

# Pulse rhythm checks for atrial fibrillation in flu vaccination clinics

An addendum to Health Innovation Network's ['Mobile ECG Device Project'](#) report,  
September 2019

Stroke prevention in atrial fibrillation  
programme

June 2020

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# Executive Summary

People with atrial fibrillation (AF) are at increased risk of stroke, but a gap in detection means thousands of people across south London are not benefiting from potentially stroke-preventing anticoagulation treatment. Older adults are at greater risk, but AF is not always symptomatic and they may not therefore routinely receive a pulse rhythm check to detect their AF.

A national Academic Health Science Network (AHSN) mobile ECG device distribution project trialled opportunistic testing for AF in a variety of settings and identified flu vaccination clinics as 'high impact', with a high volume of older adults having a point of contact with the healthcare system.

This project encouraged providers across south London to introduce pulse rhythm checks into their flu vaccination clinics in 2019/20, to opportunistically increase the detection of AF.

Learnings from similar previous initiatives were collated and discussions held with clinicians regarding the best methods of implementation. These were summarised in an information sheet, which was sent to primary care and community pharmacy colleagues across south London, encouraging them to sign up to take part.

The Behavioural Insights Team's EAST Framework<sup>8</sup> (Easy, Attractive, Social and Timely) was used when designing the project approach.

"I think it's brilliant. Really simple" –  
*Practice Manager*

Sign-ups from healthcare providers wishing to participate were collected through a short online form. Participating providers were then sent a resource pack with an example staff script and information for patients and clinicians; the aim being to reduce the workload involved in setting up the checks in each individual setting.

The Health Innovation Network's project manager made regular contact with participating healthcare providers throughout the flu vaccination season and a social media campaign encouraged others to consider joining the project.

"We picked up at least some sort of arrhythmia every day we did a flu clinic" –  
*Practice Nurse*

Once the flu vaccination season was over, semi-structured interviews were completed with participating providers in order to gather quantitative and qualitative feedback, to form an evaluation of the project.

Thirty GP practices signed up to the project in 10 CCG areas, with 14 practices confirming that they went ahead with pulse rhythm checks as planned. It is estimated that over 5,000 pulse rhythm checks were completed by participating practices. This report summarises the project methodology and aims to provide recommendations for those considering flu vaccination clinics as a future setting for the detection of AF. This report also holds relevance for other spread and adoption projects in primary care.

# Acknowledgements

The Health Innovation Network (HIN) would like to thank all practices who signed up to take part in the project and particularly those who were able to proceed with pulse rhythm checks to detect AF in their flu vaccination clinics.

The HIN would also like to acknowledge and thank the south London CCGs who were highly engaged and supportive, as they have been throughout the HIN's work in the detection of AF.

## Background

### Atrial Fibrillation (AF) Detection

People with AF are at increased risk of stroke<sup>1</sup> and AF-related strokes are associated with greater disability and mortality<sup>2</sup>. If diagnosed and appropriately treated, this risk can be significantly reduced, but it is estimated that roughly 22,000 people in south London have undiagnosed AF<sup>3</sup>. Some at risk patients will receive pulse rhythm checks to test for arrhythmia, when visiting their GP. Other patients, particularly those who are asymptomatic, may visit their GP only rarely and the opportunity to detect and diagnose AF may be missed, unless opportunistic testing is conducted in other settings.



### Across south London around 22,000 people have undiagnosed AF

As the AHSN for south London and as part of a national AHSN AF project, the HIN distributed 400 mobile ECG devices in 2018/19 to increase detection of AF. The devices, which included Kardia Mobile, MyDiagnostick and WatchBP, were distributed in a wide range of clinical and non-clinical settings, to identify where potential impact of detection could be the greatest. Further background on AF, mobile ECG devices and the device distribution project is available in the project report [here](#).

AF is more common in older people. To find one person with unknown AF in the over-65s, the number of people needed to test is approximately 71.4.

### Influenza (flu)

Flu kills roughly 8,000 people per year and is highly infectious. Flu vaccination clinics take place in general practice and community pharmacy through autumn and winter each year. The vaccine protects from certain strains of the flu virus and is recommended by the World Health Organisation. The NHS provides flu vaccinations free of charge to the 25 million patients who fall into 'high risk' groups. Anyone aged over 65 years is eligible for the free vaccine and 72 per cent of them received a vaccination in 2018/19<sup>5</sup>.

The clinics are diverse in their set-up.

- Some providers use the flu vaccination appointment as an opportunity to complete other tests or to discuss other health factors, for example blood pressure.
- Other providers aim for volume and efficiency of vaccinations being completed, incorporating a streamlined clinic, with appointments as short as only a few minutes.

### High Impact Settings – Flu Vaccination Clinics

In 2009/10 Wandsworth CCG incentivised manual pulse rhythm checks for AF detection with patients aged over 65 years, across 23 GP Practices. In total 6,828 patients were examined, and 27 new cases of AF were detected<sup>6</sup>.

As part of the 2018/19 mobile ECG device distribution project, practice nurses at Hampton Medical Centre in Richmond used a mobile ECG device to check the pulse rhythm of 260 patients in their flu vaccination clinics, detecting 11 people with possible AF, demonstrating a continued impact for AF detection in this setting. Flu vaccination clinics were therefore identified in the project report as a 'high impact setting' for the detection of AF, due to the high volume of people aged over 65 years attending healthcare settings to receive their vaccination.

Flu vaccination clinics were selected as one of three settings for continued focus by the HIN's Stroke Prevention in AF programme (along with Mental Health and community podiatry).

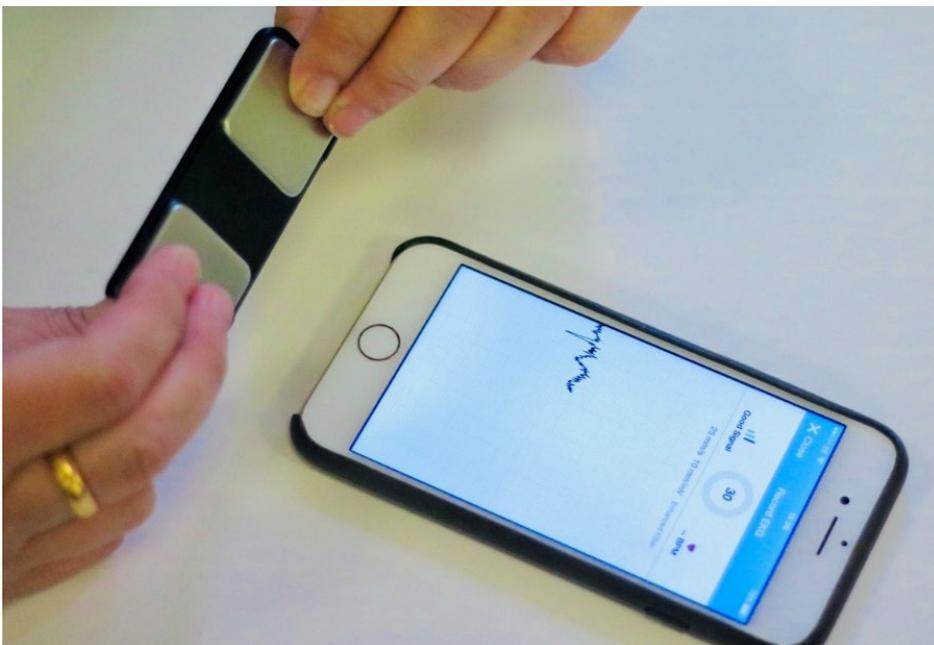
Is it important to note that, while primary care is arguably the best setting for the detection of AF, primary care clinicians receive a continual high volume of additional requests on their limited time and resource. Proposed initiatives must therefore require minimal or no extra workload, particularly if they do not come with additional funding.

# Aims and Objectives

The project primarily aimed to increase the detection of AF, through opportunistic testing in a setting where a known high-risk cohort would have a clinical touchpoint.

Specifically, the project set out to:

- encourage GP practices and community pharmacies across south London to include pulse rhythm checks for AF detection in their flu vaccination clinics in 2019;
- increase awareness in primary care and community pharmacy of AF and settings where opportunistic testing could be appropriate and introduced with little additional work;
- gain engagement across a wide geographical area, with involvement in as many CCG areas as possible;
- complete an evaluation, leading to a set of recommendations for:
  - GP practices / community pharmacies considering including pulse rhythm checks for AF in future flu vaccination clinics; and
  - CCGs / ICSs / AHSNs / other organisations considering introducing pulse rhythm checks for AF in flu vaccination clinics in their primary care areas, with an evaluation of the spread and adoption process; and
- identify whether providers would be willing to take part despite having no direct financial incentive, recognising the potential patient benefit and longer-term financial return for the health system.



Using a mobile ECG device to test for AF

# Method

## Project planning and set-up

With awareness that some south London providers had conducted similar projects in previous years, outreach was completed to gather and collate key learnings. Feedback from those who led AF detection work in Wandsworth was particularly influential in the approaches selected for this project. Case studies elsewhere were also explored, including an example of using a mobile ECG device to detect AF during flu vaccinations in primary care in the Netherlands<sup>7</sup>.

The HIN greatly benefits from the input of clinical directors who are practising clinicians in south London. Those based in primary care provided valuable input in identifying feasible methods of implementation and communication which would provide the largest impact, while minimising any increased workload for staff in participating providers.

Key stakeholders in all 12 south London CCGs were engaged early on. This served two key purposes: to ensure approval and buy-in at a CCG and regional leadership level; and to provide validation and legitimacy when contacting front line organisations to take part. On achieving their endorsement in each area, further promotion to the front line commenced.

A lower response in initial communications with community pharmacy led to a decision to focus the remainder of the project on primary care.

## Promotion and encouraging sign-up

A communication plan was created and split into three phases: the sign-up period (with a primary and secondary promotion phase); the flu vaccination season itself; and evaluation. An information sheet (appendix 1.1) was produced to present background information on the project and to facilitate providers in signing up to take part. The sheet included a hyperlink to an online sign-up form.

Reasons to engage in the project were presented from two perspectives:

- the care argument: improved care for patients and a reduction in mortality and disability as a result of AF-related strokes; and
- the business argument: while there was no system in the project for providing financial incentives, the financial impacts of increased detection were identified and discussed with project stakeholders.



Versions of the information sheet were produced with locally relevant data for promotion within each CCG area, with ICS-level information sheets also produced for promotion through social media.

(Further detail of the primary and secondary promotion phases in **Appendix 1.2 & 1.3**).

## The sign-up process

A semi-formalised sign-up process was used; a short online form (appendix 1.4), in order to build a record of those practices taking part, whilst limiting the barrier to entry that would be associated with extensive form-filling. Sign-ups were monitored on a regular basis, with the latter stages of promotion focusing on the CCG areas with limited or no sign-ups to date.

## The resource pack and support during the project

A pack of useful resources was compiled and promoted to save practices time when planning their clinics and to encourage sign-ups to the project. This was shared with participating practices once they had registered through the online form.

Ongoing project support was offered to practices throughout the flu vaccination clinic season.

(The resource pack is in **Appendix 1.5**).

### Follow-up and evaluation

An evaluation plan was produced with the following primary aims:

- spread and adoption process evaluation: what led to practices signing up – for project managers looking to do spread and adoption with primary care; and
- flu vaccination clinic pulse check process evaluation: what worked / didn't work – for clinicians considering AF checks in their own clinics in future.

The secondary aim was an Impact Evaluation: to collect quantitative data, to estimate strokes prevented and cost savings as a result.

### Behavioural insights – EAST Framework

'EAST' (Easy, Attractive, Social and Timely) was developed by the Behavioural Insights team<sup>8</sup> (a social purpose company partly owned by the Cabinet Office) as a pragmatic framework for developing effective policies, which encourage behaviours. The HIN has incorporated the framework in a variety of projects, particularly when encouraging participation.

EAST informed the way information was presented and shared in this project. The inclusion of the Wandsworth 2009/10 case study in communications, for example, was essential. It demonstrated a similar project had been completed successfully (Easy) by peers locally (Social) and that it had improved patient outcomes and created savings for the NHS (Attractive).

(Detail of the use of EAST in this project are in **Appendix 1.6**).

### Patients

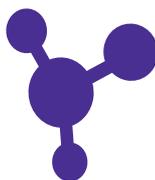
Consideration was given to promoting the project directly to patients. It was decided that this would not be beneficial unless participation from the vast majority of practices in south London could be guaranteed, otherwise it would risk patients arriving to their appointment expecting a check but then not receiving one.

As it could not be guaranteed that all practices would participate, no patient-facing promotion was implemented.

# Results, Impact and Evaluation



30 GP practices signed up



Sign-ups in 10 of 12 south London CCGs



14 practices confirmed as going ahead



40% using mobile ECG device



5,000 pulse rhythm checks\*

\* Evaluation responses were used to calculate a conservative overall estimate of 5,000 total pulse rhythm checks through the project

**Table 1. A breakdown of online sign-ups completed, by job role within the practice:**

Role type	Practice Manager	Practice Nurse	GP	Healthcare Assistant	Administrative staff
Number	11	9	6	2	2
Percentage	37	30	20	7	7

## Impact

- The 14 confirmed practices completed an estimated 20,000 flu vaccinations (if all 30 practices had taken part, an estimated 62,000 vaccinations would have been completed).
- Based on limited evaluation responses, it is estimated that 5,000+ pulse rhythm checks were completed as part of the project.
- Numbers are likely to have been much higher as some practices which did not respond to the evaluation will likely have gone ahead with checks.
- Some practices that did not go ahead with pulse rhythm checks in flu vaccination clinics implemented them in other settings instead.
- Qualitative responses confirm that some patients identified through flu vaccination clinics as having an irregular pulse went on to receive a diagnostic 12-lead ECG and subsequently a diagnosis of AF.
- There is insufficient data to confirm the number of patients identified to have an irregular pulse or the proportion of those patients who went on to receive a diagnosis and / or treatment. However, based on the estimation of 5,000 pulse rhythm checks having been completed, using AF prevalence data<sup>4</sup>, it is estimated that approximately 70 patients will have been newly identified as having AF. Diagnoses would follow referral for a confirmatory 12-lead ECG, with appropriate treatment then provided for those diagnosed. The impact of newly treating 70 high risk AF patients is roughly 3 strokes prevented<sup>9</sup>, saving the health system £37,000 in the first year<sup>10</sup>.

## Evaluation

Seven practices took part in semi-structured evaluation interviews. Six of these had proceeded as planned with pulse rhythm checks while the seventh had tried implementing the checks, but the team had found them unmanageable. A mixture of GPs, practice managers and practice nurses took part in the interview phone calls. Their responses and key learnings are included in the recommendations below.

When asked how likely they would be to do it again on a scale of 1-10, four of the six participating practices responded '10', so long as proper planning was in place. The remaining two practices responded '7'.

## Evaluation call response summary

The below is a summary of the evaluation responses:

- Practices had heard about the project through a variety of CCG communications, although one practice took part following direct communication from the HIN. It was noted that earlier communications would have been helpful in practices' planning.
- Reasons for signing up to the project varied, including:
  - national-level attention on AF, with this project presenting an opportunity to increase detection rates;
  - previous use of mobile ECG devices, this project reinvigorating the practice in utilising their device(s); and
  - practices wanting to get the most out of the patient visiting in person, completing other tests and checks at the same time.
- Decision-making processes varied between practices, some requiring practice manager sign-off before taking part in the project, others where practice nurses or GPs acted autonomously.
- The resource pack was reported as useful in some practices, with others already having the relevant information available. Potential improvements on the resources provided were identified, including face-to-face time with clinicians to bring the project to life or an explanatory promotion video which could be played in meetings.
- Even where mobile ECG devices were available in the practice to be used, clinicians sometimes opted to use manual pulse palpation, reporting difficulties in using the device in a busy clinic setting.
- None of the practices taking part in the evaluation had added a reminder to their flu vaccination clinic template, or similar, although some did already have computer screen pop-ups for patients over the age of 65 relating to pulse rhythm checks.
- The appointments ranged from two to five minutes long, and:
  - in longer appointments the pulse rhythm check took place during the clinic appointment itself, delivered by the clinician; and
  - practices with shorter appointments tested in waiting areas using either clinical or administrative staff using mobile ECG devices. Note that this approach required an additionally allocated resource.
- Where the pulse rhythm checks were completed during the appointment, most practices also found time to complete other health checks or health promotion, for example blood pressure.
- Practices aimed to target older adults, at higher risk, but most also provided pulse rhythm checks to other adults receiving their vaccination.
- The experience of the clinician/member of staff was reportedly positive, with the pulse rhythm check easy to include in the appointment. One practice delivering checks at a 'stand' in their waiting room reported a slightly stressful experience at first for the member staff, which got easier with time.
- There were no expressions of concern from patients regarding an additional test during the vaccination

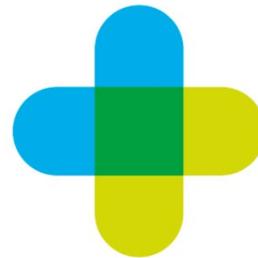
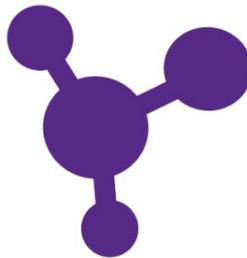
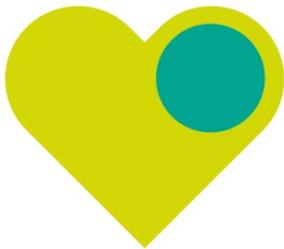
appointment and some expressed positivity that the opportunity was being taken to be proactive.

- Key learnings included:
  - the importance of having a clear pathway in place, from abnormal rhythm result to diagnostic 12-lead ECG;
  - that more time should have gone into planning, and earlier; and
  - that refresher training on manual pulse palpation would have been valuable.
- Practices were not able to accurately report the number of checks completed but provided estimates. These responses were used to calculate a conservative overall estimate of 5,000 total pulse rhythm checks through the project.
- Most practices reported a small number of potential AF detections.
- Referral processes varied:
  - Three practices were able to conduct diagnostic 12-lead within the practice.
  - One referred to a community service.
  - Two referred into local hospitals.

(The evaluation interview schedule is in **Appendix 2.1**).

"We would definitely do it again, 10 out of 10" - GP

"Because it's not difficult to check someone's pulse while talking to them, it's easy to do" – Practice Nurse



# Discussion

Flu vaccinations are nationally commissioned and incorporating changes locally is sometimes more difficult to achieve than adding to a local contract. A large number of pulse rhythm checks were completed through this project, but this represented only a small proportion of flu vaccination appointments in south London. The secondary promotion phase targeted areas with few or no sign-ups, reflecting the project aim for involvement in as many CCG areas as possible. It is likely that overall activity would have been greater had this promotion instead focused on developing further engagement in areas with already strong uptake, maximising the social element of communications.

The lack of financial incentive did not appear to be prohibitive in terms of encouraging practices to sign up to the project but was a clear barrier in terms of continued follow-up communications, the recording of impact and evaluation. It was reported several times during the evaluation calls that a financial incentive would make the implementation easier.

While communications were more successful in areas where the HIN already had contacts, significant challenges were experienced in follow-up communications via both phone and email. The evaluation would have been stronger had responses been obtained from more practices and had feedback been included from those who did not sign up to the project, but it was decided not to push for further feedback. While tweets from the HIN were interacted with, no user-generated social media content was achieved during the project.

While mobile ECG devices are evidenced to provide a more sensitive and specific result than manual pulse palpation, several practices who had devices in place moved away from them in the flu vaccination clinic setting, with manual pulse palpation proving simpler in a time-pressured and noisy situation. The devices in use in these settings were Kardia Mobile, which require connection to a tablet or smartphone through its microphone. It is possible that other standalone devices could be more appropriate for this setting – for example WatchBP or MyDiagnostick.

# Recommendations

AF is common in older people and flu vaccination clinics provide a setting to target these high-risk groups. This project demonstrates that:

- it is feasible to offer pulse rhythm checks to detect AF in this setting either manually or using a mobile ECG device; and
- it is possible to reach large numbers of people this way.

The evaluation responses show that good planning is essential and this robust preparation is needed for practices to proceed with this intervention in future flu vaccination seasons. An equivalent model in other vaccination clinics with attendance by a similar patient cohort could also be effective, for example pneumonia vaccination. The following recommendations take learnings from the project approach and feedback from practices that took part in the project. They aim to support the successful implementation of pulse rhythm checks to detect AF in a primary care clinic setting, for those who choose to offer this service.

## For Integrated Care Systems / Commissioners / AHSNs:

- Ensure any initiative is aligned with other concurrent asks of primary care teams.
- If implementing with limited resource, focus on a smaller group of connected providers, to develop a sense of connection and collaboration between them. Also focus on practices with appointments of at least five minutes.
- Plan and communicate earlier – ideally between April and June – as clinics were already up and running in early September, with decisions made on implementation earlier in the year.
- Consider financial incentives to encourage participation.

## For flu vaccination clinic providers:

- Think carefully about the patient flow in your vaccination clinic and at which stage of this flow it would work best to introduce a pulse rhythm check.
- There is value in using mobile ECG devices, particularly if the pulse rhythm checks are to be conducted by non-clinical staff.
- Pulse rhythm checks can be implemented by clinical staff either using mobile ECG devices or manual pulse palpation.
- Ensure a clear clinical pathway is in place for patients who are identified as having possible AF as this is likely to cause understandable anxiety. It is important that the care pathway is clear to staff for how patients will receive a 12-lead ECG (either within the practice or externally) and then for receiving treatment if AF is diagnosed. Ensure that the clinician in charge of the flu vaccination clinic is available to speak to patients who have possible AF, listen to any concerns they have and advise them on the next steps.
- Add a reminder to the flu vaccination clinic template on the computer system (this will also record the number of pulse rhythm checks completed).

An evaluation of a project to detect AF, which incorporated pulse rhythm checks alongside flu vaccinations in a care home setting, came to similar conclusions (Health Innovation Network, 2020)<sup>11</sup>. It demonstrated acceptability and suitability for two models of introducing AF checks for older people in care homes using a mobile ECG device. It also recommended early planning for delivering AF checks alongside residents' seasonal flu vaccination and an alternative approach of checking for AF as part of a resident's annual long-term condition review. Find out more about this project and how to deliver a similar intervention in your area, contact us at [hin.southlondon@nhs.net](mailto:hin.southlondon@nhs.net)

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