British Heart Foundation

Digital Health Technologies for Heart Failure Survey - Summary of Key Results

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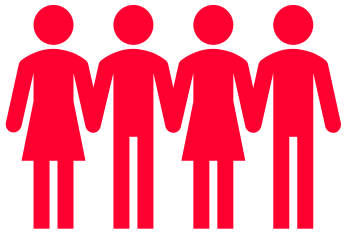
Methodology and limitations

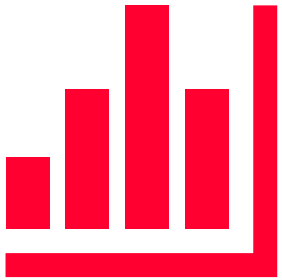
Methodology

- We conducted a survey of people involved in the use, implementation, and/or development of technologies used to help treat or care for people with heart failure in England.
- The survey was publicised via a number of BHF channels, along with the British Cardiovascular Society, the British Society for Heart Failure, and other relevant professional networks.
- We received 50 valid responses.



Limitations

- This was not a representative survey, and should not be interpreted as representing the views or experiences of everyone involved in the use, implementation, and/or development of technologies relating to heart failure.
- Likewise, respondents were asked to complete the survey for a single technology. Given that we did not receive multiple responses from the same people, the results of this survey should not be taken as representative of the types of technologies used for heart failure care in England (e.g. whether some technologies are more commonly used than others).
- Notably, the audiences to which we promoted the survey were skewed towards people working in secondary care centres within the NHS. We had very few respondents from primary care (GPs, primary care nurses, or community pharmacists) and thus the survey may exclude technologies used in those settings.



Key findings

Technology type, purpose, and use

- A majority of respondents (64%) described their technology's primary purpose as the 'Avoidance of hospital admission'.
- Remote monitoring/virtual wards were more commonly described by respondents (71%) than technologies enabling supported self-management (52%).
- 54% respondents said their technology involved patients manually inputting data, whilst 46% said data was collected via wearables, and 20% said data was collected from implantable devices.
- 82% of respondents reported that health care professionals were expected to react to data collected by the technologies, with 50% reporting that patients were expected to respond.
- The majority (82%) respondents were using the data collected by their technology to plan or tailor care for individual patients. 42% were using it to ensure adherence to standards, and 38% were using the data to contribute to research or predictive modelling for clinical purposes.
- The majority (64%) of respondents described technologies that were not exclusively used to treat/manage heart failure. 34% reported technologies specifically designed/used for heart failure.
- Almost half (47%) respondents reported that their technology was not interoperable with their healthcare system's electronic record systems.
- According to NICE's functional classification system, a majority of the respondents reported that their technologies would be classified as 'Active monitoring' (58%) or 'Self-manage[ment]' (56%).

Deployment and evaluation

- 46% of respondents reported that their technology was deployed across multiple health care systems.
- Almost half (48%), of respondents reported that an assessment had been carried out to measure the impact of their tool within their own service.
- The majority (64%) of respondents described technologies that their organisations had started using in the last three years.

Regulation and compliance

- 74% of respondents answered either 'None of the above' or 'Unsure/don't know' when asked whether their technology had been approved, or was seeking approval, from the main regulators (e.g. MHRA).
- More than half (58%) of respondents didn't know whether their technology was compliant with the DCB0129 standard.
- Almost two-thirds (64%) of respondents were unsure as to whether their organisation had undertaken a DCB160 compliant implementation process.

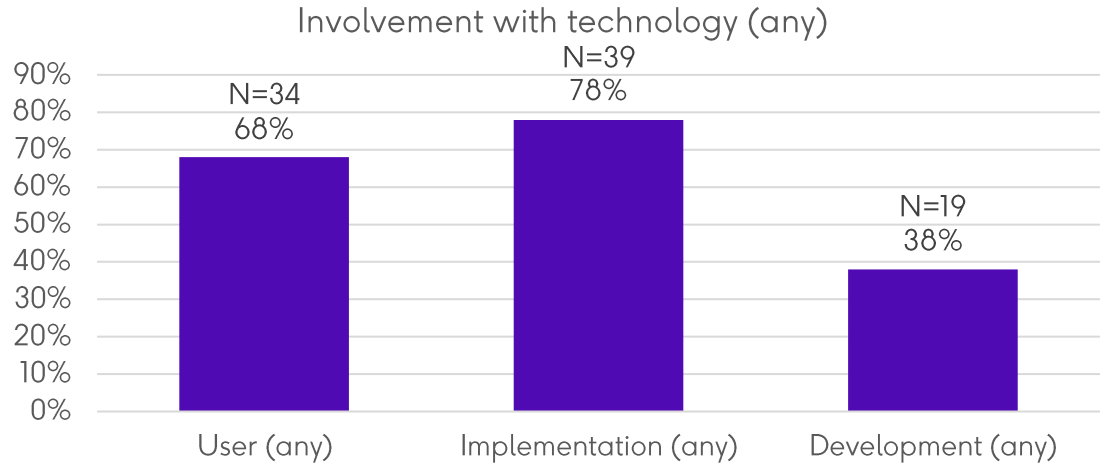
Development

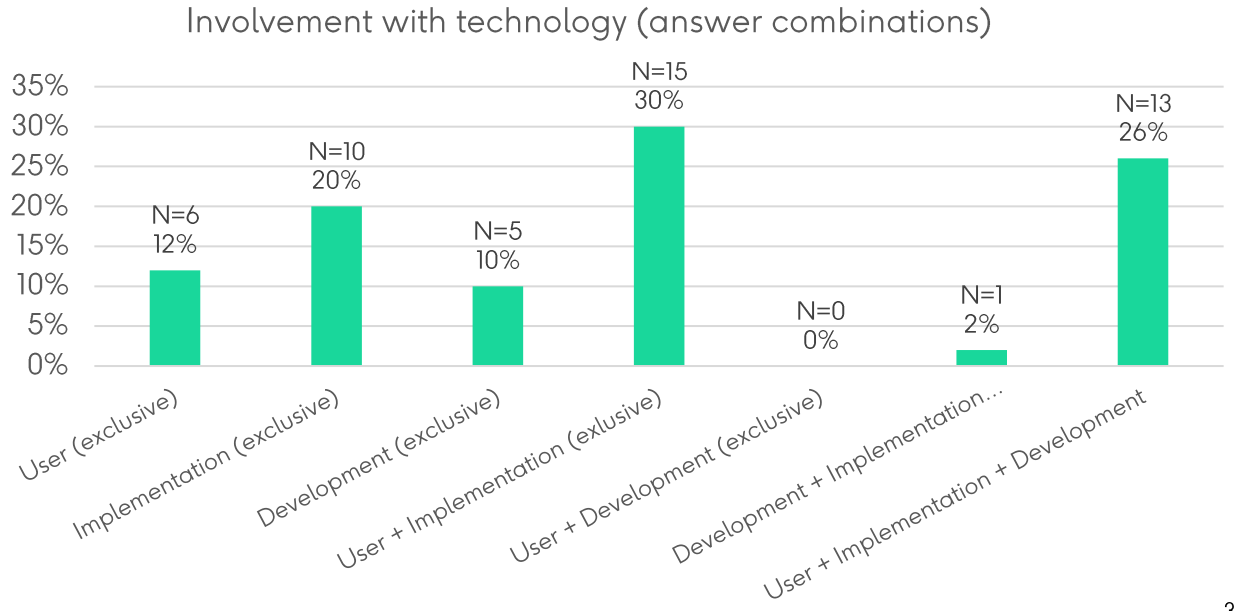
- Overall, respondents were fairly positive about the 'overall support' received from their employer for the development of their digital health technology. However, the picture was mixed for specific types of support, with 'Time off/protected time' lowest rated support measure, and support from internal stakeholders the highest rated measure.

Respondents' relationship with their technology

Analysis

- Respondents were most likely to be involved with the implementation of the technology in their setting (78%), followed by users (68%), and people who had been involved in the technology's development (38%).
- The most popular combination of involvement with the technologies were those were users and implementors of the technology (30%), followed by those who were involved in the use, implementation and development of the technologies (26%).
- Those who described themselves as only 'users' of the technology represented just 12% of respondents.
- 58% of respondents had multiple types of involvement with their technology (i.e. combination of user, implementor, developer).
- This means our respondents are likely skewed towards technology enthusiasts. This should be considered in the interpretation of the data.





Respondent characteristics

- A significant majority (70%) of respondents worked at acute or specialist NHS Trusts. This is unsurprising, given that our dissemination channels for the survey were largely based on heart failure specialists (both doctors and nurses), the majority of whom would likely be based at secondary care centres.
- The next largest contingent of respondents (22%) were those employed by NHS Community Trusts.
- Perhaps surprisingly, given the technology/innovation focus of the survey, only 8% of respondents were employed by a university of research institution.
- The majority of respondents to our survey were health care professionals (82% if we exclude clinical leads/directors and 86% if we include them).

Q31. Please select the type of organisation you work for [select all that apply]:

	%
NHS Trust - Acute or specialist	70%
NHS Trust - Mental Health	0%
NHS Trust - Communities	22%
Primary Care - GP Practice	4%
Primary Care - Pharmacy	0%
ICS/CCG	4%
Academic Health Science Network	2%
University or Research Institution	8%
Pharmaceutical or Medical Device Company	2%
Other	2%

Q32. Please tick which title below best describes your role in a clinical setting:*

	%
Consultant Cardiologist (inc. honorary)	32%
Junior Doctor in Cardiology	4%
GP	6%
Clinical Lead or Clinical Director	4%
Clinical researcher (including fellows and research managers)	4%
Nurse Consultant in Heart Failure	6%
Heart Failure Nurse (inc. practitioners)	20%
Primary Care Nurse	0%
Nurse (other)	10%
Physiotherapist	4%
Digital or IT professional	4%
Cardiac scientist	2%
Virtual Care/Virtual Ward Manager	2%
Not applicable	2%

*These responses have been grouped manually to sort the 30% respondents who answered 'Other, please specify'.

Variety of technologies

Note: As mentioned on the 'Methodology and Limitations' slide, whilst respondents were asked to submit one survey response per individual technology, a sizeable minority submitted one form covering multiple technologies. Hence, the number of technologies displayed to the right is larger than the total number of valid response (n=50).

Response analysis:

Survey respondents described 44 unique technologies. Though in the tables to the right, the two uses of Microsoft Teams are separated to highlight the ways in which the service has been used to facilitate interactions between clinicians (e.g. team meetings) and also as a means of delivering patient care (namely, cardiac rehab).

This suggests that there is a significant variety of technologies available for use in the provision of care for people with heart failure.

11 technologies were described by more than one respondent each, with Heartfelt the most popular individual technology described by respondents. However, due to our small sample size, we are unable to state with any confidence that these results reflect the relative popularity of technologies used in heart failure care.

We are currently exploring options for an interactive tool that will map technologies to a standard heart failure clinical pathway, to help clinicians and other relevant decision makers find appropriate technologies to improve their services.

Technology name	Frequency
Heartfelt	7
Current Health	3
Myheartapp	3
AliveCor	2
Docabo	2
HeartLogic	2
Luscii	2
my mHealth (app)	2
Ortus-iHealth digital remote patient monitoring and virtual ward platform	2
Patients Knows Best: Care Information Exchange	2
Actigraphy	1
Active+me REMOTE	1
Aintree Heart Failure Passport Mobile APP	1
Airmid	1
Attend Anywhere	1
Cardiomems	1
CONNECTPLUS (app)	1
Digital Rehabilitation Enablement in Chronic Heart Failure (D REACH-HF)	1
Doccla (remote monitoring)	1
DrDoctor	1
Explain my Procedure (videos)	1
Fitbit Aria Air Scales	1
Fitbit Tracker Inspire 2	1

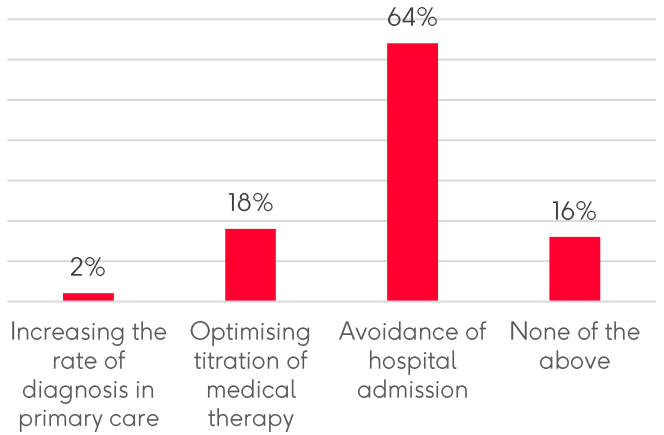
Technology name	Frequency
Florence Telehealth	1
Garmin VivoSmart 4 watches	1
HeartHealth	1
HEARTS App	1
Hull LifeLab	1
KiActiv®	1
Linq	1
Masimo browser and app based remote monitoring of BP weight HR	1
Maxims alert	1
Microsoft Teams (for team, including multidisciplinary team, meetings)	1
Microsoft Teams (for running cardiac rehab)	1
My Medical Record	1
OMRON BP machine	1
Recap Health	1
Spirit health - CliniTouch Vie (app)	1
TriageHF	1
Tunstall (telehealth)	1
Tunstall ICP Platform	1
Vcare	1
Ventricular Assist Device patient home monitoring app	1
Whzan platform (telehealth)	1
Youtube (live streaming CR sessions)	1

Technology type, purpose, and use

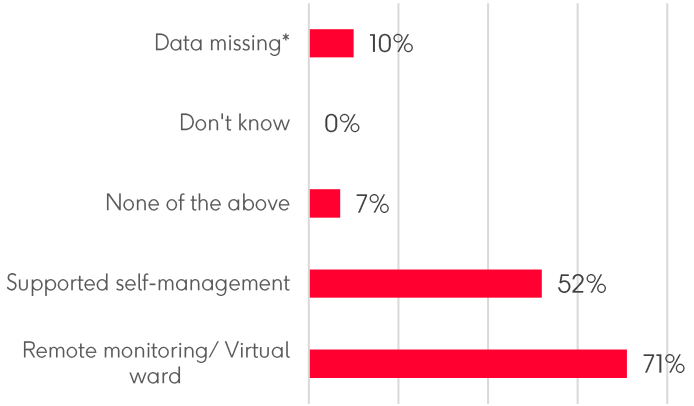
Technology type and purpose

- A majority of respondents (64%) described the primary purpose of their technology as the 'Avoidance of hospital admission'.
- 83% respondents said that their technology was designed to enable either supported self-management or remote monitoring. Remote monitoring/virtual wards were more commonly described by respondents (71%) than technologies enabling supported self-management (52%).
- The majority (64%) of respondents described technologies that were not exclusively used to treat/manage heart failure. 34% reported technologies specifically designed/used for heart failure.
- According to NICE's functional classification system, a majority of the respondents reported that their technologies would be classified as 'Active monitoring' (58%) or 'Self-manage[ment]' (56%).
- A significant majority (86%) of technologies described by respondents involved a software element, compared to 58% that involved hardware in some capacity.

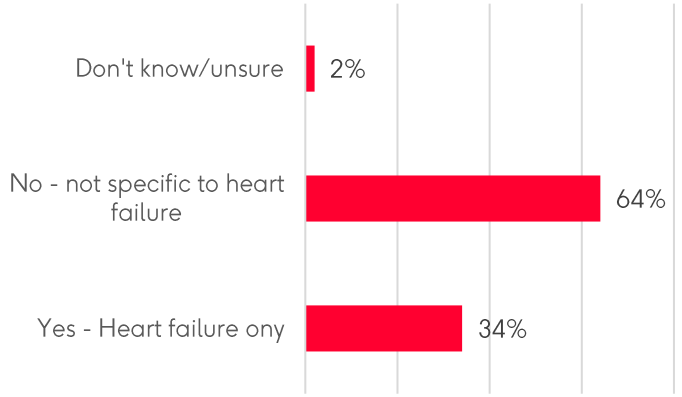
Q4. Do any of the following describe the primary purpose of the technology? [Single option].



Q5. Is the tool designed to enable either of the following? (Select all that apply)



Q10. Is this technology suitable for the management of heart failure only?



Q12. How would this technology be classified according to NICE's functional classification system for digital health technologies? (Select all that apply) *(Most popular answers)*

NICE classification	%
Active monitoring Tracking patient location, using wearables to measure, record and/or transmit data about a specified condition. Uses data to guide care.	58%
Self-manage Allows people to self-manage a specified condition. May include behaviour change techniques	56%
Inform Provides information, resources or activities to the public, patients or clinicians. Includes information about a condition or general health and lifestyle.	42%
Treat Provides treatment - Guides treatment	42%

*Due to a technical error, 10% of respondents to this question were able to skip the question when they should not have been able to.

Technology type, and use

Data collection and use

54% respondents said their technology involved patients manually inputting data, whilst 46% said data was collected via wearables, and 20% said data was collected from implantable devices.

82% of respondents reported that health care professionals were expected to react to data collected by the technologies, with 50% reporting that patients were expected to respond.

The majority (82%) of respondents were using the data collected by their technology to plan or tailor care for individual patients. 42% were using it to ensure adherence to standards, and 38% were using the data to contribute to research or predictive modelling for clinical purposes.

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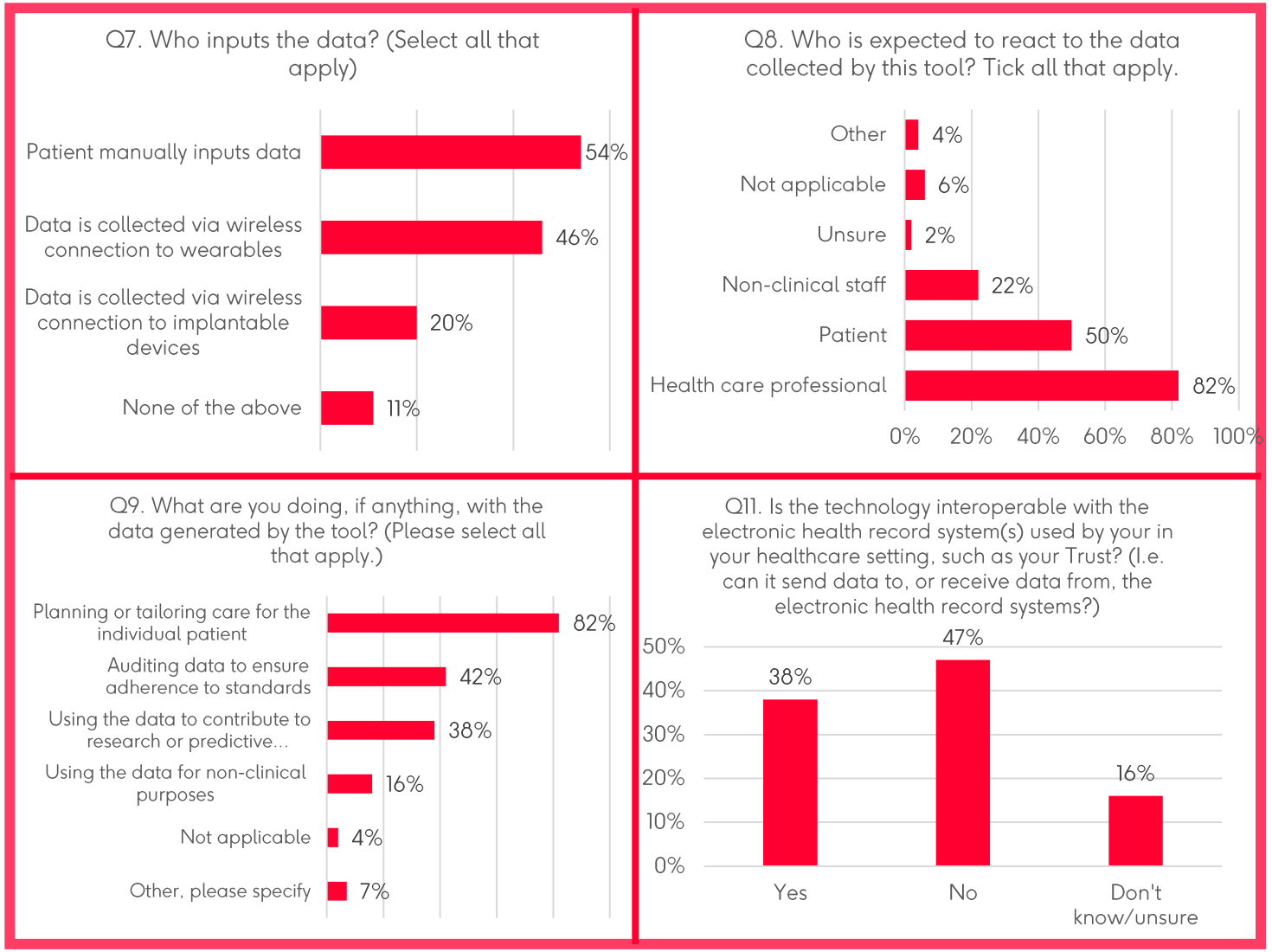


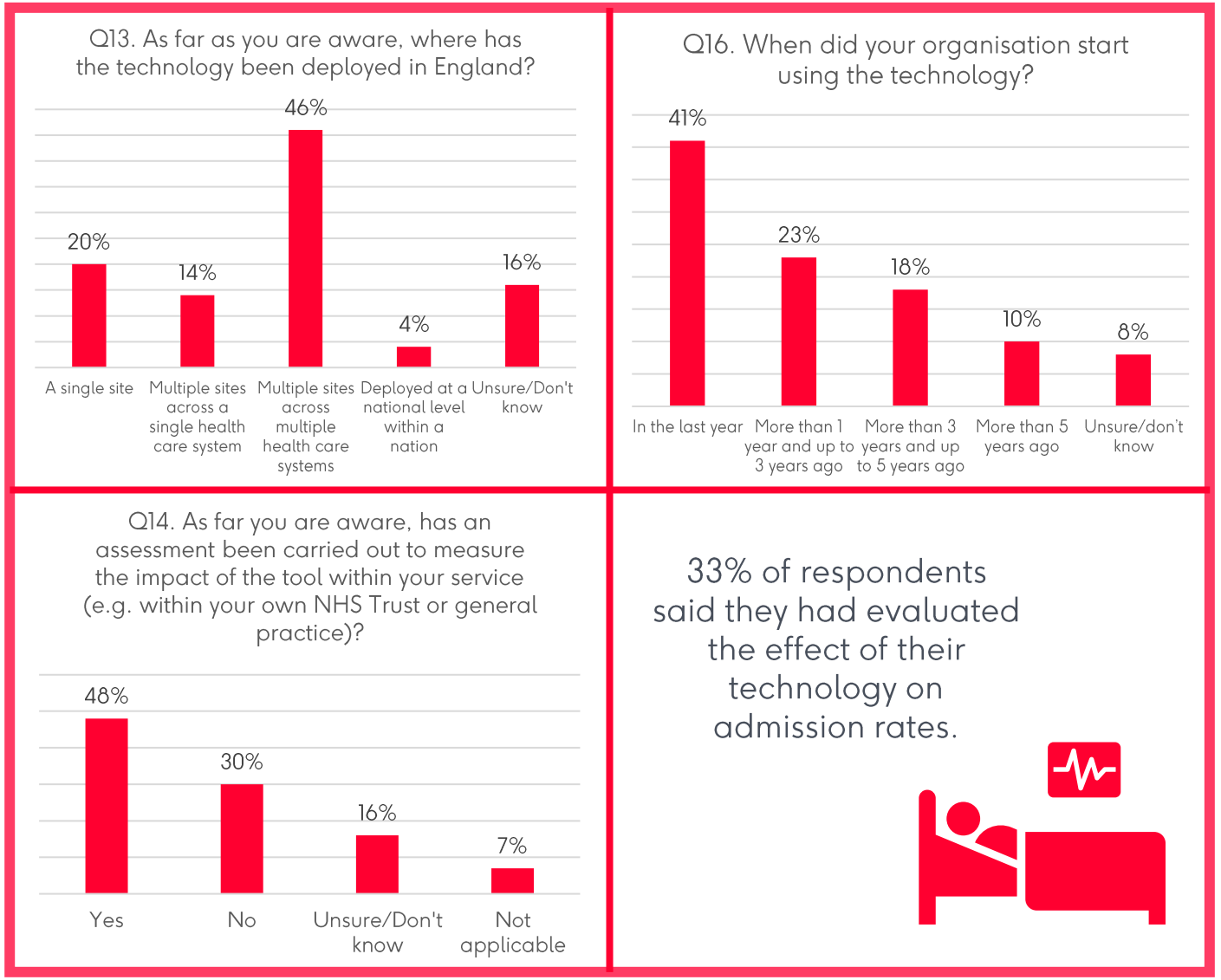
Deployment, adoption, and evaluation

Deployment and adoption

- 46% of respondents reported that their technology was deployed across multiple health care systems. This was the most popular answer by some distance and suggests that, whilst our survey captured a wide range of technologies but few multiple responses for any single technology, many of the technologies are used widely within NHSE.
- The majority (64%) of respondents described technologies that their organisations had started using in the last three years.

Evaluation

- Almost half (48%), of respondents reported that an assessment had been carried out to measure the impact of their tool within their own service.
- These respondents were asked, via a free-text option, to describe how and what these assessments examined. The most popular option for this (33% respondents) was that some sort of audit/assessment of admission rates had been conducted. Beyond this, nearly half (48% respondents) noted that they had conducted some sort of audit/assessment of other clinical and service measures (e.g. efficiencies, discharge times, adherence to therapy) excluding admission rates.



Regulation and compliance

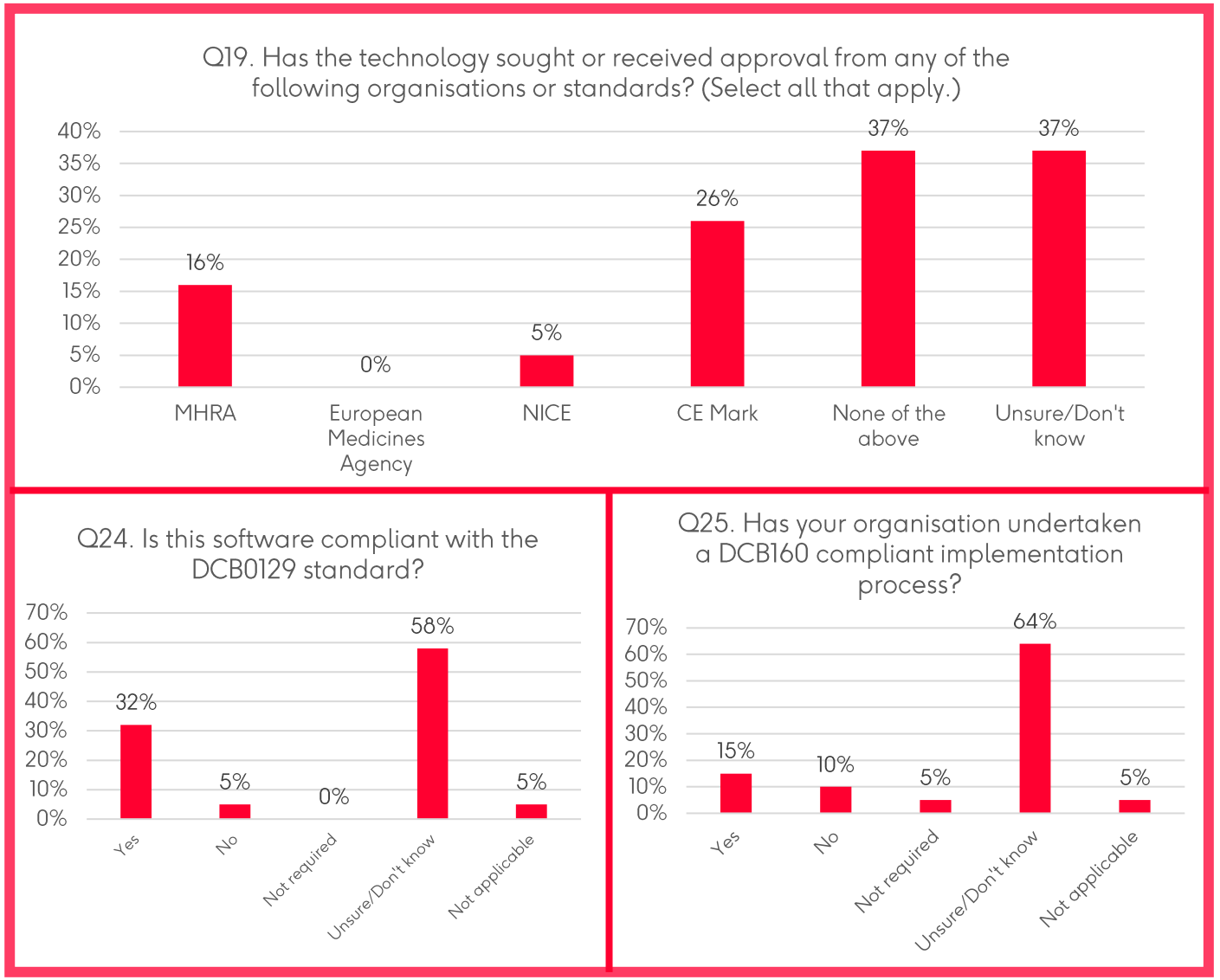
Respondent pool

Questions relating to regulation and compliance were shown to respondents who answered that they were involved with the development of the technology (n=19) and those who answered that they were involved in the implementation of their technology in their setting (n=39). Of those highlighted, questions 19 and 24 were shown to developers, whilst question 25 was shown to implementors.

Analysis of responses

Notably, a sizeable majority (74%) of question respondents answered either 'None of the above' or 'Unsure/Don't know' when asked whether the technology for which they were completing the survey had sought or received approval from any of the main regulatory bodies.

This chimes with the results of later questions, in terms of speaking to a potential wider lack of awareness about regulatory and compliance standards for digital health technologies. For respondents involved in the development of their technologies, 58% responded that they were unsure or didn't know whether the software was compliant with the DCB0129 standard, and for implementors, 64% did not know whether their organisation had undertaken a DCB160 complaint implementation process.



Development

Respondent pool

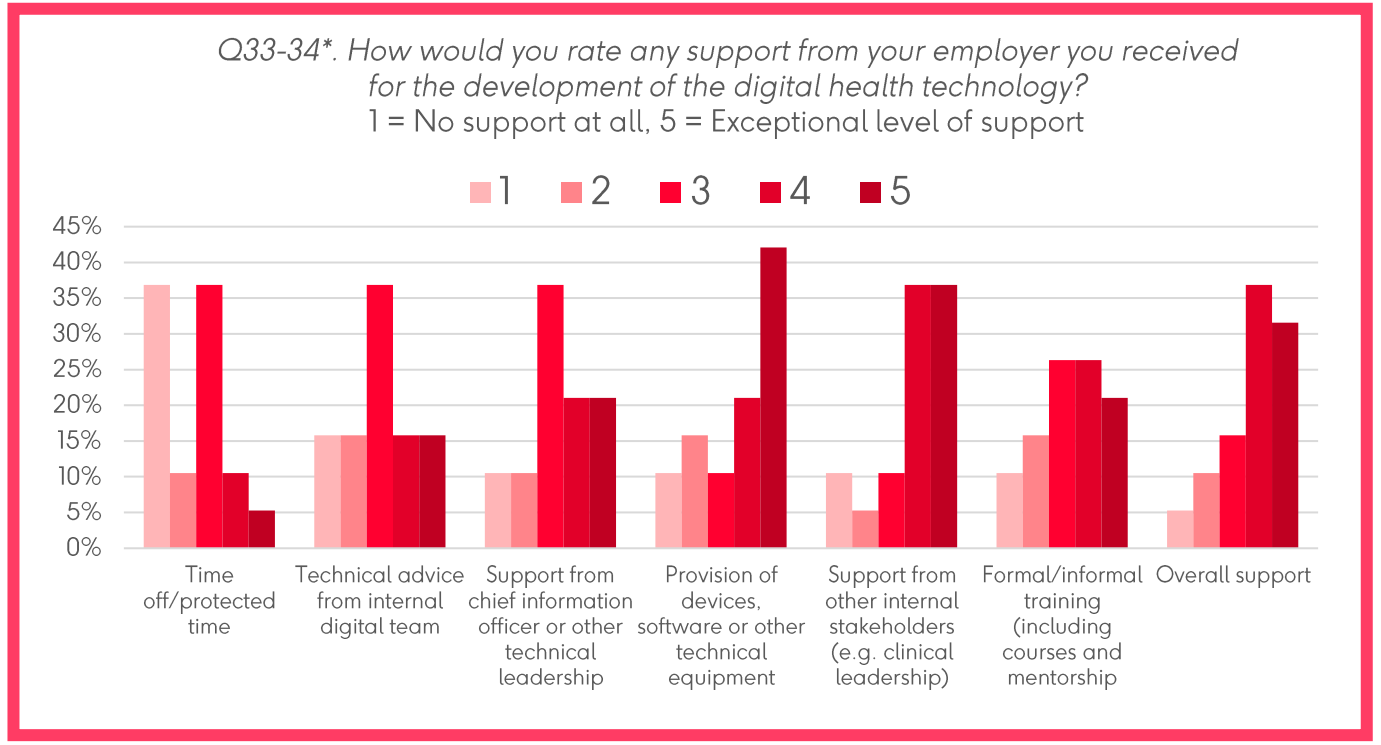
Questions relating to regulation and compliance were shown to respondents who answered that they were involved with the development of the technology (n=19).

Analysis of responses

Overall, respondents were fairly positive about the 'overall support' received from their employer for the development of their digital health technology (mean=3.8, median=4.0).

However, when asked about specific kinds of support, the picture was more mixed. 'Time off/protected time' for development was the lowest rated support measure (mean=2.4, median=3), with 37% saying they received no support of this type at all.

Support from internal stakeholders (mean=3.8, median=4), and the provision of technical equipment (mean=3.7, median=4) were the highest ranked specific types of support.



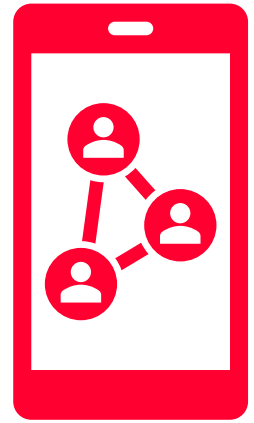
	1 (No support at all)		2		3		4		5 (Exceptional level of support)		Mean	Median
Responses	No.	%	No.	%	No.	%	No.	%	No.	%		
Time off/protected time	7	37%	2	11%	7	37%	2	11%	1	5%	2.4	3
Technical advice from internal digital team	3	16%	3	16%	7	37%	3	16%	3	16%	3.0	3
Support from chief information officer or other technical leadership	2	11%	2	11%	7	37%	4	21%	4	21%	3.3	3
Provision of devices, software or other technical equipment	2	11%	3	16%	2	11%	4	21%	8	42%	3.7	4
Support from other internal stakeholders (e.g. clinical leadership)	2	11%	1	5%	2	11%	7	37%	7	37%	3.8	4
Formal/informal training (including courses and mentorship	2	11%	3	16%	5	26%	5	26%	4	21%	3.3	3
Overall support	1	5%	2	11%	3	16%	7	37%	6	32%	3.8	4

*The questions about overall support (Q34) was asked separately to the question about specific types of support (Q33). The results have been combined for analysis purposes.

Summary

Key findings

- The majority of technologies are used for planning patient care, and are mostly geared towards HCPs for use.
- Despite the fact that most technologies are meant to assist HCPs, around half require patients to manually record their data, and only a third are interoperable with patient health records.
- This suggests there may still be a gap between what the technology is doing and its ability to work for both HCPs and patients, and could also suggest a need to better understand patient perspectives on, and experiences with, technologies that require manual data input.
- There may be work to do around awareness of regulation for novel technology, given the number of people involved with the development and implementation of technology who appear to lack knowledge about its regulation.
- Whilst those involved in the development of technologies rated the overall support they received from their employer positively, the widespread lack of protected time given to development activities is likely a barrier to innovation.



Next steps

We are currently exploring a means of mapping the technologies and (where permissions allow) respondents, for which we have collected data in this survey, to a standard clinical pathway in an interactive tool. It is hoped this will help clinicians and other decision makers decide see what technologies exist to address problems across different parts of the pathway, and potentially highlight areas that would benefit from innovation.

Appendix

Please note a more comprehensive analysis of the data are located in the following appendix. This includes a more thorough breakdown of the survey questions contained in the previous slides (e.g. answer combinations for questions where respondents could select multiple answers), as well as a number of questions that were excluded from this summary deck.