

# Could your smartphone help diagnose heart disease?

Webinar report and responses to questions

## Webinar outline

Mobile phones and smartwatches (such as Apple Watch or Fitbit) can capture huge amounts of information about a person's movements, behaviour and other signals like sleep or heart rhythms. This could help doctors understand more about a person's health.

In an interactive webinar on 30<sup>th</sup> June 2022, we explored how this data might help diagnose heart disease. We discussed possible impacts on trust, privacy, security, and health inequalities. It is essential to get the views of the public and patients on how their data might be used, and we explained how the British Heart Foundation Data Science Centre is doing this.

Attendees anonymously answered a series of questions throughout the webinar. Attendees could also ask questions and share their views with a panel of cardiologists, scientists, and public and patient partners. The input gathered during the seminar and in the [survey](#) that accompanies the webinar video will be used to shape our research.

## Speakers

- Tim Chico, Professor of Cardiovascular Medicine, University of Sheffield & Associate Director BHF Data Science Centre
- Jackie MacArthur, Project Manager, BHF Data Science Centre
- Samaira Khan, Public and Patient Involvement and Engagement Manager, BHF Data Science Centre
- Helen Grice, Public Partner, BHF Data Science Centre
- Anwar Gariban, Public Partner, BHF Data Science Centre

## Webinar materials

The following webinar materials are available:

### Video recording of the webinar

A video recording is available [here](#). The video does not include the discussion session, but written responses to questions and comments are below.

### Survey of webinar questions

We created an online [survey](#) to enable those watching the webinar video to submit their own views. Please do complete the survey as we want to ensure that the views gathered reflect those of as many people and are as representative as possible. The questions in this survey are the same as those asked to webinar attendees during the event. **This survey will remain open until March 31<sup>st</sup>, 2023.**

### Input from attendees

A summary of attendees' responses to questions during the webinar is below.

### Written responses to questions and comments

Written responses to all questions and comments raised by attendees during the webinar are below.

## Reflections

This event provided some interesting and extremely valuable insights, and it is no surprise that the majority of our audience already use smartphones or a smartwatch. We discussed how the data collected via these devices could improve the diagnosis of heart and circulatory diseases and how it can potentially fill knowledge gaps and provide clarity. Key to this is being able to use the data which is collected by these devices in research studies and public support for these is essential.

The attendee responses from the webinar indicate the public are keen to contribute, support and guide health data research in this area.

The BHF Data Science Centre is committed to ensuring transparency and working collaboratively with the public to demonstrate how our work can make a positive difference to health. This webinar is a step in the path to gaining public trust and ensuring transparency in all that we do and allowing people to make informed decisions about their health data.

## Next steps

We will be continuing our discussion with the public using their input to shape and guide our plans. Our public partners will play a key role in exploring how personal monitoring data could impact cardiovascular disease more broadly, including to improve prediction, monitoring and treatment. To ensure this reflects the views of the diverse population we will also be reaching out to wider communities and groups.

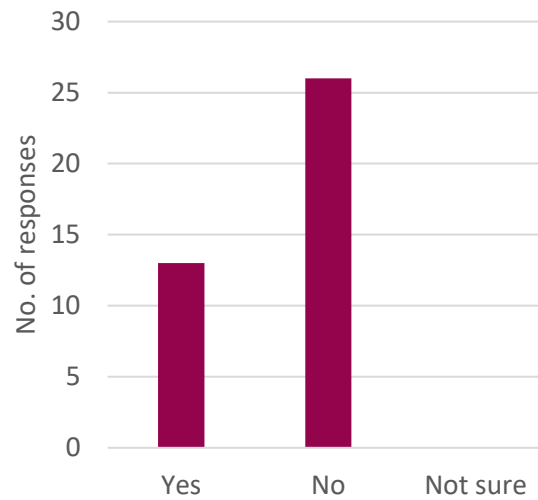
To find out more about our work and how to be involved in further discussion please visit our [webpage](#). You can also read our workshop report "[How can consumer wearables transform our understanding of cardiovascular disease?](#)".

## Input from attendees

A summary of the responses to questions asked of attendees during the webinar is provided below.

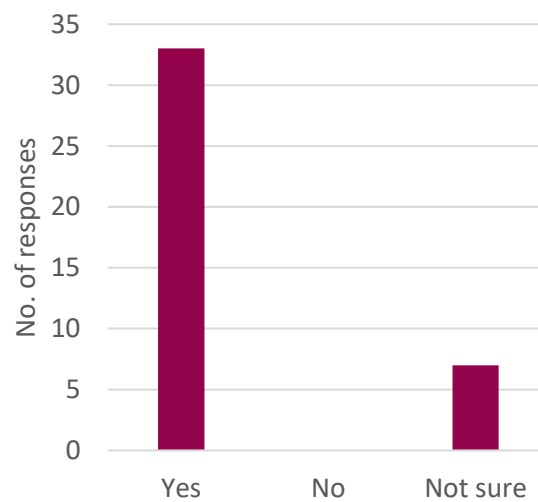
### Have you ever seen a doctor about symptoms of possible heart disease?

*responses = 39*



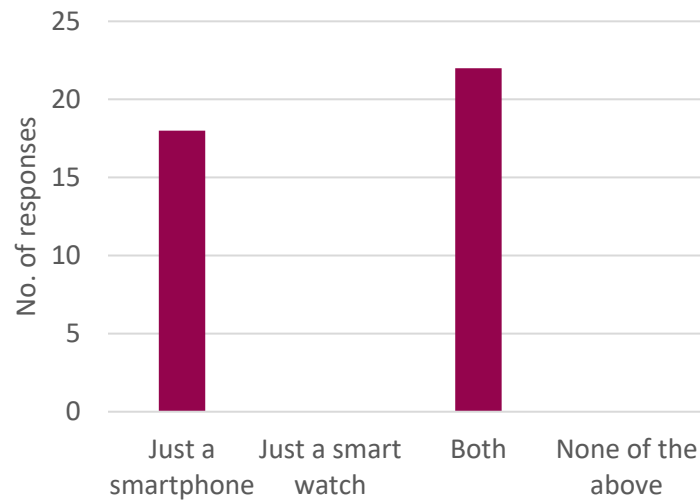
### In your experience, could diagnosis of heart disease be improved?

*responses = 40*



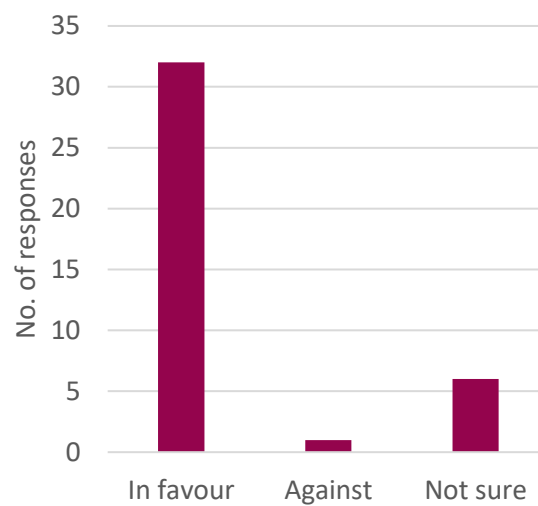
### Do you own any of these devices?

Total number of responses = 40



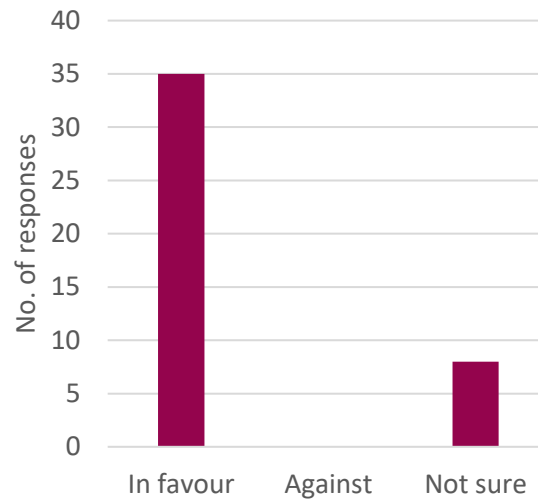
### How do you feel about using smartphones to improve diagnosis if not everyone owns one?

Total number of responses = 40



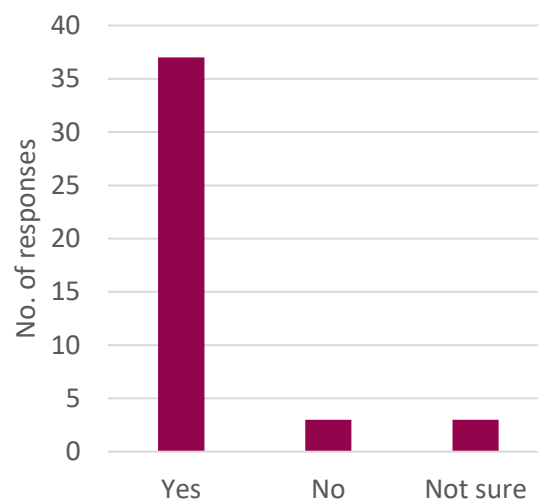
### How would you feel about your smartphone data being used to diagnose whether you have heart disease?

Total number of responses = 43



### Would you consider taking part in a study that collected some of your smartphone data over several months and accessed your NHS data to improve diagnosis of others?

Total number of responses = 43



## Written responses to questions and comments

### Questions and comments raised by attendees in Zoom “chat”

**Q:- If someone has breathlessness, tiredness and water retention this should surely trigger a need for a ProBNP Test at the very least?**

A: These symptoms suggest possible heart failure, which as you say can be detected using a blood test called BNP. The problem is that such tests are underused, probably because these symptoms are so common. Most people with heart failure are only diagnosed after emergency admission to hospital. Personal monitoring data may help by providing objective information on a person’s physical activity over time, to help identify who should have BNP and other tests by raising the suspicion of underlying heart problems.

**Q:- Self-checking may be useful but not so much for worried well patients who would use it too often (get addicted) which results that their blood pressure, heart rate etc gives not the right result.**

A: A key research question is what is the right frequency and intensity of data measurement for an individual? Someone undergoing investigation for possible heart disease is likely to benefit from more intensive and more frequent data collection than someone who is perfectly healthy. We need to test this in future studies.

**Q:- This is much welcomed as it promises to diagnose and reduce complications... but will it communicate and speedup appointment/triaging with my own GP or local A&E?**

A: The ability to collect and share data remotely between different services (like the GP, hospital specialists, etc) might well improve communication and efficiency, if done correctly. However, we always need to perform good quality research studies to confirm whether this is true.

### Questions and comments raised by attendees during discussion

**Q:- I think wearables are very useful for diagnosis but that they have more use for monitoring. We already have proBNP test, which is almost essential for diagnosis and can’t be done electronically. Recently my Fitbit picked up atrial fibrillation and tachycardia, which I wouldn’t have known if I hadn’t had the Fitbit, so I do think monitoring is really important. Is that built into your research as well?**

A: There are four broad opportunities where this data could be used: improving prediction, improving diagnosis, improving treatment, and improving monitoring. We agree entirely that personal monitoring data may improve all of these areas including monitoring. We decided to focus on diagnosis in this webinar but watch this space for discussion of these other areas.

**Q:- Don’t we need the baseline data first? For example, which groups are at risk, what are the comorbidities and are there parts of the population who are disadvantaged? If wearables are so brilliant, why aren’t we already using them? In my opinion, general health checks are not carried out sufficiently e.g. checking BMI, blood tests, taking into account family history, comorbidities. There’s lots of basic things we need to get right before we start moving forwards and introducing wearables.**

A: We don’t believe smart phones/wearables are the answer to all health issues and that the socioeconomic and global drivers of disease are hugely important and must be recognised. We see personal monitoring data as a small but possibly very important aspect of a much more comprehensive programme of how to improve healthcare.

**Q:– My point was around the differences between diagnosis, subsequent monitoring and therapy. I'd have thought diagnosis was the difficult part. You know who your targets are if you are doing monitoring and therapy. You don't know who your targets are if you are doing diagnosis. This distinction is important because providing monitoring through smart phones/wearables is an entirely new healthcare model. In my view it is the only way we are going to provide enough cardiological resource in this country to meet needs. I therefore think monitoring is more important and am surprised and a little disappointed that you are focusing on diagnosis.**

**A:** As we mention above, we agree this data is likely to be very useful to monitor treatment response and changes over time in people with proven disease. We decided to discuss diagnosis today as this is often the “starting point” when someone enters the healthcare system. Any data obtained during diagnosis could be used to understand and monitor changes over time in people with proven disease.

It is really interesting to get your views on this. This demonstrates the importance of PPIE and why it is so important to find out what we should be prioritising from a public perspective. This is why we have a public involvement group to explore this. Our plans are not set in stone, these are ideas that we are exploring at the moment, and this is the start of a conversation to see what our aims and priorities should be.

**Q:– I'm a cardiologist and thought you might be interested in our experience, when during Covid we moved our preventative cardiology programme online and gave our patients smartwatches. We have 1,300 patients with an average age 66, 95% having a smartphone, internet connection and email address. We had a smartwatch take-up of 50% overall (15% already owned smartwatch, 35% took up our offer of giving them a smartwatch). The number of patients deciding not to take up our offer, despite having the supporting technology, indicates that there is still a weariness. It will be interesting when we go back to face-to-face appointments and can show and set-up the technology for the patients, to see if the take-up rate increases.**

**A:** It's great to hear about pioneering work which will help us understand how this technology can be used. Reflecting from previous discussion, we shouldn't separate diagnosis and monitoring too much. Your work shows how this technology could be applied to some of the areas highlighted in previous points raised.

**Q:– How do you intend to recruit, support and manage the people in your study? Particularly those that aren't currently using any sort of technology, to ensure you get a representative cross-section of the population.**

**A:** This is something that we are exploring and discussing with our public involvement group. We have been thinking about working with different community groups and community champions to try and bring in different people and have conversations about what is the best recruitment strategy to use.

**Q:– Does your public involvement group truly reflect the population that you're wanting to recruit?**

**A:** Although our public involvement group is small we do have a diverse group with a cross-section of views, including people from groups that don't have access to this technology. However, we do recognise that we're not there completely. We are working on bringing in people to ensure this is representative, including bringing in more younger people.

BHF Data Science Centre

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**British Heart Foundation**  
**Data Science Centre**

Led by Health Data Research UK

Our public involvement group is just one part of the wider engagement we need to do. We are also going out to communities and trying to talk to different groups to understand their specific views and experiences.