



Improving the detection and management of atrial fibrillation in older adults in residential care homes in south London

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Executive summary

Overview

This evaluation was of a small, exploratory pilot project which sought to inform the HIN and our wider stakeholders of the acceptability and suitability of different models of using a novel technology to detect atrial fibrillation (AF) in older people living in residential care homes in south London.

Key findings

A cohort of 72 residents from across four residential care homes took part in one of two models of detecting AF using the mobile electrocardiogram (ECG) device MyDiagnostick. 12.5% of people tested were found to have possible AF. The project also resulted in several changes in the practice of staff at one care home.

Conclusion

Two models of introducing AF checks for elderly people in care homes using a mobile ECG device were piloted. Both were found to be acceptable and suitable interventions to recommend to other care homes and providers of health services to care homes. They offer a simple but effective approach to maximising detection of AF and, following an established care pathway, possible diagnosis and initiation of medication. Feedback from stakeholders engaged in the project was very positive.

Recommendations

The following should be considered:

- Routine AF checks among residential care home residents.
- Using a mobile ECG device such as MyDiagnostick to allow a greater number of staff to offer checks.
- Pro-active checks at regular intervals, as part of an annual health assessment or long-term condition review, as well as on admission as a new resident.
- If resourcing and time constraints allow, combine annual flu vaccination with an AF check using a mobile ECG device or manual pulse reading. It is recommended to start planning for this early, ideally in August each year.
- Residential care home management and staff training in how to use a mobile ECG device.
- Care home staff routinely checking their own pulse rhythm using the device.
- Agreement with the care home's GP of the care pathway if possible AF is detected.
- Ensure local pathways are agreed to enable timely access to AF diagnostics and the initiation of treatment, including clear pathways for housebound individuals.
- Primary care staff and community services working within care homes should be encouraged to include AF checks using a mobile device in a routine manner.
- Information on stroke prevention and AF for the education of management and staff of care homes should be provided when adoption of this initiative is in its planning stage. A range of useful resources can be found at: www.heartrhythmalliance.org/afa/uk/patient-resources
- Considering Covid-19, infection control principles and practices should always be followed when using a mobile ECG device.

Background

Stroke prevention in AF is a national and local priority. The HIN have been working with partners in London to address unmet need in this area for the last 18 months, and have published a toolkit of resources covering:

- Detect: finding more AF.
- Protect: increasing the rate of anticoagulation in AF.
- Perfect: increasing the quality of anticoagulation and anticoagulation services.

The toolkit can be found here: <http://bit.ly/london-af>

Detect:

Although we have not yet fully quantified the under-detection of AF in the older adult population, we do know that across south London, of the expected 64,873 people with AF, 21,137 (32.6%) are currently undiagnosed (NHS Digital 2019). Local stroke physicians have highlighted that housebound older adults with an irregular pulse can be challenging to diagnose and are often 'lost to follow-up'. This may be due to issues including a lack of portable 12-lead ECG machines, logistical challenges such as patient transport, and when prolonged cardiac monitoring is required, the poor tolerability of traditional Holter monitors in this population, particularly where dementia is a complicating factor. As a result, we do know that older adults are likely to be over-represented within the undetected AF population. The use of mobile ECG technology might facilitate increased opportunistic testing and the detection of AF in patients closer to, and even within, their own home.

The increasing availability of mobile ECG devices enables greater testing for AF in housebound older people, but the technology has not been embedded into local care pathways. The aim of the project is to pilot an innovative ECG device within local care pathways to maximise the detection of AF.

MyDiagnostick (Medical B.V.) is a single-lead ECG recorder. It is shaped as a baton, with metallic handles encompassing the electrodes, which a person grips to record an ECG rhythm strip. It has a built-in algorithm that will provide a 60-second interpretation of the results. The result is displayed as a red cross (abnormal pulse rhythm) or green tick (normal pulse rhythm) on the device.



Protect and Perfect:

Most older people with AF require anticoagulant therapy, which raises questions regarding the appropriate use and safety of these agents, especially since older adults are at greater risk of anticoagulant-associated bleeding. The HIN reviewed all patients (over 2,500 people) with a diagnosis of AF who were not anticoagulated across four local CCGs in 2017 (Brown 2017, Williams 2017). The data highlighted that older people, particularly those who are housebound or in residential care, are significantly less likely to receive anticoagulation than the general population who have AF. Anecdotally, we have found that the reasons for this are multi-factorial but include logistical issues

related to initiation and on-going monitoring of anticoagulation, concerns about the risk of falls and bleeding, as well as uncertainty amongst clinicians regarding the benefits of anticoagulating this at-risk population.

Project aim:

In order to build upon this work, the current project was initiated to focus on the older adult population, specifically those who are living in residential care homes. The aim of the project is to pilot new models of care using a mobile ECG device such as MyDiagnostick to maximise detection of AF, and subsequent initiation of anticoagulation in those at risk of stroke.

Overview of the innovation/intervention

Two different initiatives were piloted in a selection of residential care homes in the urban boroughs of Lambeth and Southwark in south London.

Lambeth: Aashna House residential care home in Lambeth was approached and agreed to take part. Discussions at Aashna House led to the co-creation of the intervention which was delivered in two parts:

- 1) A training session to all staff at Aashna House about AF, how to detect it using a MyDiagnostick device and what to do following a positive reading.
- 2) An information session on AF to residents and, with their consent, an opportunity to be tested for AF using a MyDiagnostick device.

Posters and flyers to promote the event were created and these were displayed around Aashna House (Appendix III). Family members and carers of residents were invited to attend. Staff from the primary care practice that works closely with the care home were invited to take part in the session as well, but no-one was available on the day.

Both parts of the intervention were delivered on the same day in December 2019 at Aashna House. Residents found to have possible AF on the MyDiagnostick device were referred to the local primary care practice responsible for care for Aashna House residents.

Staff at Aashna House were invited to have a check using the device too. For the pilot and all AF checks going forward, the agreed care pathway was to make a referral to the local primary care practice upon a resident returning a positive reading from the device.

The MyDiagnostick device used on the day was provided by, and subsequently given to, Aashna House to keep by the Health Innovation Network.

Southwark: Quay Health Solutions (QHS) provides healthcare services to a number of care homes in Southwark. Working closely with nurses from QHS, three care homes were selected to take part in the project. Annual flu vaccinations were being implemented at the time discussions were taking place, so it was agreed that an AF check using a MyDiagnostick device would be added to the vaccination service as part of a new model of care. Nurses checked in advance which residents already had a diagnosis of AF, and these residents were not tested. Residents (or their family member/carer) signed a consent form for the flu vaccine and AF check.

A check for AF using a MyDiagnostick device was then given to all consenting residents having a flu vaccination. In some instances, a nurse worked by herself and delivered both the flu jab and the AF check; while in others, when a second nurse was available, the flu jab was given first by one nurse and this was followed by the AF check by the other nurse. Together, it took roughly five minutes with a resident but longer when a nurse was working on her own. If an irregular rhythm was found, the nurse followed it with a manual pulse check before referring the resident to the GP responsible. This action was no different to the usual care pathway. The intervention took place in November and December 2019.

A MyDiagnostick device was supplied by the HIN to QHS for this pilot and to keep after its completion.

Evaluation purpose and design

Purpose

The purpose of the evaluation is to inform the HIN and our wider stakeholders of the acceptability and suitability of different models of using a mobile ECG device to detect AF in older people in residential care home settings.

Design

The evaluation design is a mixed methods design combining quantitative and qualitative approaches to allow a range of questions about the interventions to be answered. Deidentified numerical data on individuals who participated in the project and interviews with staff and management were undertaken to gain a better understanding of their thoughts and behaviours in response to the interventions.

Quantitative data was collected using a specially designed tool and primarily comprised of monitoring data and some clinical data of residents taking part in the interventions in the selected Lambeth and Southwark care homes.

The following indicators were recorded for each care home:

- number of residents;
- number of residents with known AF;
- number of residents tested for AF as a part of this initiative;
- number of residents identified as having possible AF from the device;
- number of residents identified who went on to have a confirmatory diagnosis of AF; and
- number of residents who were subsequently prescribed anticoagulation treatment.

In addition, qualitative data was collected via interviews with key stakeholders from the care homes using a semi-structured interview tool. The manager and deputy manager from Aashna House in Lambeth were interviewed and two nurses delivering the intervention in Southwark care homes were interviewed. Learning and behavioural change outcomes for staff were captured, along with any pathway redesign changes made as a result of taking part in this initiative.

A copy of both the quantitative and qualitative data collection tools can be found in **Appendices I and II**.

Findings

Four care homes participated in the interventions to review residents and maximise detection of AF using a device: three in Southwark (Blue Grove, Queens Oak and Rose Court) and one in Lambeth (Aashna House). Monitoring data has been combined for the four care homes. The total number of residents across the four care homes was 226 and the combined number of residents who took part in an intervention checking for AF was 80 (35.4%). Eight residents from the Lambeth care home were already known to have AF, but they wanted to take part in the intervention anyway. This leaves a cohort of 72 (31.8%) residents across the four care homes without an AF diagnosis taking part in the pilot. Ten members of staff from Aashna House also had their pulse rhythm checked using the MyDiagnostick device.

Of the 72 residents who received an AF check using the MyDiagnostick device, nine (12.5%) were found to have possible AF. All of these residents were referred for GP review and decision on appropriate therapy. It was reported by staff that several residents were started on anticoagulation therapy within a month of detection. Thus, these residents have begun taking measures to prevent stroke which would not have occurred without the device check. Other patients had a medication review prompted by this intervention, which resulted in some changes to their medications. None of the staff at Aashna House who were checked were found to have possible AF.

The care home has now introduced an AF check using a MyDiagnostick device for all new residents arriving at Aashna House.

Many interesting points were made by care home management and nurses who undertook the intervention as part of the qualitative data collection for this evaluation report.

- ⇒ The management team at Aashna House reflected they felt very pleased to be able to adopt a simple intervention for their residents, which could avoid a serious health issue such as a stroke.
- ⇒ They mentioned the pathway was simple and fast, as they have a very good relationship with their local GP practice.
- ⇒ The process for staff was simple too: calling the GP practice and referring the resident for a confirmatory test. The care home managers felt this was an improvement from their usual practice, because they now have the ability to undertake testing for AF in a pro-active manner and may therefore prevent a stroke from happening.
- ⇒ They felt that participating in the intervention was good for the residents too, as the device was easy to use and they were excited to take part: "On the day, there was one resident who didn't want to be involved but after she saw everyone else taking part and enjoying the experience, she changed her mind and also got tested."

Nurses from QHS also mentioned the MyDiagnostick device was popular with residents at their care homes:

"Many residents don't like the manual pulse checks because of the physical contact involved. Part of the popularity of the MyDiagnostick device was because it took away the physical contact."

They also mentioned they felt the initiative worked well because it was delivered as a discrete, targeted campaign focusing on AF. That is, they were focused on looking for it.

The Aashna House managers said that the pilot had brought the issue of AF to the attention of their staff, as well as clinical staff at the local GP surgery. Staff at the care home now felt equipped to test for AF using the device in a pro-active way and they had incorporated this into a monthly round. Once a month, all residents are tested for AF using the device. New residents are also tested as part of their admission assessment procedure.

All four key stakeholders interviewed said they thought the intervention model piloted in their care homes for this initiative was an effective way to detect AF in care home residents.

The following learning points were offered by interviewees in response to a question on limitations of the pilot:

- Although each interaction with an individual took longer, it wasn't disruptive. It required a bit more time to manage the resident list but that wasn't a major issue. A few residents declined to take part but that isn't unusual – some also declined the flu vaccination.
- Dexterity issues of some frail residents and limited attention span of others made it slightly harder and longer to deliver the AF test.
- Signposting to further information on AF would have been useful. One staff member at Aashna House was confused and questioned whether a resident who tested positive and was placed on treatment for AF could still test positive on the next reading.
- Another limitation mentioned was that the MyDiagnostick device doesn't collect data that can be sent to the GP. It only has a tick or cross displayed which indicates whether a normal (tick) or abnormal (cross) pulse rhythm was detected.

Other findings from this evaluation include several changes to the practice of staff at the Lambeth care home. All staff have now been trained to use the MyDiagnostick device (including two new staff since the intervention took place). Staff agreed a new routine of testing residents for AF using the device on a monthly basis, and this has been embedded. All new residents arriving at the care home are now tested as part of their initial health assessment. Staff test themselves monthly too. Unlike other tasks staff are asked to add to their schedule, they reported this does not feel like a chore – it is more of a fun intervention, and the residents are happy to do it, also.

The management team stated they thought it had a unifying effect between the staff and residents: it brought them together over a novel health intervention. They also mentioned it had an educational element to it, as it raised awareness of AF among staff. The GP surgery has been very interested in the pilot project and stated they were happy to be included in the pathway from the beginning.

One of the nurses from QHS said that although there was no change to the care pathway as a result of this pilot, the project made her think more about the pathway and how a care home/housebound resident fits into it. Furthermore, understanding how long it takes to use the device ahead of delivering the intervention will help to manage time better. It is faster to deliver dual interventions with a colleague assisting if resources allow. Adding another intervention into a flu clinic slowed it down, estimated by one nurse to have "almost doubled the time". In terms of the intervention, it was felt that using a device would work better as a part of a resident's annual long-term

condition review (rather than on the back of the flu clinic). However, if a model is adopted to check for AF alongside flu vaccination clinics in future, it was advised to start planning them together in August (when flu clinic planning usually commences).

Final feedback from both sets of stakeholders was very positive about the pilot:

"We would recommend this intervention to other care homes. It's novel and the device is easy to use." - Care home manager

"The targeted approach also worked well. It raised awareness of staff in the care home too, which was a positive thing." - Care home nurse

Conclusions

This evaluation sought to inform the HIN and our wider stakeholders of the acceptability and suitability of different models of using a novel technology to detect AF in older people living in residential care homes.

Two models of introducing AF checks for older people in care homes using a device were piloted. Both have been demonstrated to be acceptable and suitable interventions to recommend to other care homes and providers of health services to care homes. They offer a simple but effective approach to maximising detection of possible AF and, following an established care pathway, possible diagnosis and initiation of medication.

The model piloted in Lambeth trained care home staff to use a MyDiagnostick device and all residents wanting to take part were checked for possible AF in a single afternoon, as part of a targeted information session on stroke prevention. Regular checks by care home staff have consequently been introduced on a monthly basis. Routine AF checks using the device have also been introduced as part of the initial health assessment for new residents when they move into the home. The introduction of this measure has already resulted in one new resident being identified with an irregular heart rhythm and a confirmed AF diagnosis after referral to the GP practice.

The model piloted in Southwark was delivered by nursing staff from local primary care practices affiliated with care homes in the north of the borough. The intervention was delivered alongside the annual flu vaccination service. Although this approach was deemed to have worked well, concern was expressed about the additional time it took for a nurse working solo to deliver the AF check along with the flu jab. The AF check and flu jab were delivered efficiently when a second nurse was available. In the absence of a co-worker, an alternative approach suggested was to use a device as part of each resident's annual long-term condition review.

An evaluation of a project to detect AF, delivered by a selection of GP Practices in south London via their seasonal flu vaccination clinics (not exclusive to care home settings), came to similar conclusions (Health Innovation Network, 2020). It demonstrated that it is feasible to offer pulse rhythm checks to detect AF in a flu vaccination clinic setting either manually or using a mobile device. It also recommended early planning and that the care pathway is clear to staff undertaking the check.

Combined, the AF checks carried out in this initiative returned a 12.5% possible AF rate across the four care homes. This compares closely with findings in other settings, such as housebound elderly people (14.3%) and hospital outpatient clinics (10.0%; Health Innovation Network, 2019).

Limitations of this evaluation

Escalation of Covid-19 in March 2020 drew frontline healthcare providers' attention toward the pandemic and away from this project. This had an impact on following up on some data collection for this project.

Recommendations

This pilot has demonstrated that novel technologies to detect AF in elderly populations in care homes are not only acceptable but generally welcomed by residents, staff and local primary care clinicians. The pilot has also shown that AF sometimes remains undiagnosed and untreated in care home residents and that interventions of this type can make a positive difference in preventing strokes in this population.

The following should be considered:

- routine AF checks among residential care home residents;
- using a mobile ECG device such as MyDiagnostick to allow a greater number of staff to offer checks;
- pro-active checks at regular intervals, as part of an annual health assessment or long-term condition review, as well as on admission as a new resident;
- if resourcing and time constraints allow, combine annual flu vaccination with an AF check using a mobile ECG device or manual pulse reading. It is recommended to start planning for this early, ideally in August each year;
- residential care home management and staff training in how to use a mobile ECG device;
- care home staff routinely checking their own pulse rhythm using the device;
- agreement with the care home's GP of the care pathway if possible AF is detected;
- ensure local pathways are agreed to enable timely access to AF diagnostics and the initiation of treatment, including clear pathways for housebound individuals;
- primary care staff and community services working within care homes should be encouraged to include AF checks using a mobile device in a routine manner;
- information on stroke prevention and AF for the education of management and staff of care homes should be provided when adoption of this initiative in its planning stage. A range of useful resources can be found at: www.heartrhythmalliance.org/afa/uk/patient-resources; and
- considering Covid-19, infection control principles and practices should always be followed when using a mobile ECG device.

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Appendices

Appendix I

AF in Care Homes Quantitative Data Collection Sheet

Name of Care Home:

When did the intervention take place?

	Item	Response (n=)
(a)	Number of residents in the care home.	
(b)	Number of residents who took part in the intervention.*	
(c)	Number of residents taking part in the intervention already known to have AF.	
(d)	Of those identified in (c), the number of residents known with AF and on anticoagulation treatment.	
(e)	Number of residents who were shown to have possible AF when using MyDiagnostick.	
(f)	Number of residents in (e) subsequently given a confirmed diagnosis of AF.	
(g)	Number of new cases of AF identified: (f) – (c)	
(h)	Number of residents newly identified with AF who have been assessed for anticoagulant treatment.	
(i)	Of those assessed in (h), how many have started anticoagulant treatment?***	

* Reasons given by residents for not taking part:

** Reasons for not treating (if applicable):

Comments:

Appendix II

AF in Care Homes Qualitative Data Collection Sheet

Thank you for taking the time to assist us with evaluating the AF pilot project in care homes. Your responses will be de-identified, collated and written up in the report so that no information will be attributable to an individual.

1. Please describe how care home residents have been tested for AF previously. That is, the method of detection, how often residents are tested and the care pathway.
2. Please describe how the pilot intervention was delivered at the care home.
3. Describe the pathway used for residents who tested positive using the MyDiagnostick device.
4. Was there a change to the pathway compared with previous clinical practice? If so, was this an improvement to the pathway's functionality?
5. Regarding the pilot project, what do you feel worked well?
6. Was the pilot intervention an effective way to detect AF in care home residents?
7. What do you think are the limitations to the pilot intervention?
8. What would you recommend could be done differently?
9. Were there any learning or behavioural change outcomes of staff who worked on the intervention? For example, has knowledge or confidence changed?
10. Have any new behavioural practices been adopted as a result of this pilot project? (Will the new pathway be embedded as business as usual?)
11. Is there anything else you would like to add?

Thank you very much for taking part in this project!

Promotional flyer for Aashna House training session



What is Atrial Fibrillation (AF)?

Looking after your heart is an important part of your general wellbeing

A condition called Atrial Fibrillation (or AF for short) is the most common form of heart **rhythm** abnormality in the UK and it affects around four in 100 people over the age of 65. A person may not feel any symptoms when the heart **rhythm** changes from normal to AF and people with undetected AF are at increased risk of experiencing an AF related stroke.

The good news is that AF can be detected using a simple pulse check or by a handheld device that reads your heart rhythm and medication can be prescribed to reduce your risk of stroke. Come along to one of our information sessions to find out more.

All residents of Aashna House, including family and carers are invited to join us in the Recreational Room to find out more about AF and how to test for it.

When? Tuesday 19 November, 14.00

Where? Recreation room, Aashna House

Why? Learn more about stroke prevention and AF. There will also be an opportunity to have a test for AF on the day using one of our mobile ECG devices.



For more information on AF, please visit healthinnovationnetwork.com