

1. PROJECT INFORMATION

Project Title	Hypertension and AF community detection		
Project Sponsor	Ian Wake	Cabinet Member	
Project Manager		Author	Monica Scrobotovici- Healthcare Public Health Improvement Manager
Date	07/03/2017		

2. PURPOSE OF THIS PROJECT

The purpose of this project is to respond to the low case finding rates in Tilbury locality due to limited resources available in primary care. The use of local assets, such as pharmacies and community hubs, will increase the access to high-quality services in safe environments.

This project aims to increase the rate of people living with hypertension who are aware of their condition, thus will increase the number of people properly managing their condition and receiving the appropriate care in a safe environment.

While through hypertension screening people with AF will be picked up, a pathway for AF follow up and management was included in the programme even though AF screening is not currently recommended by NICE and UK National Screening Committee.

3. NEEDS ASSESSMENT

Tilbury locality has a higher prevalence of hypertensive and AF patients than the borough and England. Public Health England estimates show the average prevalence of HYP in Tilbury is 21.5% compared to 14.1% in Thurrock and 13.8% in England. With a detection rate of 73%, almost 2,200 patients from Tilbury have hypertension and not aware of it. Based on local statistical models, 1 out of 5 undiagnosed and untreated patients could develop a stroke in the next three years. (1)

Similarly, with a prevalence of 2.12% and an even lower detection rate of 56%, there are 330 patients with AF who are not diagnosed and not treated in Tilbury. If not treated in the next three years with the appropriate anti-coagulant, 1 in 2 patients will develop a stroke. (1)

The money saved by the NHS and social care over a 3 year period following a single patient having a stroke has previously been estimated as £3,644 and £4,221, respectively.

One of the reasons behind the low detection rate of patients with hypertension and AF in Tilbury is the limited capacity within the GP surgeries in the area. Tilbury is significantly under doctored and under nursed in terms of primary care. All the practices in Tilbury have full time equivalent GP:patient ratios significantly above the 1,321 England benchmark, with one of the practices

reaching 13,795 patients per FTE GP.

Some of the solutions to the GP and nurse shortage in primary care are:

- 1) The use of other community resources available. In their 2014 'Tackling high blood pressure' (2) report, Public Health England recommended the use of local Pharmacies for pro-active provision of hypertension testing. The study recommended the pharmacy testing as the most cost effective approach, especially for reaching the younger or most deprived patients who might be less engaged in the health system. According to the most recent local PNA, there are 7 pharmacies available in Tilbury locality. Tilbury Riverside and Thurrock Park has 28.3 pharmacies per 100,000, and Tilbury St. Chads has 32.6 pharmacies per 100,000 compared to the Thurrock average of 21.8.
- 2) The use of self-measuring station in the waiting area and engagement of non-clinical staff in the opportunistic case finding in primary care.

4. EVIDENCE BASE

Tackling High Blood Pressure – Public Health England – NHS Five year Forward View (2)

"A group of leaders across national and local government, the health system, voluntary sector and academia have come together to support the better prevention, detection and management of high blood pressure. This is our vision and action plan, developed from the best evidence and practical experience of our group. It is intended to support partners at all levels to focus upon the work that will make the biggest impact tackling this condition. Nationally, our work supports wider strategies, notably the NHS Five Year Forward View and Public Health England's (PHE) priorities to protect and improve the nation's health. In parallel we recognise it is local leadership and implementation which will be the critical ingredients to achieve sustainable change on this topic. People from the most deprived areas are 30% more likely than the least-deprived to have high blood pressure, and the condition disproportionately affects some ethnic groups including black Africans and Caribbeans. So a focus on blood pressure has potential to address health inequalities and variation in outcomes, and this work sets out how we might best achieve that.

In ten years, 7,000 years of life could be saved and £120m not spent on related health and social care if we achieve an improvement in the diagnosis of high blood pressure.

Key approaches are:

- more frequent opportunistic testing in primary care, achieved through using wider staff (nurses, pharmacy etc.), and integrating testing into the management of long term conditions
- improving take-up of the NHS Health Check, a systematic testing and risk assessment offer for 40-74 year olds
- targeting high-risk and deprived groups, particularly through general practice records audit and outreach testing"

One of the key approaches recommended by the reports is the pro-active provision of testing for high-risk and deprived groups of all ages through outreach testing beyond general practice,

particularly through pharmacy (in order to access those groups least likely to otherwise present, such as younger men, low income households and those in deprived areas).

Screening for AF not recommended at the national level– UK National Screening Committee (3)

Purpose

1. The purpose of this paper is to provide background on the item addressing screening for atrial fibrillation (AF) in the over 65s.

Current policy

2. The current policy is that screening for atrial fibrillation should not be offered at the national level.

Review

3. A review of the literature was produced by Solutions for Public Health. This makes several key points:

- Clinical management of the condition is not optimised.
- The treatment for AF includes offering the patient long-term anticoagulants to reduce the risk of stroke, if that risk is above a certain level. It is known that many patients who would benefit from anticoagulants are not taking them. The treatment can last for many years. Screening is likely to detect an increased number of over 65 year olds with AF but it would be ethically unjustifiable to begin this in the context of concern about the management pathway
- There is little evidence as to whether the risk of progression from AF to stroke is equivalent in the screened and clinically detected populations
- The review highlights concerns about operator dependency in the testing process

Carry out pulse checks as part of HYP screening (2)

“Pulse checks are recommended as part of a blood pressure test – these can help identify irregularities which may relate to conditions such as atrial fibrillation which itself is a major cause of stroke. New technology can also assist here”, such as automated blood pressure monitors.

WatchBP Home A for opportunistically detecting atrial fibrillation during diagnosis and monitoring of hypertension – NICE recommendation (4)

“The following recommendations are from NICE medical technology guidance on WatchBP Home A for opportunistically detecting atrial fibrillation during diagnosis and monitoring of hypertension.

The case for adopting WatchBP Home A in the NHS, for opportunistically detecting asymptomatic atrial fibrillation during the measurement of blood pressure by primary care professionals, is supported by the evidence. The available evidence suggests that the device reliably detects atrial fibrillation and may increase the rate of detection when used in primary care. This would allow prophylactic treatment to be given to reduce the incidence of atrial fibrillation-related stroke. WatchBP Home A should be considered for use in people with suspected hypertension and those being screened or monitored for hypertension, in primary care.”

Stroke prevention and cost savings – Annual Public Health Report (1)

To avoid one emergency admission for a stroke in every 3 year period we can do ONE of the following:

- 1) Prevent 20 people from developing high blood pressure
- 2) Prevent two people from developing AF
- 3) Detect and treat an additional 0.015% of the expected hypertensive population (for Thurrock this equates to detecting 0.015% of the additional expected 10,983 undiagnosed patients – i.e. two patients)
- 4) Assess and treat an additional three patients with AF and a CHADS score of >1
- 5) Support five patients with Hypertension to keep their Blood Pressure under 150/90

The estimated cost of a stroke to the NHS is £3,644 (£235 for A&E attendance, £737 for ambulance, and £2,672 for the admission). It has also previously been estimated by 2 of the authors that following a stroke a patient has a 15-20% probability of having a new or increased social care package costing around £18k per year. Therefore, crudely, using an assumption that 15% of people in a care home die each year the saving to Social Care from avoiding 1 stroke is approximately £4,221 over the 3 years following the stroke.

Other diseases

Studies show untreated hypertension increases the risk for heart disease, kidney disease and vascular dementia. A patient with the blood pressure higher than 140/90 has a relative risk for CHD of 1.84, for CKD of 2.61 and for VaD of 1.05. (5)

Life lost and QALY

Previous models from Health England show that living with hypertension and not treating it shortens your life based on the complications it attracts. The report to the Blood Pressure Leadership Board published by Optimity Matrix shows that, if a nationwide pharmacy testing campaign would be implemented, a total of 18,000 QALYs and 20,000 years of life would be saved, (5) The number of years of life lost because of stroke for one patient were calculated as 12, for CHD and CKS stage 4 as 25, for CKS stage 5 as 30 and for VaD as 1.

5. PROJECT OUTCOMES

The main outcome of the programme is to increase the Hypertension and Atrial Fibrillation detection rate in Tilbury with at least 5% by May 2020.

To reach our objective, two separate streams have been developed:

- 1) Community detection in local pharmacies and community hub

In accordance with the "Tackling high blood pressure report" cited in the Evidence Base section, we are planning to increase the testing reach in the area by offering free testing to people walking in local pharmacies and community hub. By increasing the access to testing services, we plan to screen additional 9,855 people in the next three years (average of 1 person/day/pharmacy and 2

people/day/community hub).

2) Primary care in-house detection

The second stream of the program will involve opportunistic screening of people already engaged in the healthcare system. Patients will have the opportunity to self-measure their blood pressure in the waiting area of their general practice site with the help of a non-clinical staff member. By increasing the access to testing services, we plan to screen additional 4864 people if we screen 2/working day/clinic and assuming all clinics will participate in the programme.

Additional outcomes:

- Increase the number of people living with hypertension or AF who understand their condition and receive the appropriate medication;
- Reduced complications associated with uncontrolled hypertension or AF;
- Reduced health inequalities
- Reduce pressure on secondary and social care;
- Reduce costs associated with preventable strokes.

The project will serve as a pilot and, if proved effective after 6 months, we will expand it to the whole borough.

6. DELIVERY PLAN AND KEY MILESTONES

Key Milestones (Key events indicating progress)	To be reached by (date)	Who is responsible for meeting the Milestone?
Discuss with LPC to confirm existing resources and agree on the terms of collaboration	Apr 2017	SM
Sign agreement with local Pharmacies and Community hub	May 2017	SM
Discuss terms and agree collaboration with 24hr BP clinic	April 2017	SM
Purchase equipment for pharmacy and community detection	May 2017	SM
Train the participant pharmacy staff members	June 2017	SM
Launch the pharmacy detection programme	June 2017	SM
Begin planning phase for in-house detection	May 2017	SM
Launch the community detection programme	September 2017	SM
Receive approval from TASC for in-house	October 2017	SM
Get a final list of clinics who want to sign up	November 2017	SM
Name the Hyp and AF champion for each clinics	November 2017	SM
Sign agreement with participating Surgeries	November 2017	SM
Purchase equipment for in-house detection	December 2017	SM
Deliver necessary trainings	January 2017	SM
Run 1 st evaluation for pharmacy stream (6 mos.)	December 2017	SM
Run 1 st evaluation for community stream (6 mos.)	April 2018	SM

Run 1 st evaluation for in-house stream (6 mos.)	July 2018	SM
Run 2 nd evaluation for pharmacy stream	July 2018	SM
Run 2 nd evaluation for community stream	October 2018	SM
Run 2 nd evaluation for in-house stream	February 2019	SM
Run 3 rd evaluation for pharmacy stream	July 2019	SM
Run 3 rd evaluation for community stream	October 2019	SM
Run 3 rd evaluation for in-house stream	February 2020	SM
Run 4 th evaluation for pharmacy stream	July 2020	SM
Run 4 th evaluation for community stream	October 2020	SM
Run 4 th evaluation for in-house stream	February 2021	SM

7. FINANCIALS: Costs, Resources, Cashable Benefits, Cost Avoidance, Return on Investment

Based on the most recent PHE estimates, there are 2,195 hypertensive and 330 AF patients who are not aware of their disease. As of January 2017, the number of 18+ patients registered with a GP in Tilbury was 28,512. If we assume all of our undiagnosed patients are 18+, the undiagnosed prevalence of hypertension is 9.66% ($2,195/(28,512-5,782)*100$), giving us an approximate NNS of 10 for one diagnosis. Similarly, the prevalence of undiagnosed AF is 1.18% ($330/(28,512-455)*100$), hence and approximate NNS of 85 for one diagnosis.

However, these calculations don't account for the unequal distribution of the diseases and have to be adjusted for it. The following tables show the potential costs and savings based on three different reach adjustments (15%, 30% and 50%).

The clinical outcomes, costs and savings are calculated for a period of three years based on the local costing input and the assumptions found in Table no 6.

1) Detection in local pharmacies

Table no. 1.1– Hypertension detection outcomes

HYP Detection Outcomes									
Scenario no.	Reach Adjustm ent	Fixed costs	HYP detected	Strokes saved	Screening Cost	Treatment cost NHS	Cost avoided NHS	Cost avoided social care	Total cost avoided
1	15%	£1,500	323	40	£20,400	£19,532	£147,739	£170,199	£317,938
2	30%	£1,600	266	33	£20,150	£16,085	£121,668	£140,164	£261,831
3	50%	£1,600	190	24	£19,815	£11,489	£86,906	£100,117	£187,022

Table no. 1.2 – Atrial Fibrillation detection outcomes

AF Detection Outcomes									
Scenario no.	Reach Adjustm ent	AF detected	Strokes saved	Screening Cost	Treatment cost NHS	Addition al bleeding cost	Cost avoided NHS	Cost avoided social care	Total cost avoided
1	15%	38	43	£380	£13,080	£214	£158,609	£182,721	£341,330
2	30%	31	36	£310	£10,628	£175	£130,619	£150,476	£281,095
3	50%	22	25	£220	£7,766	£124	£93,299	£107,483	£200,782

2) Community detection

Table no. 2.1– Hypertension detection clinical outcomes

HYP Detection Outcomes								
Scenario no.	Reach Adjustm ent	Fixed costs	HYP detected	Strokes saved	Treatment cost NHS	Cost avoided NHS	Cost avoided social care	Total cost avoided
1	15%	£150	65	8	£3,931	£29,548	£34,040	£63,588
2	30%	£150	53	7	£3,205	£24,334	£28,033	£52,366
3	50%	£150	38	5	£2,298	£17,381	£20,023	£37,404

Table no. 2.2 – Atrial Fibrillation detection clinical outcomes

AF Detection Outcomes								
Scenario no.	Reach Adjustm ent	AF detected	Strokes saved	Treatment cost NHS	Additional bleeding cost	Cost avoided NHS	Cost avoided social care	Total cost avoided
1	15%	8	9	£2,453	£45	£31,722	£36,544	£68,266
2	30%	6	7	£2,044	£34	£26,124	£30,095	£56,219
3	50%	4	5	£1,635	£23	£18,660	£21,497	£40,156

3) Primary care in-house detection

Table no. 3.1– Hypertension detection clinical outcomes

HYP Detection Outcomes								
Scenario no.	Reach Adjustm ent	Fixed costs	HYP detected	Strokes saved	Treatment cost NHS	Cost avoided NHS	Cost avoided social care	Total cost avoided
1	15%	£22,000	516	65	£31,203	£236,383	£272,318	£508,701
2	30%	£22,000	425	53	£25,700	£194,668	£224,262	£418,930
3	50%	£22,000	304	38	£18,383	£139,049	£160,187	£299,236

Table no. 3.2 – Atrial Fibrillation detection clinical outcomes

AF Detection Outcomes									
Scenario no.	Reach Adjustm ent	Fixed costs	AF detected	Strokes saved	Treatment cost NHS	Additional bleeding cost	Cost avoided NHS	Cost avoided social care	Total cost avoided
1	15%	£1,600	61	69	£20,846	£343	£253,775	£292,353	£546,128
2	30%	£1,600	50	57	£17,168	£282	£208,991	£240,761	£449,752
3	50%	£1,600	36	41	£12,263	£203	£149,279	£171,972	£321,252

Table no. 3.3 – Fixed cost breakdown. Total cost for 8 practices £23,600

	Cost per item	Total
BP/BMI self-measurement machine	£2,700	£21,600
AF detector	£150	£1,200
Training	£100	£800

4) Total savings

It is well documented that through appropriate treatment for hypertension and atrial fibrillation multiple diseases or complications, such as CHD, CKD, VaD and stroke, are prevented. However, because of the limited data on the savings related to other conditions, the current detection savings are calculated based on the number of strokes prevented, thus underestimated. Moreover, the in-house detection programme will yield additional benefits through primary prevention (weight management) and better management of those patients already diagnosed with hypertension.

Table no. 4.1 – Total impact (maximum)

Maximum impact					
	Patients detected	Strokes avoided	Cost avoided NHS	Cost avoided ASC	Total cost avoided
HYP	904	113	£413,670	£476,556	£890,226
AF	107	121	£444,105	£511,618	£955,724
Total	1011	234	£857,776	£988,174	£1,845,950

Table no. 4.2 – Maximum cost and ROI

Net savings/cost avoidance					
Scenario no.	Reach Adjustme nt	Total costs	Total cost avoidance	Net savings /cost avoidance	ROI
1	15%	£137,676	£1,845,950	£1,708,274	12
2	30%	£121,028	£1,520,194	£1,399,166	12
3	50%	£99,468	£1,085,853	£986,385	10

Table no. 4.3 – Costing and Assumptions

Costing input and Assumptions			
		Cost	Assumption
Screening		£15*/pharmacy positive	All local pharmacies will participate and will screen at least 1 patient/day.
Treatment	HYP	£60.47 (6)	Cost of antihypertensive drugs and monitoring are similar to 2011
	AF	£407.54 (7)	The treatment prescribed follows NICE CG180 guidelines and estimated proportions. Out of the detected AF patients, 84.21% are eligible for treatment.
Stroke	HYP	7,865/yr over	By offering the appropriate treatment to 5 HYP patients for

		3 years (1)	three years one stroke is prevented
	AF	7,865/yr over 3 years (1)	By offering the appropriate treatment to 2 AF patients for three years one stroke is prevented
Major Bleeding		£1,173 (7)	Additional risk of major bleeding 0.57% based on 17/83% NOAC/Warfarin local prescribing rate identified by EAHSN from the NHS Business Services Authority Medicines Optimisation CCG Dashboard (based on an analysis of prescribing for the period April 2016-June 2016).

*not including VAT which can be claimed back.

8a. NON FINANCIAL BENEFITS

Benefit Description	Measure to track realisation of benefit	Benefit realisation timescales:
Increase in lifetime and well-being of tilbury population	Local Census	More than 5 years
Increase in QOF completeness	QOF reports	February 2021
Decrease pressure on secondary and social care	Mede Analytics, Social Care reports	February 2021

8b. POTENTIAL DIS-BENEFITS

Dis-benefit description	Measure to track realisation of dis-benefit	Dis-benefit realisation timescales and mitigation
Possible exclusion of high risk patients perceived as low risk	Quarterly reports and NNS	Annual reports April 2018, 2019 and 2020
Initial increase in GP workload	DNAs and waiting time	Annual reports April 2018, 2019 and 2020
Losing patients on the pathway and not treating them appropriately after diagnosis	QOF indicators for Hypertension and AF treatment	Annual reports April 2018, 2019 and 2020

9. KEY RISKS TO PROJECT DELIVERY

Risk Type, Risk Level and Risk Description	Risk Mitigation	Who will monitor this Risk?
False positives and false negatives	Continuous monitoring of rate of positive and negative screenings	SM, JP
Poor communication between	A communication system will	SM

pharmacy and GP	be put in place to facilitate good collaboration between parties	
Increase in 24hr BP clinic workload – impossibility to test borderline patients	Monitor the number of patients referred to the 24hr BP clinic from each pharmacy and the results of their testing	SM, JP
Failure to follow-up with patients with a positive result	Track patient follow-up through SystmOne reporting and good communication with GPs	SM, JP
White coat effect for in-house measurement	ABPM check for all patients with positive in-house readings	SM

9. KEY ASSUMPTIONS AND CONSTRAINTS

ASSUMPTIONS

Assumption	What happens if assumption is no longer correct	Who will monitor the assumption
Patients diagnosed with AF and HYP will be well managed by their physician	If patients are not managing their condition less strokes will be prevented	Thurrock CCG Primary Care
All pharmacies will agree to run the programme	Not reaching our goal to screen 9855 people	MS, JP, LPC
Pharmacists will follow the programme specs	This could result in wrong population being screened, false positives and false negatives, and lack of follow-up with patients	MS, JP, LPC
Patients will engage and follow their care plan	Patients identified with HYP or AF will not be well managed	MS, Thurrock CCG

9. DEPENDENCIES

Inbound: This project is dependent on the delivery of these projects/activities

Project/Activity	What is the dependency?	Who will monitor the dependency?
The 24hr BP clinic agrees to validate results for stage 1 Hypertensive patients	Patients with borderline diagnostic have to have diagnosis validation through ABPM or HBPM	MS
Secondary Care urgently sees patients with severe hypertension and visible signs	Patients with severe hypertension and physical signs have to be seen urgently by a specialist	MS

10. GOVERNANCE ARRANGEMENTS

- Thurrock CCG will review and amend the programme specs to ensure quality measures are met.
- Tilbury ACO steering group will provide input regarding any governance arrangements needed.

Bibliography

1. **Director of Public Health et al.** *Annual Report of the Director of Public Health. A Sustainable Health and Social Care System for Thurrock.* s.l. : Thurrock Council, 2016.
2. **Blood Pressure Leadership Board.** *Tackling high blood pressure. From evidence into action.* s.l. : Public Health England, November 2014.
3. **Allaby, Dr. Martin.** *Screening for Atrial Fibrillation in people aged 65 or over. A report for the National Screening Committee.* s.l. : UK National Screening Committee, June 2014.
4. **National Institute for Health and Care Excellence.** Information for the public. *National Institute for Health and Care Excellence Guidelines.* [Online] National Institute for Health and Care Excellence, January 2013. <https://www.nice.org.uk/guidance/MTG13/InformationForPublic>.
5. **Optimity Matrix.** *Cost-effectiveness review of blood pressure interventions.* s.l. : Optimity Matrix, 2014.
6. **National institute for Health and Care Excellence.** Hypertension costing template. *NICE.* [Online] August 2011. [Cited: March 6, 2017.] <https://www.nice.org.uk/guidance/cg127/resources/costing-template-247328605>.
7. **National Institute for Health and Care Excellence.** Costing report atrial fibrillation. *NICE.* [Online] June 2014. [Cited: March 6, 2017.] <https://www.nice.org.uk/guidance/cg180/resources/costing-report-243730909>.