded to GRASP-AF compared to 47 practices a year ago.
• 38 practices have uploaded more than once which suggests that over half of the practices are using this report on a regular basis.
• These 38 practices have a higher percentage of people anticoagulated (70.7%) indicating a 9% improvement from the previous upload. This improvement is quantified as 59 AF-related strokes prevented next year accounting for £619K NHS savings and £141K social care savings.

The number of people living in Dorset is growing and is set to rise by around 50,000 by 2020. Of these, 70% will be aged over 70 which in turn will account for many more people living with one or more long-term conditions. Opportunistic screening and earlier identification of AF plus optimised anticoagulation and regular review is one way of reducing the number of AF-related strokes suffered by the residents of Dorset.

The specification has therefore been offered to all Dorset practices for the 2017/18 flu clinic season with early signs showing a 95% take up.

Dorset Summary of Opportunistic Screening for Atrial Fibrillation (AF) in flu clinics for patients aged 65 and over

<table>
<thead>
<tr>
<th>Data Summary</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17</th>
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<tbody>
<tr>
<td>Number of participating GP practices in Dorset</td>
<td>67</td>
<td>67</td>
<td>63</td>
</tr>
<tr>
<td>Percentage of participating GP practices in Dorset</td>
<td>69%</td>
<td>69%</td>
<td>66%</td>
</tr>
<tr>
<td>Registered patient population aged 65 and over for the participating GP practices</td>
<td>122,965</td>
<td>131,951</td>
<td>127,458</td>
</tr>
<tr>
<td>Number of patients aged 65 and over that received a pulse check at flu clinics</td>
<td>61,568</td>
<td>64,848</td>
<td>60,634</td>
</tr>
<tr>
<td>Percentage of patients aged 65 and over that received a pulse check at flu clinics</td>
<td>50%</td>
<td>49%</td>
<td>48%</td>
</tr>
<tr>
<td>Number of ECGs performed as a result of a pulse check</td>
<td>2,663</td>
<td>2,381</td>
<td>2,514</td>
</tr>
<tr>
<td>Percentage of ECGs performed as a result of a pulse check</td>
<td>4.3%</td>
<td>3.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Number of patients with newly diagnosed Atrial Fibrillation (AF) following an ECG</td>
<td>439</td>
<td>358</td>
<td>469</td>
</tr>
<tr>
<td>Percentage of patients with newly diagnosed Atrial Fibrillation (AF) following an ECG</td>
<td>16.5%</td>
<td>15.0%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Percentage of patients with newly diagnosed Atrial Fibrillation (AF) that received a pulse check at flu clinics</td>
<td>0.7%</td>
<td>0.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Total percentage of patients with newly diagnosed Atrial Fibrillation (AF) in participating GP practices</td>
<td>0.4%</td>
<td>0.3%</td>
<td>0.4%</td>
</tr>
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</table>
The use of direct oral anticoagulants (DOACs) is now well established within the field of atrial fibrillation (AF). They offer several benefits over warfarin when prescribed correctly. However, each of the four DOACs have two different doses which must be prescribed (or avoided) following calculation of creatinine clearance. The thresholds for the two doses are different between each DOAC, with Apixaban having additional criteria implicating serum creatinine and age.

Royal Bournemouth Hospital is a large district general hospital in the county of Dorset. Its age demographic is higher than most other Trusts, and with that comes an increase in the number of patients diagnosed with, and being treated for, AF. Our aim was to identify the frequency of errors in the prescription of DOACs for AF. We analysed the prescriptions of patients discharged on DOACs between March - April 2017 (n=100). Edoxaban use within the Trust is currently minimal, and so not included within the data.

Whilst shown to be somewhat unreliable, the Cockcroft-Gault is nevertheless the standard when estimating creatinine clearance, and recommended by the BNF when prescribing DOACs. It takes into account age, weight, gender and serum creatinine. It was observed that this is very rarely calculated on the ward, and instead, the eGFR (estimated glomerular filtration rate) is commonly referred to as the marker of renal function.

RESULTS
- 21% of DOAC prescriptions were incorrect.
- Trends in the data suggest age alone was incorrectly playing a key role in the decision to prescribe the lower dose of DOAC.
- Prescribers weren’t appreciating the particularly high creatinine clearance threshold requirement for the higher dose of Rivaroxaban.
- eGFR was found to overestimate creatinine clearance in the vast majority of cases. Use of creatinine clearance would have altered dose or choice of DOAC in 19 of the 21 cases.
- The remaining 2 cases were due to the additional criteria for Apixaban dosing.

This finding was communicated widely amongst prescribing staff, being presented at several local meetings, with additional mediums of education being deployed across the hospital.

Each of the patients’ GP was written to to inform them of the findings, and request that the doses were corrected at the earliest opportunity.

We aim to reassess in October-September this year and hope to see immediate improvements, thereby reducing the risk of harm from both under and over anticoagulation.
PUBLIC HEALTH TRANSFORMATION: AN INNOVATIVE PARTNERSHIP BETWEEN HALTON CLINICAL COMMISSIONING GROUP, HALTON LOCAL AUTHORITY PUBLIC HEALTH AND CHESHIRE FIRE AND RESCUE SERVICE (CFRS) TO HELP IDENTIFY PEOPLE AGED OVER 65 YEARS OF AGE AT RISK FROM ATRIAL FIBRILLATION (AF) THROUGH FIRE AND RESCUE SERVICE (FRS) SAFE AND WELL VISITS

Dr Michael O’Connor, Emma Alcock, Ifeoma Onyia, Dr Julia Reynolds and Dr Mike Larking
HALTON CLINICAL COMMISSIONING GROUP AND HALTON LOCAL AUTHORITY PUBLIC HEALTH, UK

INTRODUCTION: Halton has a population of approximately 20,500 people over 65 years. Around 500 people in Halton have undiagnosed AF - a condition which can cause strokes but is amenable to treatment. AF sufferers are often asymptomatic. Halton CCG considered Cheshire Fire and Rescue Service Safe and Well visits as an opportunity to identify people with undiagnosed AF.

BACKGROUND: CFRS has a strong record of prevention work to help protect vulnerable people from fire risk in the home. Fire safety advice to householders is delivered through Home Safety Assessments (HSA). Nationally, HSA play a key role in reducing preventable fire deaths in England.

NHS Chief Executive, Simon Stevens, has requested that the role of the FRS is recognised to support the prevention of poor health and collaborate to support “vulnerable people to stay healthy and independent”. The HSA visits are identified via NHS Open Exeter data for over 65s which the NHS shares with the FRS and individuals are assessed in relation to perceived fire risk. Collaboration between Halton CCG and CFRS resulted in the agreement to screen people for AF in Halton during rebranded Safe & Well Visits. The work is underpinned by a legal Agreement between NHS England and CFRS.

SERVICE: Halton CCG received funding from the Innovation Agency – Academic Health Science Network for the North West Coast to purchase supplies of the MyDiagnostick, a Mobile ECG screening tool. Halton CCG trained CFRS staff including information on the causes of AF and the use of the mobile ECG device. CFRS conduct a simple ECG test to assess whether the householder has an irregular heartbeat. For those who test positive on the ECG device, the householder is given a leaflet to explain they have been screened for AF by a trained firefighter, provides basic information on AF, and advises them to make an urgent GP appointment.

OUTCOMES: CFRS has conducted 1083 AF screenings, resulting in 32 persons signposted to make a GP appointment (February 1st-8th December 2017). Halton CCG has confirmed these people are now presenting to primary care and are now receiving treatment to reduce the risk of a future medical episode. On average, CFRS conduct around 85 Safe and Well visits per week, delivered by operational firefighters.
AF-related stroke prevention is central to the care pathway for atrial fibrillation (AF) patients.

NICE AF guidelines (2014) advise against aspirin for AF-related stroke prevention, advocating oral anticoagulation (OAC) for all AF patients with ≥1 stroke risk factors. Sandwell and West Birmingham Clinical Commissioning Group (SWBCCG) data from the Quality Management and Analysis System in 2014 reported AF prevalence lower than the national average (0.98% vs. 1.46%), suggesting underdetection of AF. Of these, only 65.9% were anticoagulated, 15.6% received no therapy, with the remainder receiving antiplatelet therapy. Management was sub-optimal, so efforts to simplify and streamline the process and strengthen primary and secondary care management, focussing on AF-related stroke prevention, were developed and implemented.

**BRIEF OUTLINE OF SERVICE:** Since 2014/15, Prof Lip (and SWBH team) and Dr Sarwar initiated a collaborative programme of simplifying and streamlining the patient management pathways, through AF upskilling workshops, to increase awareness, improve detection, simplify the OAC decision-making process and optimise OAC treatments. Clinical risk scores, CHA2DS2VASc, HAS-BLED and SAME-TT2R2, developed and validated by Prof Lip and colleagues, were incorporated into SWBCCG AF patient pathway to streamline the primary-secondary care interface of AF management and improve patient care.

**CARE PATHWAY OR TREATMENT:** The ‘Birmingham 3-step approach’ encompasses initially identifying low-risk patients who do not require any antithrombotic therapy (Step 1); consideration of OAC for those with ≥1 stroke risk factors and management of modifiable bleeding risk factors (Step 2); and choosing the most appropriate OAC (Step 3). This approach was cascaded to GP practices at training/upskilling events to increase awareness/detection efforts and facilitate pragmatic-prescribing of OAC.

Time-in-therapeutic range (TTR) was made a key performance indicator and available to all GPs through the Pathlink IT system; (Trust average TTR=75%). Anticoagulation Services support for patients communicated via workshops and disseminated at practice level.

Upskilling workshops included patient engagement themes (patient AF education and OAC counselling), to emphasise the importance of adherence/persistence with OAC to minimise complications (stroke/bleeding), incorporating techniques developed by Dr Lane.

**RESULTS:** Data from July 2017 indicate this collaborative working and streamlined process have resulted in improved AF detection (0.98% to 1.26%), increased OAC use (65.9% to 88.3%), decreased antiplatelet use (28.6% to 6.8%), and reduced the exception rate to 4.9%, with an estimated cost-saving related to AF-related stroke in SWBCCG of £1.01 million.

**IMPLICATIONS FOR PATIENT/SERVICE BENEFIT:** ‘Best practice’ AF care delivered coherently with effective primary and secondary collaboration; improved AF detection, better guideline-adherent OAC treatment, professional development (GPs), translating into reductions in AF-related stroke and mortality, and stroke-related morbidity with obvious benefits to quality-of-life for patients/carers and financial savings to the NHS.
ROUTINE AF CASE FINDING WITHIN A LARGE GROUP PRACTICE USING EMBEDDED CLINICAL SYSTEM PROTOCOLS AND SMART PHONE TECHNOLOGY

Dr Matthew Fay, Mrs Bernie Cahill, Sr Shona Holding and Sr Anne Williams
WESTCLIFFE GROUP, UK

The Westcliffe Group is a single partnership in Bradford with primary care contracts of 5 practices; a combined population of in excess of 42,000. The aims of the group are to support primary care in a turbulent NHS to ensure consistency of care across the group. It has a reputation for innovative practice and spreading change both locally and nationally.

AIMS OF THE PROJECT: Without national systematic screening there is a concern that many with atrial fibrillation will be undetected until the time of their possibly preventable AF-related stroke. The project ensures clinicians remember to check the pulse of those at risk.

PRACTICALITIES: The project uses a protocol embedded in the daily clinical system (SystmOne) that highlights anyone over 65yr where the cardiac rhythm has not been coded in the previous 6 months. If an irregular rhythm is detected then all clinical staff have been issued with Alivecor Kardia device to perform a one lead ECG at the time of the consultation.

RESULTS: The project was well received by the clinical team.

At the out-set the group had an above CCG prevalence of AF (1.67% compared with 1.48%). Within the first 3 months the prevalence had risen to 1.79%.

Within the first 3 months 63 new cases of AF had been identified of which 41 (65%) had been identified through active case finding.

Of those identified by active case finding 38 were anticoagulated (92%), compared to those identified by other means (hospital discharge information) where only 15 (68%) were anticoagulated at the time of first report.

Of all patients screened only 87 required a Kardia confirmation.

CONCLUSIONS: In the environment of the GP consultation prompted case finding for AF has been practically deployed.

The majority of patients identified were asymptomatic at the time of attendance and would not have been detected without standardized practice.

Use of Kardia Alivecor mobile ECG device assisted in the prompt diagnosis.

Majority identified with AF through active case finding chose preventative intervention.

In a population with above average prevalence unknown AF was found though active case finding.

SUPPORT: The project was supported by a MEGS from Bayer Pharmaceuticals. The SystmOne protocols were developed by Oberoi Consulting.

<table>
<thead>
<tr>
<th>Group List Size</th>
<th>Baseline</th>
<th>Post Implementation</th>
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<td>40635</td>
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<tr>
<td>AF Prevalence</td>
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<td>727</td>
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<td>AF Prevalence</td>
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<td>AF Prevalence</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>AF Prevalence</td>
<td>0.08%</td>
<td>0.09%</td>
</tr>
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THE DEVELOPMENT OF A GP COLLABORATIVE TO SUPPORT IMPROVING THE IDENTIFICATION AND MANAGEMENT OF PATIENTS WITH ATRIAL FIBRILLATION (AF), IN THE NORTH WEST COAST

Dr Julia Reynolds, Paul Brain, Haku Bhatt and Dr Michelle Coleiro
INNOVATION AGENCY – ACADEMIC HEALTH SCIENCE NETWORK FOR THE NORTH WEST COAST, UK

INTRODUCTION: The North West Coast has a high number of people who have AF-related strokes. Many of these patients have not been identified or treated for AF and others may be anticoagulated sub-optimally.

Our collaborative seeks to provide a sustainable programme to support GP practices in identifying, diagnosing, treating and monitoring patients with AF. Previous experience has shown that more can be achieved in terms of reducing AF-related strokes, but a focussed package of support which includes a holistic approach rather than a piecemeal approach, produces optimal results in terms sustainable outcomes.

OUR APPROACH INCLUDED:
• Detecting undiagnosed AF patients
• Adopting a whole practice approach
• Supporting management for patients according to NICE Guidelines – ensuring that warfarin patients were well managed and DOAC dosing was correct, including reviews carried out
• Supporting initiative through backfill of practice staff
• Increasing GP confidence through training and support tools
• Improving patient experience through more effective management

OUTLINE OF SUPPORT FOR SERVICES:
• Providing mobile ECG detection devices (Alivecor Kardia or similar)
• Training - Clinical
• Training - Quality Improvement (QI) and ongoing support to help identify areas for change and change implementation
• Training - GRASP-AF - review tool to support monitoring and measurement
• Support for audits and reviews if required
• Provision of materials – Step by Step Guides, QI Life support (online support tool for QI), Pathway for AF patients
• Applying for industry funding to support the programme

OUTCOMES AND IMPACTS: 5 CCGs Warrington, West Cheshire, Wirral, East Lancashire and Blackburn with Darwen are taking part in the Collaborative. We have had interest from 140 GP practices and 75 are currently working with us.
• 25 clinical training sessions delivered
• 65 QI sessions delivered
• Over 300 Mobile ECG devices delivered
• Funding of over £150K obtained to support the programme
• GRASP training attended by over 60 practice staff (including GPs)
• 45 Audit and case reviews delivered
• 250 patients reviewed and management advised changes
• Over 63 GRASP reviews completed
• 15 strokes avoided in year due to improvements

IMPROVEMENTS MADE:
• Approximately 30% of patients are not optimally managed on existing medication – eg they are not within therapeutic range for warfarin or dose of oral anticoagulant has been incorrectly calculated
• Approximately 5% of patients on the AF register may have been incorrectly coded (they may not have AF) or have not been coded at all (they have AF identified in their notes)
• Approximately 5% of patients require further investigations to determine AF

CONCLUSION: Delivering sustainable improvements for AF patients in busy GP practices requires focussed support over a period of time, including robust measurement. Issues in the management of patients may be mitigated with the improvement of practice processes, which are supported by training and coaching with quality improvement. Funding is often required to achieve this. We can demonstrate specific measurable improvements on a range of indicators for the ongoing management for AF patients in this programme through GRASP-AF and other measures.
ATRIAL ARRHYTHMIA ABLATION SERVICE FOR PATIENTS WITH CONGENITAL HEART DISEASE

Vinit Sawhney, Katherine VonKlemperer, Bejal Pandya, Seamus Cullen, Fiona Walker, Martin Lowe and Vivienne Ezzat
BARTS HEART CENTRE, LONDON, UK

The number of adults with ‘grown-up’ congenital heart disease (GUCH) has increased significantly over the last decade, the estimated prevalence in 2030 being 11%. The incidence of atrial arrhythmia in this population varies based on underlying aetiology and presents a rapidly expanding workload for electrophysiologists. In addition to the arrhythmia substrate, the greatest challenge is the need for a dedicated pathway to streamline procedures and a holistic approach to meet the physical and psychological expectations of this cohort.

A dedicated GUCH arrhythmia service was established at the Barts Heart Centre in May 2015, in response to a growing demand for AF/AT ablations and to streamline arrhythmia services within the multi-disciplinary GUCH team. As part of an innovative service delivery strategy, a GUCH arrhythmia pathway was established. Dedicated GUCH arrhythmia clinics and cath lab sessions (with allocated anaesthetists, radiologists and physiologists), arrhythmia representation at GUCH MDT meetings, dedicated specialist nurse and a 24 hr consultant-led on-call service are all an integral part of this service.

Referrals for AF/AT ablations are predominantly from tertiary centres with additional acute presentations from secondary care. Prior to listing, the patients are reviewed by a consultant GUCH electrophysiologist. Often, these cases are discussed in a MDT meeting comprising of GUCH cardiologists, congenital/paediatric surgeons, structural intervention and EP consultants, specialist nurses and cardiac physiologists. There is a dedicated pre-assessment clinic for elective cases. A significant proportion of cases are done under general anaesthetic (GA) and emergency GUCH surgical cover is available on-site.

Audit of the service has demonstrated its safety and efficacy. In the first year, 65 GUCH AF/AT ablations were performed; 77% of cases were performed electively and 56% under GA. Acute procedural success was >95%. Three patients had procedural complications (haematoma, pseudoneurysm, cardiac tamponade). Acute procedural mortality was zero and surgical intervention was not required in any case. At 3-months follow-up, 65% of the patients had complete resolution of symptoms with no arrhythmia recurrence. Patient satisfaction is well recognised.

Development of this service model has streamlined the pathway for GUCH patients and improved access to specialist services by significantly reducing waiting times for AF/AT ablations. It has fostered good working relationships between congenital, structural, surgical and electrophysiology teams. Alongside its distinct clinical advantage, it also provides an excellent training opportunity for junior doctors.

Our service demonstrates that AF/AT ablation in this unique cohort requires a very different approach and a dedicated team for best outcomes. Adopting this model of care, AF/AT ablation is safe and effective in GUCH patients.
LEADING THE WAY WITH AF CLINICAL PRACTICE: A SAFE, EFFICIENT AND EFFECTIVE HIGH THROUGHPUT DAY CASE ATRIAL FIBRILLATION (AF) ABLATION SERVICE IN A LOCAL HOSPITAL: COMPARISON WITH STANDARD TERTIARY CARDIAC CENTRE CARE

Dr Aaisha Opel, Dr Malcolm Finlay, Dr Ross Hunter and Professor Richard Schilling
BARTS HEART CENTRE, LONDON, UK

OBJECTIVES: We investigated the safety and efficacy of a novel high throughput day case AF ablation service established within a local non-cardiac centre catheter lab.

METHODS: Patients were consented in outpatient clinics by physicians and pre-assessed using a checklist by clerical staff. Other than physicians, staff had no experience of electrophysiology or AF ablation and were trained with lectures and simulations. All patients underwent pulmonary vein isolation (PVI) with conscious sedation on uninterrupted anticoagulation for at least 4 weeks prior to ablation. An INR, where appropriate, was checked on the day and no TOE was performed. Cryoablation was undertaken with a 28mm Arctic Front Advance Cryoballoon. Signals from a 20mm Achieve wire were used to demonstrate PVI on a portable laptop-based EP recording system. Phrenic nerve function was monitored during right PVI by diaphragmatic twitch resulting from pacing with a bipolar temporary pacing wire and box. At the end, a handheld transthoracic echocardiogram excluded a pericardial effusion and a Femostop was applied.

RESULTS: 276 patients were recruited and these were matched to those attending the regional cardiac centre for the same procedure. The average age was 61 ± 0.7 years, 39% were female and CHA2DS2-VASc score varied from 0 to 6.

The procedure time was significantly shorter at the local hospital (63.5 ± 1.1 mins vs 101.7 ± 2.9 mins, p<0.0001). Fluoroscopy time (5.5 ± 0.2 min vs 12.6 ± 0.6 min, p<0.0001) and fluoroscopy dose were also lower (17.2 ± 2.1 mGy vs 97.6 ± 14.6, p<0.0001). The primary end point of successful PVI was achieved in all.

The overall complication rate was low in the local hospital (5.4% vs 6.3%. P=NS) consisting of 5 phrenic nerve palsies (1.8%), 4 vascular complications (1.4%), 2 cardiac tamponades (0.7%) and 3 pericardial effusions not requiring drainage (1.1%). 4 (1.4%) patients were not discharged home from the local hospital.

At 3 month follow up, 54.3% had complete resolution and 26.1% had improvement of symptoms. 16.6% of patients requested repeat procedures for ongoing symptoms.

CONCLUSIONS: AF ablation using cryoballoon technology can be delivered as a day case procedure safely and effectively in a local non-cardiac centre when delivered by appropriately trained clinicians. A highly defined procedure protocol and repetition allows the non-cardiac centre to perform the procedures faster with similar outcomes to the large regional cardiac centres. The service provides a model to meet increasing demands of catheter ablation for AF.
HOW CAN WE ENHANCE CODING OF AF AND ANTICOAGULATION PRESCRIPTION IN PACEMAKER PATIENTS?

Naomi Kenny, Matthew Kahn, Natasha Evenson, Adrienne Unsworth, Andrea Arnold, Dr Chris Skene and Dr Niall Campbell
DEPARTMENT OF CARDIOLOGY, WYTHENSHAWE HOSPITAL, MANCHESTER, UK

BACKGROUND:
• In UK practice, CIED checks are typically performed by cardiac physiologists (CPs) with limited clinician involvement. AF is commonly diagnosed in this population during this encounter.
• CPs have variable experience of recommending medication changes.
• Every patient’s full medical history is not always available in a pacemaker clinic.

PROTOCOL:
• Protocol developed for pacemaker patients in physiologist-led clinics.
• Collaboration between Cardiologists, Arrhythmia Nurses and CPs.
• Training for CPs in anticoagulation contraindications and CHA2DS2VASc scoring.
• AF is defined as lasting longer than 30 seconds (HRS research definition).
• When AF is identified, the CP documents a patient’s medication. If a patient is not anticoagulated, CP will perform a CHA2DS2VASc score and ask about absolute contraindications.
• Patients with CHA2DS2VASc scores of >1 (excluding female gender <65 years) without absolute contraindications will be referred to arrhythmia nurse team.
• An Arrhythmia Nurse will contact each patient’s GP to clarify their medication, if unknown.
• A standardised letter will be sent within 48 hours to the GP, identifying AF diagnosis and recommending anticoagulation, “unless a contraindication is known”. In this way, responsibility for anticoagulation prescription rests with the doctor who had access to full medical records unavailable in a pacing clinic or cardiology department.
• When a patient is already on an antiplatelet agent, a consultant cardiologist would advise whether the antiplatelet agent should continue.

OUTCOME:
• Between March 2016 and June 2017, 2160 patients attended physiologist-led device clinics in our institution.
• 148 non-anticoagulated patients (6.9%) identified with AF.
• 145 for a recommendation of anticoagulation. (3 had CHA2DS2VASc of 0).
• 65% of AF patients had a new AF diagnosis. 35% of patients had already been previously identified as having AF during a device check but had not been coded (therefore had not been risk stratified or anticoagulated).
• A letter to the GP was sent in 100% of cases.
• >95% AF patients who returned for a second check within the time period had been commenced on anticoagulation by their GP.

SUMMARY:
• A dedicated and easy AF protocol in CP-led devices clinic
  o Improves coding and anticoagulation prescription of patients at increased thromboembolic risk.
  o Streamlines communication about AF between pacing clinics and primary care.
  o Increases skill mix.
  o Promotes CP/arrhythmia nurse MDT working.
• Future work: senior device CPs will undertake prescribing courses so recommendations regarding anticoagulation can be made to GPs directly.
The Ambulatory Cardiology Unit (ACU) opened in 2015. The aims of the service were to divert patients from in-patient admission, reduce pressure on the ED and to provide rapid access to care for patients with suspected cardiac conditions. One of the conditions the team selected as suitable for the ACU was AF, as many of these patients are admitted to hospital for one day only and then discharged.

The unit is open 8.30am to 4.30pm Monday to Friday. The team consists of one Consultant Cardiologist who is committed to three programmed activities (PA) per week, with each PA equating to four hours of consultant time. There are three nurse specialists, one whole time equivalent (WTE) and 2 0.5 WTE. This means that there are two nurse specialists seeing patients every day with the support of a consultant for discussion either once or twice per day. The patient is given education about their condition and any modifiable lifestyle changes.

CHA2DS2VASC and HASBLED scores are calculated to assess stroke risk versus bleeding risk. These risk scores are discussed at length with the patient and percentage risk calculated using the American Heart Association application ‘Anticoagevaluator,’ and discussed with the patient.

Following this the patient is given written information regarding their condition and a plan is made for onward management, including prescribing of anticoagulation and rate control agents if required. The patient is referred for echocardiogram, required by ESC and NICE guidance to exclude valvular disease. The patient is given ACU contact details and reassured that they can phone for advice or a review appointment if necessary.

The initial appointment may take 1 to 2 hours, or longer if echocardiogram is conducted on the day or the condition is complicated. Subsequent appointments may take 30 minutes.

Data gathered on admissions with AF for one year prior to the ACU service and one year post ACU showed a reduction in admissions for patients with AF by 24%. In addition, patient satisfaction with the ACU is high, with 98% of patients saying care was excellent. Other comments included “would like a 24/7 service.”

Currently, there are no resources to provide more hours of service, however, this shows what a small team with no funding can achieve by approaching service delivery in a novel way.

REFERENCES


IDENTIFYING NEW AF WITH ALIVECOR IN EAST SUSSEX

Dr Richard Blakey
EASTBOURNE, HAILSHAM AND SEAFORD CCG, UK

In April 2015 Eastbourne, Hailsham and Seaford CCG and Hastings and Rother CCG purchased 200 Alivecor Kardia devices which were distributed to all practices, at approximately one device per 1800 patients. GPs and other practice staff were asked to check pulses and if irregular, or if patients presented with symptoms of possible AF, to record a 30 second rhythm strip on the single lead ECG device. There were no additional costs in the project but GPs were asked to forward newly found AF to the clinical lead, to record numbers detected and as a quality control.

Although many ECGs have not been sent, over 160 were forwarded as ‘possible atrial fibrillation’. Of the traces seen, 106 were good enough quality to make a definite diagnosis of AF. Twenty-nine new cases were found in two medium sized practices in Hastings alone. Over 90% were high enough risk for AF-related stroke to warrant anticoagulation and in almost every case GPs said they would be starting treatment.

Optimal anticoagulation in this group would prevent 3.7 AF-related strokes per year and save, net, £50,000. The first full year of GP data also showed that the prevalence of atrial fibrillation, which was already the highest in Eastbourne Hailsham & Seaford CCG, increased by a further 10%. In Hastings and Rother the increase was almost 15%. Eastbourne Hailsham & Seaford has now become the first CCG to reach over 3% AF prevalence nationally and significantly close the gap to the level expected in the Public Health England report. At a cost of £12,000 for 200 devices, across the region, only counting those cases reported, this is a cost of only £114 per case found. For the two Hastings practices, a mere £10.34 per new AF detected.

The project appears to be successful in identifying new AF with minimal cost to the health economy. However, with the planned national deployment of hand held ECGs, in the next phase, we plan to deploy more effectively and improve reporting significantly. We hope that our previous experience will give us a good head start when the new devices are distributed.
**ILKLEY MOOR MEDICAL PRACTICE INTRODUCES A DIGITALLY INCLUSIVE SELF-TESTING SERVICE FOR WARFARIN PATIENTS**

**Dr Mark French**

**ILKLEY MOOR MEDICAL PRACTICE, YORKSHIRE, UK**

**INTRODUCTION:** Ilkley Moor Medical Practice is the first GP practice to launch an end to end, digitally inclusive INR self-testing service, enabling warfarin patients in the rural localities of Ilkley and Grassington to lead far less disruptive lives. In line with NICE guidance, the practice has transformed its anticoagulation service with an initial self-testing roll out of 100 patients. The aim of the project was to improve the efficiency of the warfarin service, increase quality of life for patients and improve patient outcomes through patient empowerment. The service, launched in January 2016 has continued to develop, now providing three different communication methods for patients to relay readings back to the surgery. This means the service can be used by all, regardless of technical ability or access to the internet.

**OUTLINE OF THE SERVICE:** As part of the digital service, and at no cost to patients, they are provided with a Roche device, and using a lancet a blood sample is taken and inserted onto a strip in the device. Patients communicate readings through a communication channel of their choice, including a secure web portal, an automated telephone call and now via My Inhealthcare, a Bluetooth enabled smartphone app. The patient reading integrates into anticoagulation support software and the new dose is sent back to the patient within seconds.

**RESULTS AND NEXT STEPS:** The self-testing cohort have improved their time spent in therapeutic range, reducing the risk of an AF-related stroke. Patient feedback has also been positive with many feeling more empowered and in control of their health. The digital self-testing service has also improved efficiency within the clinic, allowing nurses to spend more time with the most complex patients.

“It’s not always easy for our patients to visit the clinic. Not only do these visits have an impact on their lives, but they also affect the lives of other, more complex patients, who require more time with nurses and doctors. The service has also demonstrated improved TTR which means the risk of stroke is reduced. That’s a fantastic outcome.”

Dr Mark French, Lead GP.

**PATIENT FEEDBACK:** “I welcome self-testing because it allows me to juggle my work obligations as well as my personal life and also plan our holidays. Self-testing has allowed me to understand how warfarin works and helps me to stay in the ideal therapeutic range to keep myself as fit and healthy as possible. My readings are more consistent.”

Martin Smith, patient, Ilkley Moor Medical Practice.
ATRIAL FIBRILLATION DETECTION OUTSIDE OF A HEALTHCARE SETTING AMONGST HIGH RISK PEOPLE WITH A LANGUAGE BARRIER: A CASE STUDY

Jagjot Kaur Chahal and Sotiris Antoniou  
BARTS HEART CENTRE, LONDON, UK

Atrial fibrillation awareness campaigns are carried out to ensure early diagnosis and improve outcomes. However, the effectiveness of such a campaign is dependent on factors such as the delivery of the project and the population being screened to bridge the gap of inequality in health services.

In view of the local community in East London being diverse, an innovative screening programme was carried out as part of the Arrhythmia Alliance World Heart Rhythm Week (5th–11th June 2017) with a focus on identifying the undiagnosed person. The screening was held in a South Asian community organisation and a Sikh temple. The programme was led by a Specialist Anticoagulation Pharmacist from Barts Heart Centre, Jagjot Chahal, who was able to speak Hindi, Punjabi and Urdu to the diverse population being screened to overcome the language barrier and to educate on how to monitor pulse. The unique aspect of this programme was to detect high risk people that do not frequently access healthcare and to screen within the comfort of their local community organisations.

The Alivecor Kardia (single lead mobile ECG) device was used for screening. For people with possible AF detection, a print out of the ECG and a cover letter with a calculated CHA2DS2VASC score was given to the person to present to their GP. The patient pathway would then involve the GP to review the ECG, carry out a 12-lead ECG and anticoagulate for AF-related stroke prevention as appropriate.

A total of 196 people were screened over a period of seven hours, of which 106 (56%) were aged over 65 with the oldest being 96 years. Seven (4%) people were diagnosed with possible AF, with a mean CHA2DS2VASC score of four. This campaign addressed the needs of the local community as well as delivering an efficient detection programme. This example demonstrates that not just treatment, but stages involved in screening need to be tailored to the people involved for optimal outcomes.

In view of the success of this detection programme, the demand for screening has increased for the next awareness campaign, which will involve working in collaboration with the local Council for Voluntary Services to establish an integrated care pathway.
AN INNOVATIVE PILOT PROJECT TO IMPLEMENT AND EVALUATE PRACTICAL USE OF THE TECHNOLOGY IN THE NHS - IMPLEMENTATION OF GENOTYPE-GUIDED DOSING OF WARFARIN FOR ATRIAL FIBRILLATION TO IMPROVE ANTICOAGULATION CONTROL

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ROYAL LIVERPOOL AND BROADGREEN UNIVERSITY HOSPITALS NHS TRUST, WOLFSON CENTRE FOR PERSONALISED MEDICINE AT UNIVERSITY OF LIVERPOOL, UK

Jennifer Downing,
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Janet Dearden,
WARRINGTON AND HALTON NHS FOUNDATION TRUSTS, UK

Lucy Langan,
COUNTESS OF CHESTER HOSPITAL NHS FOUNDATION TRUST, UK

Janet Davies,
ROYAL LIVERPOOL AND BROADGREEN UNIVERSITY HOSPITALS NHS TRUST, UK

Julia Reynolds,
INNOVATION AGENCY NORTH WEST COAST, UK

Andrea Jorgensen,
UNIVERSITY OF LIVERPOOL, UK

Munir Pirmohamed,
UNIVERSITY OF LIVERPOOL, AND ROYAL LIVERPOOL AND BROADGREEN UNIVERSITY HOSPITALS NHS TRUST, UK

Oral anticoagulants are effective for the prevention of thromboembolic events that occur in atrial fibrillation. Warfarin dosing is challenging due to its narrow therapeutic index and large interpatient variability in the dose required to achieve target anticoagulation. Two major genes, CYP2C9 and VKORC1, have been strongly associated with warfarin response, accounting for 40% of the variability.

The Eu-PACT RCT demonstrated that genotype-guided dosing was more accurate and cost-effective than usual clinical dosing. However, genotype-guided initiation of warfarin is not currently recommended or performed in clinical practice in UK.

The aim of this ground-breaking pilot project was to implement and evaluate whether genotype guided dosing of warfarin is feasible in clinical practice. Patients with AF who were due to commence anticoagulation with warfarin were invited to participate. The project was run by the University of Liverpool in collaboration with the NHS Trusts, NIHR CLAHRC NWC and the Innovation Agency. The point-of-care technology, the Para-DNA machine and the kit which provides genotyping results in 45 minutes, were provided by LGC.

Six anticoagulation clinics were invited to participate. Three clinics undertook the genetic testing on patients prior to starting warfarin treatment. A buccal swab was used to obtain the DNA. Patients in the implementation sites were dosed for the first five days of treatment, according to the results of their genetic test and other clinical factors, using the algorithm which was tested in the Eu-PACT trial. Three other clinics (comparator) which are similar in terms of patient demographics and clinic organisation dosed their patients in accordance with local clinical guidelines.

Data was collected on health related quality of life for all patients through EQ-5D-5L at enrolment and at week 12. Patients and staff from the implementation sites were also asked to complete a questionnaire regarding their experiences and perceptions of the test.

In total, 231 patients have taken part in the project (135 patients- implementation sites, 96 patients- comparator sites). The patients ranged in age from 25-95 years (mean age: 70.5 years; 51% male). Our aim was to establish whether genotype-guided dosing (GGD) is impactful in practice by determining whether it: improves patient outcomes (reducing the time to stabilise INR, time in therapeutic range, time above INR>4, number of visits to clinics), demonstrates cost effectiveness, improves patient experience (DNA testing is convenient and acceptable to patients), and thereby consider the implications of introducing GGD testing for staff and the patient pathway.

References
More than 100 NHS patients in Derbyshire have potentially been saved from life-threatening strokes by a new early detection scheme.

NHS Erewash Clinical Commissioning Group has spent £10,000 on machines used by clinicians in its 12 GP practices to detect atrial fibrillation (AF) – a heart condition that causes an irregular and often abnormally fast heart rate.

People with AF are five to six times more likely to suffer an AF-related stroke than those with a normal heart rate.

Since the special machines were introduced in April, Erewash’s GP practices have screened more than 6,500 patients aged 65 and over, representing 37 per cent of the population in that age group. The practices are on track to have screened half of the 65s and over by the end of the year.

The screening has identified 116 patients in danger of AF-related stroke and, on the basis of figures for the equivalent period before the machines were installed, will have prevented eight strokes already.

A reduction of eight AF-related strokes a year in Erewash would save £144,000 in NHS treatment costs and social care provided by Derbyshire County Council. In other words, the £10,000 investment in the machines will pay for itself many times over.

Now, the Department of Health has recognised the early detection programme as best practice while CCGs across the UK are implementing similar schemes.

AF is the most common heart rhythm disturbance. It affects more than 600,000 patients in England, or 1.2 per cent of the population, and is a major cause of stroke. However, treatment with warfarin reduces the risk of AF-related stroke by between 50 and 70 per cent.

Nationally, it is estimated that up to 4,500 AF-related strokes and 3,000 deaths a year could be prevented through early detection and treatment of AF.
25% of strokes admitted to the Acute Stroke Unit are Atrial Fibrillation (AF) related. There is a 70% higher risk of death in AF-related strokes than in other strokes. 1:2 AF-related strokes will die within the first year, 25% of these strokes will die within 30 days. AF-related strokes are costly, preventing them will save the NHS millions of pounds having a positive impact on UK economy. This highlights the importance of effective anticoagulation in AF sufferers to prevent stroke.

The Atrial Fibrillation Stroke Prevention Team have designed a service that delivers best practice care in line with current NICE Guidance CG180 2014. The team aim to reduce the number of episodes of acute care for patients with avoidable stroke attributable to AF.

The service was initiated in July 2014, it is a nurse led service with consultant support. The team provide a unique service that is local and convenient which is accessible improving access to care for patients with AF. It is a seamless shared care arrangement between secondary and primary care, the team improve patient choice, management for AF and achieving effective self-management and consistent quality.

The team strive to prevent AF patients from dying prematurely whilst enhancing the quality of life for people with long term conditions. The team review AF register’s within primary care identifying patients at risk of AF-related stroke. The team review patients within secondary care under a specialist team to review effective management and appropriate anticoagulation. The team educate and counsel each patient on their diagnosis, risk of AF-related stroke and the importance of effective management to reduce their risk. The team ensure that all patients remain under a follow up pathway continuously as required for each individual patient. The service is accessible to all patients aged 18 and over.

So far the team have anticoagulated 997 patients, if we base these figures on preventing one AF-related stroke 37 patients need to be anticoagulated just under 27 strokes have been prevented. This represents a cost saving to the local health economy of between £320,000 - £1,183,600. The team provide education to GP Practices around early diagnosis and identification of patients who are at increased risk of developing AF.

As a team we make a difference to patients and their healthcare, we ensure patients are clear on their objectives and that they are involved within the decision making process improving patient experience and outcomes.
USING ALIVECOR TECHNOLOGY TO UNDERTAKE ECGS IN GENERAL PRACTICE: IMPROVING PATIENT EXPERIENCE, RELEASING CLINICAL TIME AND CONTRIBUTING TO QIPP SAVINGS. A WIN FOR EVERYONE!

Victoria Schofield
HARINGEY CCG, UK

SETTING THE SCENE
• The recorded prevalence of AF in 2013/14 was 1,935, this was well below the expected prevalence of 2271. In addition, the rate of patients having a stroke had steadily increased between 2004 and 2015.
• In September 2015 Haringey CCG launched a Stroke Prevention Locally Commissioned Service where patients over 65 were targetted for pulse checks.
• In February 2016 Haringey CCG held innovation awards. One practice submitted an innovation that used a handheld device and mobile technology to take an ECG in under one minute.
• A number of practices in Haringey were interested in the innovation, which lead to the pilot of the devices in 11 GP practices.

BUILDING ON THE INNOVATION AWARDS - THE ALIVECOR PILOT
Haringey CCG implemented a pilot scheme in 11 GP practices in January 2017. Practices were provided with the Alivecor technology and were asked to use this device where patients had an abnormal pulse check. Practices were also asked to use two specific read codes, one for when an ECG has been undertaken in practice, and another if the result was abnormal a referral was required. The initial pilot ran from January to March 2017.

OUTCOMES OF THE PILOT
Patients with:
• A normal reading do not need to attend hospital saving them time and money, and they get an immediate result
• An abnormal reading were able to have an informed discussion with a HCP before referral

For Practices:
• Less resource used in referral processes
• Fewer calls from patients checking the results of a test with a normal result

For the health economy:
• Less resources used in acute diagnostics resulting in savings – see table below:

| No of ECGs undertaken in practices Jan-Mar 2017 | 125 |
| No of patients referred for further diagnostics | 20 |
| Savings to the Health care economy | £10,000 |

LEARNING FROM THE PILOT - KEY CONSIDERATIONS
• Buy in from all clinical staff in the practice is essential.
• Demonstrate the technology at GP meetings, Practice Nurse forums or existing relevant training sessions. It takes seconds to learn how to use the technology and seeing a demonstration alleviates concerns about using the device.
• The larger the practice the more devices needed; in a 10 minute consultation staff need to be able to locate the device in seconds.
• Initially monitor the activity every two weeks, as this is a new way of working some practices will need reminding to use the technology and to record the read codes.

FUTURE PLANS
Every practice in Haringey will have an allocation of devices based on list size. We have estimated that this could save approximately £144,000 per year. We are also looking into how we can use these devices in care homes and by the locality Multidisciplinary Teams, expanding the use of the devices for housebound patients.
IDENTIFYING NEW AND EXISTING PATIENTS WITH ATRIAL FIBRILLATION THROUGH USE OF THE ALIVECOR TECHNOLOGY TO INITIATE ACTIVE TREATMENT AND PREVENT AVOIDABLE AND DISASTROUS THROMBOEMBOLIC EVENTS

Dr Phill Molloy, Academic Foundation Trainee and Dr Bernard Nyemi-Tei
NORTHAMPTON GENERAL HOSPITAL, UK

INTRODUCTION: Atrial fibrillation (AF) prevalence is increasing annually, greatest in patients over 65 years of age with comorbidities such as hypertension, heart failure, coronary artery disease, valvular heart disease, obesity, diabetes mellitus, chronic kidney disease. Symptoms are often asymptomatic and an estimated 33% of people with AF in the UK are undiagnosed. Current detection relies on clinical pulse checks with a 12-lead ECG to confirm the diagnosis. Unfortunately, this process is not time or cost effective to be developed into a national screening programme. Consequently it seems sensible that better methods of detection should be established.

OUTLINE OF SERVICE: The Alivecor heart monitor is a one lead portable ECG device used for the identification of AF. Patients are required to place fingers onto a small metal pad for 30 seconds. A recording is transmitted to a smart device where an ECG is visualised and interpreted giving the following outcomes: normal, unclassified or possible AF.

CASE PATHWAY: Patients with no known diagnosis of AF attending flu clinics in two general practices over an eight-week period underwent a pulse check using the Alivecor. This group of patients were selected for case-finding as some of the eligibility criteria for seasonal influenza vaccinations overlap with risk factors for AF. It also allowed nurses time to vaccinate patients and perform the Alivecor pulse check without creating the need for additional appointments. Patients rated as ‘possible AF’ underwent a 12-lead ECG to confirm an AF diagnosis at the next available practice appointment.

RESULTS:

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. patients recruited</td>
<td>205</td>
</tr>
<tr>
<td>Positive readings</td>
<td>5</td>
</tr>
<tr>
<td>No. newly identified AF</td>
<td>2</td>
</tr>
<tr>
<td>No. new cases already known but lost to follow up</td>
<td>3</td>
</tr>
<tr>
<td>Positive 12-lead ECGs</td>
<td>5</td>
</tr>
</tbody>
</table>

CONCLUSION: We found 2.4% of at risk patients tested positive with a 100% specificity reading. We also highlighted that while EMIS Web is incredibly useful for coding, this may not always be achieved correctly and screening could benefit those patients who may have ‘slipped through the net’. Consequently patients whose initial CHA2DS2VASC scores were zero >1 year ago have been rediscovered to have much higher scores. While detection of AF in general practice creates a little more work initially, identification of patients who should be considered for anticoagulation therapy is a positive for the local population’s health and reduction of debilitating strokes in the future which will require more intensive clinical labour.

FIGURE 1

References

A SECONDARY CARE BASED FOLLOW UP SYSTEM FOR PATIENTS RECEIVING A DOAC FOR STROKE PREVENTION IN ATRIAL FIBRILLATION: A DEDICATED, PATIENT-FOCUSED ONGOING FOLLOW UP SERVICE RUN BY A SPECIALIST ANTICOAGULANT TEAM

Sarah Bond and Sue Rhodes
SWINDON, UK

All patients in Swindon who receive oral anticoagulation have been managed by a secondary care based Anticoagulant Clinic since 1996. Following the introduction of the DOACs, it was agreed that the management and follow up of patients with AF commenced on a DOAC would continue to be the responsibility of the Anticoagulant Clinic based at The Great Western Hospital.

The DOACs were added to the formulary as they each gained NICE approval. The Anticoagulant Clinic offers a combination of face to face appointments and virtual telephone clinics to counsel every patient commencing on a DOAC. The Anticoagulant Practitioners check the CHA2DS2VASC and HAS-BLED score as well as baseline blood tests. Based on this information, together with the age and weight of the patient, the most suitable DOAC is selected and the dose verified.

Initial follow up is three months after commencement of DOAC and thereafter annually. Any patient with side effects or worsening renal function has the interval between reviews shortened accordingly on an individual patient basis. At each review the patient is posted a questionnaire with a pre-paid return envelope. Renal function is checked – if this has not been repeated within the last 12 months then a blood form is sent with the posted questionnaire.

We currently have 3397 patients anticoagulated for AF of which 52.3% are receiving a DOAC. Patient follow up reviews have resulted in 279 reported adverse events and multiple corrections of the DOAC dose.

Benefits of our scheme:

- Patients feel reassured knowing that anticoagulation is being managed by a specialist team
- Dose adjustment of DOAC is appropriate and continually checked
- Switching between anticoagulant drugs is easier as all the essential information is available in one centralised database
- System allows bespoke anticoagulation management
ANTICOAGULATION OPTIMISATION PROJECT

Victoria Price and Susan Shapiro
OXFORD UNIVERSITY HOSPITALS NHS FOUNDATION TRUST IN COLLABORATION WITH OXFORD CLINICAL COMMISSIONING GROUP AND OXFORD ACADEMIC HEALTH SCIENCE NETWORK, UK

Oxford University Hospitals NHS Foundations Trust (OUHFT) are collaborating with Oxford Clinical Commissioning Group (OCCG) and Oxford Academic Health Science Network To Support Anticoagulation Optimisation. OUHFT provides a ‘dose and post’ warfarin service (including initial counselling and advice line for warfarin). It manages 8000 patients (5600 with atrial fibrillation, AF). The service benchmarks well (mean time in therapeutic range, TTR, 72%), yet analysis in 2016 demonstrated 2125 patients had TTR < 65% (1500 with AF).

Oxfordshire GPs are responsible for review of anticoagulation control and DOAC initiation. Informal feedback suggested not all GPs felt confident to do this. In order to more fully understand the needs of local GPs, surveys were sent to all Oxfordshire GP practices. 76 responses were received from individual GPs. 43.2% of respondents did not feel confident in assessing anticoagulation control on warfarin; 66.7% were not confident in knowledge of DOACs; and 52.7% did not feel confident in prescribing DOACs. Additional services considered useful were: email support (77%), telephone advice (48.7%), education and training (48.7%), outreach support by specialist pharmacist (29.7%) and centralised DOAC initiation service (44.6%).

The subsequent 1 year project, supported by educational MEGS grants from Pfizer and Daiichi-Sankyo, was launched in March 2017. Its aim is to upskill both GPs and community pharmacists. 1.5 specialist anticoagulation pharmacists, with haematology consultant support, provide:

- Education sessions for community pharmacists to help effectively deliver the New Medicines Service and Medicines Use Reviews to patients on anticoagulants

Collaboration between OUHFT and OCCG is critical to success- shared protocols and review of guidelines, plus initiation of a new service tariff for GPs to support TTR review.

Feedback from GPs following outreach support is positive: 100% agreed or strongly agreed that the content, structure and presentation of the session were at the appropriate level; all GPs would recommend the educational session to colleagues. The GP practice TTR data at 3 and 6 months following intervention will be analysed for impact.

Whilst a centralised initiation DOAC service was popular, it was not feasible with the funding available. The strengths of the current service are its widespread upskilling to improve safety of these commonly prescribed medicines. If proven successful, it will be requested as a commissioned service in order to continue to support and improve safe and optimal anticoagulation in a rapidly evolving area.

- Email and telephone advice
- Educational sessions and note-based TTR reviews in GP practices
INCREASING PHARMACISTS KNOWLEDGE ABOUT ANTICOAGULATION TO IMPROVE SUPPORT FOR PATIENTS

Sharron Gordon and Vicki Rowse
WESSEX ACADEMIC HEALTH SCIENCE NETWORK, UK

INTRODUCTION: Wessex AHSN are delivering a portfolio of activity across our ‘Detect, Protect, Perfect’ Atrial Fibrillation (AF) program. Included is a programme of education for community and practice pharmacists to enhance their ability to undertake patient counselling and New Medicines Service (NMS) consultations. In addition resources have been developed to signpost patients and reinforce messages. These include referral cards and a video ‘Starting Anticoagulation with Jack’ with accompanying patient information leaflet (PIL).

OUTLINE OF PROGRAMME: Starting anticoagulation is complex and requires patients to absorb a lot of information. Community pharmacists in particular, and increasingly GP practice pharmacists, are well placed to provide advice, support and counselling for patients starting new medicines. Research shows that NMS consultations increase adherence by 10%. Recognising this we piloted direct GP referrals to community pharmacists for anticoagulant NMS as a means of reinforcing key messages and giving patients more support.

We found that GP’s often forgot to give patients the referral cards to take to their pharmacy, but when they did the consultations were valued by patients and Pharmacists alike. Building on these findings we have:

• Run a programme of evening education sessions for pharmacists and GP’s, to increase their knowledge and understanding of anticoagulation and discussions on anticoagulation with patients.
• Developed various resources to increase patient’s awareness of pharmacist support and anticoagulation.

Education sessions, delivered by Pharmacists include anticoagulation case studies and consultation skills; further supported by resources including CPPE consultation skills package and videos on the Wessex AHSN Website.

This is underpinned by posters for display in the surgery or pharmacy, referral cards to encourage patients to visit their pharmacist and ask for an anticoagulant discussion; and our short animation ‘Starting Anticoagulation With Jack’. http://wessexahsn.org.uk/projects/145/starting-anticoagulation-with-jack

RESULTS: Training has been delivered to Pharmacists and GP’s in 11 localities, with more planned. To date over 300 people have been trained.

Jack has been watched >8500 times in 5 months and the PIL viewed >1780 times. Posters are distributed to pharmacies and practices, and referral cards handed out at anticoagulation clinics.

Our aspiration is to keep the patient at the centre of all we do and increase awareness of the support that pharmacists can offer. Our Transfers of Care Around Medicines pathway is increasing referrals from hospital to community pharmacists for medicines support.
STARTING ANTICOAGULATION WITH JACK

Sharron Gordon, Tamara Everington and Vicki Rowse

WESSEX ACADEMIC HEATH SCIENCE NETWORK, UK

INTRODUCTION: Anticoagulants are a high risk group of medicines so ensuring that patients have sufficient knowledge and understanding to take anticoagulants properly is a priority. It’s essential for every patient to know that they must stop the medicine and get help if they have any serious signs of bleeding. “Starting Anticoagulation With Jack” was born out of a patient’s story.

CASE STUDY: Mrs. B was started on a direct oral anticoagulant (DOAC) in hospital. A few weeks later she was readmitted, collapsed having had a huge gastric bleed. It transpired that Mrs. B was not aware of DOAC side effects. The decision to start the DOAC had been made on a ward round, but there was no documentation in her notes about the information given and she had not been referred to the anticoagulation clinic. So she went home with her tablets, obtained a further supply via the GP and took them regularly. A month later she started having black tarry stools, but not recognizing this as a DOAC side effect, she went on to have a serious bleed.

Mrs B has fully recovered, but her experience set us thinking about anticoagulant information for patients, and formats that they could access anytime and share with carers and family. Patients have told us that they don’t remember much of what they are told about medicines when they are discharged from hospital. So even if they are counselled well they will need additional sources of information. Understanding side effects is as important as patients knowing that they are being anticoagulated and why.

Starting Anticoagulation with Jack is a short animated film with subtitles. It explains about clotting and why abnormal clots can form as people age. The different types of medicines are shown, and Jack and his son talk about Jack’s concerns, side effects and sources of support. There is a downloadable leaflet.

Led by Wessex AHSN the film was developed collaboratively by experts from patient groups, The Royal Pharmaceutical Society; Hampshire Hospitals FT and was supported by a grant from Bayer.


In the 5 months since launch ‘Jack’ has been viewed over 8500 times and the leaflet 1780 times. ‘Jack’ is signposted from other AHSN Websites; The Thrombosis UK, and Stroke Association websites and has been well received by patients and professionals.
AF carries a five-fold increase risk of a stroke compared to patients in sinus rhythm. Many AF-related strokes can be prevented with appropriate anticoagulation. From the 2015/16 Quality Outcomes Framework database Hillingdon has an AF prevalence of 1.3% (England prevalence 1.7%). Of the 3837 patients identified with AF, 100 patients did not have a recorded CHA2DS2VASC (or equivalent). 2,823 were at risk of stroke (CHA2DS2VASC) and should have been offered anticoagulation therapy taking bleeding risk and patients’ preferences into consideration. 2,305 of these patients (82%) were prescribed anticoagulation.

We recognise that there is significant scope to improve diagnosis/coding of AF and uptake of anticoagulation in primary care. The barrier appears to be time and resources. We therefore looked at a trained pharmacist using an audit tool (Enhance AF) to validate the GP AF register. The patients were then risk stratified and suggestions made to the GP with an action plan. The process was facilitated by a locally designed template and the GP practices were given access to cardiology consultants via a designated email helpline and a planned one off face to face meeting. This was to guide when the decision pathway was not clear. The pharmacist is due to return to the practices to re-audit.

We have started the pilot in 4 practices:

The average prevalence was 1.2% at the start and 1.7% at the end.

The pilot study shows we can help bridge gap in prevalence of AF and increase appropriate anticoagulation prescription.

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PATIENT CENTERED CARE IN ATRIAL FIBRILLATION – INTEGRATING PATIENT VALUES AND PREFERENCES INTO TREATMENT DECISION MAKING IN A MULTIDISCIPLINARY ATRIAL FIBRILLATION SERVICE

**Dr Axel Brandes**
ODENSE UNIVERSITY HOSPITAL, DENMARK

During the course of atrial fibrillation (AF) many treatment decisions have to be made. There are often different choices, where benefits and harms must be weighed. Moreover, treatment of AF increasingly consists not only of medical or ablation therapy, but also treatment of risk factors and lifestyle changes, which become more and more important. As treatment is chronic in the vast majority of patients, problems with treatment adherence might occur.

For these reasons thorough information and education should be provided to all patients, individually customised according to the patients’ needs and personal resources, empowering them to become informed and autonomous individuals, who at least in part are able to be responsible for treatment adherence and consequently their quality of life and outcomes. This important issue is also addressed by the recent 2016 European AF guidelines.

Since 2012 we have run a special AF outpatient service at the Department of Cardiology, Odense University Hospital, Denmark, with a multidisciplinary team, currently consisting of two AF specialists and three specialist nurses. Newly referred patients have their first appointment of 45 minutes with the AF specialist, who takes a medical history, a 12-lead ECG, performs an echocardiography, and provides detailed information on AF and the individual treatment plan made. Whenever possible, treatment decisions are made together with the patients considering their values and preferences and taking their needs and personal resources into account.

As guidance and education of patients and their families are a strategic priority for our AF service, we encourage the patients to bring a family member on all appointments. A follow-up visit with one of the nurse specialists is usually scheduled after three months. Beyond the history since the last visit, pulse and blood pressure, and a 12-lead ECG, patients are instructed and trained to better understand their disease, how they can cope with it, and how they respond appropriately to deteriorations or changes of their condition. The nurse also makes necessary adjustments of the patient’s treatment plan in close collaboration with the AF specialist.

The number of follow-up visits is determined based on the patient’s specific needs. To provide continuity, each patient is seen by the same AF and the same nurse specialist.

The multidisciplinary AF service provides guideline-adherent treatment. Our approach has led to greater patient satisfaction, as patients experience greater personal involvement in their treatment course.
THE ESTABLISHMENT OF A DEDICATED ATRIAL FIBRILLATION CLINIC IN A LARGE TERTIARY HEALTHCARE SERVICE: MULTIDISCIPLINARY CARE

Melissa Harvey
MONASH HEALTH, MELBOURNE, AUSTRALIA

INTRODUCTION: Many patients with newly diagnosed Atrial Fibrillation (AF) were experiencing lengthy access times for outpatient cardiology reviews within our health service. Their health assessment, stroke prevention and AF symptom control was delayed by 4 months on average. Therefore, a dedicated Atrial Fibrillation clinic was established to provide early access and a uniform Nurse Led care pathway for patients with AF to improve their healthcare outcomes and quality of life.

OUTLINE: The innovative outpatient service was established by the Cardiac Rhythm Management team at MonashHeart. It aims to provide:

• Early access to a thorough health assessment.
• Medical therapy optimisation and symptom control.
• Stroke prevention.
• Patient education.
• A link between specialised AF care and the community, giving our patients and their General Practitioner a single point of contact within the complex hospital system via the AF nurse.

Referrals are taken from inpatient services and the community. They are triaged in order of priority by the AF specialist nurse. Patients are given a phone call and then attend a multidisciplinary clinic seeing both a Cardiac Electrophysiologist and the AF nurse. A health assessment including stroke risk and appropriate patient education are provided by the AF nurse. Patients are then reviewed by the cardiologist for initiation of anticoagulation if required and medical therapy optimisation. Patients return within three months to review their treatment strategy or earlier if patient symptoms require re-assessment.

RESULTS: The dedicated service has been running for six months and has seen 105 patients with referrals from the emergency department, inpatient services and the community. Positive results from the clinic include:

• Early access to initial assessment within 4 weeks.
• Early anticoagulation of appropriate patients utilising the CHA2DS2-VASc score, with 100% of patients with a CHA2DS2-VASc of ≥2 anticoagulated post clinic review.
• Informed and educated patients showing medication compliance, with 92% of patients persisting with their full medication regime at their review.
• A uniform pathway of care for patients with AF.
• Support via phone contact in business hours with the AF nurse.
• Onward management and treatment options including cardioversion, AF catheter ablation and referral to our complex AF clinic if required.

Within 6 months of commencing a dedicated nurse led clinic for management of patients with AF, delivery of care has been greatly enhanced and improved long term patient outcomes are expected.
ECG CLINICS AND TRAINING OF STAFF TO DETECT ATRIAL FIBRILLATION AND OTHER CARDIAC ISSUES FOR INPATIENTS AND COMMUNITY PATIENTS WITH SERIOUS MENTAL ILLNESS WHO ARE PRESCRIBED ANTI-PSYCHOTIC MEDICATION

Lisa Evans
HIGHBURY HOSPITAL, NOTTINGHAM, UK

BACKGROUND: A large number of community patients prescribed high dose, long term antipsychotic medication do not engage with GPs and/or community teams. Due to the side effects of this medication, the ECG is an essential screening tool enabling the professional to monitor a patient’s physical health both prior to commencement of medication and for ongoing monitoring whilst taking medication. ECG’s also assist in the assessment when calculating an individual’s Cardio-Metabolic risk and risk of Atrial Fibrillation.

Let’s look at the Statistics:

“..Persons with major mental disorders lose 25 to 30 years of potential life in comparison with the general population, primarily due to premature cardiovascular mortality…” US Library of Medicine

“.....Many psychiatric medicines, antipsychotics in particular, are associated with increased risk of metabolic syndrome.....” Public Health England

“...People with Severe Mental Illness (SMI) show a greater Cardio-metabolic risk than the general population), University of Varese, Varese, Italy

Historically, patients that required an ECG attended either their local acute hospital or their GP surgery. It was therefore deemed more beneficial and cost effective to train clinical staff to take ECG’s. To date, 180 staff have been trained to deliver ECG’s and further training is scheduled. ECG Interpretation training for medics and senior nurses and an ECG e-learning package (refresher) have also been included in this service. This has resulted in a marked increase in the number of ECG’s being taken and baseline ECG’s being available to medics in a timely, more cost effective manner, with less disruption to the patient, ward and trust. Community ECG clinics have also been implemented, enabling community clinicians to request ECG’s for their patient. These clinics have proved invaluable in terms of detection of cardiac problems including AF.

CASE STUDY: Patient A attended community ECG clinic with case worker. Whilst conducting his ECG, serious cardiac issues were discovered. The following is an extract from the email sent by the keyworker a few days later:

"Just a quick follow-up to the ECG clinic this service user attended recently...has a follow up appointment with Cardiology to follow up abnormal ECG...well done again as this would not have been picked up without the ECG Clinic at Highbury as GP was refusing to do ECG..."

In conclusion, this new service has resulted in quicker detection, diagnosis and improved treatment pathway for clients with serious mental illness, ensuring that patient care is at the heart of this new initiative.
Comparison of impact before and after Community Pharmacy referral.

<table>
<thead>
<tr>
<th>Clinical Measures</th>
<th>Before the project PHCP N=50</th>
<th>During the project PHCP N=50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure</td>
<td>29</td>
<td>47</td>
</tr>
<tr>
<td>ECG</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>BMI</td>
<td>27</td>
<td>48</td>
</tr>
<tr>
<td>Blood Glucose*</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>Blood Cholesterol*</td>
<td>29</td>
<td>28</td>
</tr>
</tbody>
</table>

* Add middle-way through the project

From 40 ECG assessments done, 10% had an ‘Unclassified’ in the ECG results. An Unclassified message means the tracing is not Normal and not AF, and interference was not detected. An example of an Unclassified tracing is one where tachycardia is observed. 1% had a ‘Possible Atrial Fibrillation’ in the ECG results and it may present only potential findings.

Benefits for this vulnerable group of patients
- Facilitate early access to treatment of physical health conditions and illness
- Promote physical health and address risk of physical illness to combat health inequalities.
- Signpost the patient to appropriate local provision.

The pilot is a new model to improve physical, clinical and psychological outcomes and supporting patients by health coaching to manage their lives and make positive behaviour changes.

It is expected that by the end of December, 350 patients would have their Physical Health Checks done by Community Pharmacists.
The ACU accepts patients with AF referred from the ED and from the out-patient (OP) waiting list for Cardiology opinion and management. There is currently no funding in place to allow GPs direct access to the service, but many of the patients subsequently managed by the ACU have been referred onwards to either ED or OP by the GP, who was the initial point of contact.

A database has been maintained since the ACU opened, allowing for follow-up of patients referred into the service. Data on new onset AF patients, subsequently seen in ACU was analysed in order to review how many of these referrals originated with the patient’s GP and what presenting symptoms and heart rates were upon referral to either ED or OP. On interrogation of the ACU patient database, it is clear that referral patterns of patients with new onset AF to ED and Cardiology out-patients by the GP is variable and not always guideline-based. Of 49 patients with new AF referred to ED, 10 (20%) were asymptomatic and not compromised. None of these 10 patients were started on anticoagulation outside hospital.

None were admitted and were safely managed by the ACU following referral from the ED. In addition, of the 5 patients referred to OP with new AF and subsequently diverted by consultant triage to ACU, 5 were symptomatic (100%) and required earlier cardiology intervention. None of these 5 had been started on anticoagulation while waiting to be seen.

This is a small sample, representing patients with new AF referred from the GP to secondary care. However, it demonstrates that there is inconsistency in AF care within Belfast. It also demonstrates that patients often follow a circuitous path to definitive AF care which may not be the most satisfactory for the patient. The European AF survey[1] found that up to 18% of patients felt that their time had been wasted due to poorly co-ordinated care. The factors which need to be considered to provide appropriate, evidence based care for patients with AF are well known and listed within current ESC and NICE guidance.[2,3]

However where, how, and by whom this care is delivered is less clear. This study aims to discover the current patient journey, examine how health professionals and patients perceive the strengths and weaknesses of this and to work with patients and professionals to discover and deliver the optimum patient journey.

REFERENCES


Atrial Fibrillation is the most common sustained cardiac rhythm disturbance and is thought to affect 1-2% of the total population (over 6 million Europeans). However about one third of patients are unaware of the rhythm disturbance, being completely asymptomatic, hence causing a challenge for early detection and treatment. NICE estimates that 46% of patients who should be anticoagulated are not.

The current European Guidelines recommend screening for AF in anyone over 65 years of age. Undiagnosed AF leads to increased risk of stroke. It has been reported that 1 in every 5 strokes occurs in context of AF and therefore accounts for a large amount of hospital admissions at a huge cost to the NHS.

At our Trust we have developed a system to identify any patient who has new finding of AF (> 30 seconds in duration) on interrogation of their device (at routine PPM or ILR follow-up or via remote monitoring). The idea was for earlier detection and initiation of treatment in order to reduce the risk of stroke.

Inclusion criteria are EVERY patient at EVERY check. If AF is identified we write a letter to the GP (in format of a proforma) informing them of the finding and asking them to do CHA2DS2-VASc / HAS-BLED score and commence the patient on the relevant anticoagulation if deemed appropriate based of the scores mentioned previously.

It is difficult to assess how many patients are started on anticoagulation after PPM interrogation as we send ~ 5 letters per month and we do not always have access to GP letters. However, we do find that at the next annual check a high percentage of these patients have been assessed by GP & have either been started on anticoagulation or not where it is contraindicated.

In the last year we have identified a number of patients via ILR interrogation (14% of total patients seen) and all have been appropriately treated with anticoagulation apart from one.

We also have access to a Clinical Nurse Specialist who runs an AF clinic. We can directly refer patients to her clinic, via an electronic referring system, to be seen in the clinic if we feel they need further review (not on appropriate medication / needs better rate control / episodes are more sustained or patient is becoming more symptomatic).

Date
Re:
Dear Dr,
The above patient attended the pacemaker clinic on:
During the pacemaker check Atrial Fibrillation was noted. The Arrhythmia log built into the pacemaker suggests that this was Permanent / Paroxysmal Atrial Fibrillation / Atrial Flutter.
AF frequency:
As a consequence of this finding, as per NICE guidance, would you please calculate the patients CHA2DS2-VASc score and prescribe the indicated thromboembolic prophylaxis, taking into account their known contraindications and HAS-BLED score.
The patient has been informed and we have asked for them to contact you for an appointment in 10 days.
Yours Sincerely,
Clinical Physiologist,
Pacemaker Clinic.
0151 706 3187.
Dr A H Ranmuthu and Dr H Rahman
CHARLTON HOUSE MEDICAL CENTRE
LONDON, UK

Charlton House Medical Centre is located in the north east of Haringey which is one of the most deprived areas of the country. The stroke prevalence in this borough is very high and the outcomes are poor; currently Haringey has the second worst early mortality rate in England\(^1\).

Based on Quality and Outcomes Framework (QOF) data from 2013/14 shows that GP practices in Haringey had 1935 on their AF registers; this is estimated at just 46% of the total number of people with AF and Haringey CCG estimated that there were 2271 patients in Haringey with undiagnosed AF. The national average diagnosis rate is 65%. With such bad outcomes for patients with stroke and such a low diagnosis rate for Atrial Fibrillation in Haringey, especially in the poorer north east corner of Haringey, the CCG commissioned the stroke prevention locally enhanced service to encourage GP practices to carry out pulse checks on eligible patients with the aim of diagnosing AF with the aim of increasing prevalence to the national average.

Due to our successful internal pilot we won a Haringey CCG innovation award and this was then rolled out as a Haringey CCG pilot. Due to the success of the pilot, Haringey CCG submitted a business case to UCLP for additional funding for devices and they have been successful. They are therefore rolling out this pilot across Haringey, giving as many practices and patients as possible the opportunity to benefit from the technology\(^2\).

Let’s hope this project will improve the undiagnosed rate of AF and prevent strokes in Haringey in the future.

REFERENCES
1  Public Health England, 2014
2  Haringey CCG News Item, July 2017
**GLOSSARY**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td><strong>Ablation</strong></td>
<td>A treatment which destroys a very small area of tissue inside the heart and so works to prevent rogue electrical impulses from interfering with the regular rhythm of the heart</td>
</tr>
<tr>
<td><strong>Anticoagulant/Anticoagulate</strong></td>
<td>Drug therapy which helps to slow the natural clotting speed of the blood</td>
</tr>
<tr>
<td><strong>Antithrombotic Treatment</strong></td>
<td>Treatment which reduces the risk of a blood clot forming which could lead to a stroke</td>
</tr>
<tr>
<td><strong>Arrhythmia</strong></td>
<td>Heart rhythm disorder</td>
</tr>
<tr>
<td><strong>Atrial Fibrillation (AF)</strong></td>
<td>Irregular heart rhythm</td>
</tr>
<tr>
<td><strong>Atrial Flutter</strong></td>
<td>A heart rhythm disorder in which the upper chambers of the heart beat very rapidly</td>
</tr>
<tr>
<td><strong>BMI</strong></td>
<td>Body Mass Index</td>
</tr>
<tr>
<td><strong>Cardiac</strong></td>
<td>Relating to the heart</td>
</tr>
<tr>
<td><strong>Cardiovascular</strong></td>
<td>Relating to the heart and blood vessels</td>
</tr>
<tr>
<td><strong>Cardioversion</strong></td>
<td>A therapy to treat atrial fibrillation or atrial flutter which uses electrical shocks to revert the heart back to a regular rhythm</td>
</tr>
</tbody>
</table>
| **CHA2DS2-VASc** | A method of assessing stroke risk in patients with atrial fibrillation:  
  - Congestive heart failure  
  - Hypertension  
  - Age (75 years or older)  
  - Diabetes  
  - Stroke  
  - Vascular disease  
  - Age (65 – 74 years)  
  - Sex (gender) |
| **CV Specialist** | A cardiovascular specialist |
| **Echocardiogram (Echo)** | An image of the heart using soundwave-based technology (ultrasound) which shows a three-dimensional image |
| **Electrocardiogram (ECG)** | A representation of the heart’s electrical activity taken from electrodes on the skin surface |
| **HAS-BLED** | A method of assessing bleeding risk in AF patients on anticoagulation or being considered for anticoagulation:  
  - Hypertension  
  - Abnormal renal/liver function  
  - Stroke  
  - Bleeding history/predisposition  
  - Labile INR (measure of blood coagulation)  
  - Elderly (over 65 years)  
  - Drugs/alcohol |
| **Heart Failure** | The inability (failure) of the heart to pump sufficient oxygenated blood around the body to meet physiological requirements |
| **Hypertension** | High blood pressure – a condition that puts strain on the heart, leading to thickening of the heart muscle and increased size of the left atrium. This condition is associated with atrial fibrillation |
| **Palpitations** | A sensation in which the person is aware of a rapid, irregular or hard heartbeat. It can appear to skip beats or thump in the chest |
| **Paroxysmal AF** | Episodes of atrial fibrillation which cease without treatment |
| **Physiologists** | A healthcare professional who performs diagnostic and analytical procedures to assess heart rhythm disorders |
| **QIPP** | Quality, Innovation, Productivity and Prevention for a large scale transformation programme for the NHS aimed at improving quality of care and efficiency |
| **Stroke** | A medical condition where the brain is deprived of oxygen due to a blockage or a bleed |
| **Thrombo-embolic** | The blocking of a vessel by a blood clot |
| **Transoesophageal echocardiogram (TOE)** | A procedure carried out to see whether clots have formed in the left atrium and if so, whether a treatment option is safe to perform |
| **Urinalysis** | A range of tests performed on urine |
| **Warfarin** | A medication used to anticoagulate the blood |
The Heart of AF
A one-stop educational resource for healthcare professionals
Promoting best practice in AF care by professionals, for professionals
www.heartofaf.org

AF Association Global AF Aware Week
19-25 November 2018
www.afa-international.org

Join the pioneering, global, Heart Rhythm Specialists website.
The resource provides information on local services to general healthcare practitioners seeking to refer a patient or in need of advisory council; and patients with heart rhythm disorders. The website aims to bring together a comprehensive database, which can be accessed easily by both patients and healthcare providers.
Register on the heart rhythm specialist website
www.heartrhythmspecialists.org

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