

Primary care engagement with remote monitoring in North Central London

Barriers and enablers to successful implementation of remote monitoring in care homes and implications for the future

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Executive summary

Some people are more at risk than others of becoming unwell very quickly and developing serious health complications, potentially leading to avoidable deaths. This is known as deterioration, which is more prevalent in care homes due to the demographic of residents and their pre-existing conditions. Non-clinical care home staff, with detailed knowledge of residents and a vital signs education, are well placed to take regular observations and detect early signs of deterioration.

Over the last few years care homes have increasingly introduced the use of digital solutions to measure resident's vital signs and calculate the National Early Warning Score (NEWS2, Royal College of Physicians, 2017). A number of solutions which enable remote monitoring of care homes residents use a digital platform to electronically record NEWS2 information into a digital dashboard. The dashboard is then shared with other healthcare professionals for timely management and when required escalation of deterioration. The use of digital technology to enable remote monitoring and consultation became critical during the COVID-19 pandemic, with system-wide uptake rapidly accelerating.

In 2019 UCLPartners Patient Safety Collaborative (PSC), as part of the National Patient Safety Improvement Programme, worked with NHS North Central London Integrated Care System (NCL) to improve the ability of non-clinically trained staff to recognise, escalate and communicate the early signs of deterioration, using an innovative digital solution Whzan Blue Box in 8 care homes. It includes portable monitoring equipment and a tablet to measure vital signs, calculate a NEWS2 score and facilitate appropriate escalation. Use of digital technology was complemented by a vital signs education programme for non-clinical care home staff, delivered by the NCL Training Hub team of nurse educators. Using lessons learned from this pilot, the use of the Whzan Blue Box has been rolled out to 116 care homes across the North Central London, with the support of NHSX Digital Solutions in Care Homes scaling up programme.

Although the rollout of the Whzan Blue Box overall has been very successful, there were care homes where the uptake was not easy and in some where it stalled. There are various contributing factors to that, with barriers to adoption encountered at both care homes level and within the primary care service that support them. The aim of this evaluation was to improve the understanding of how Whzan Blue Box has been used, what the barriers and enablers to its use were, and consider whether there is scope to expand its use to assist with the delivery of the Enhanced Health in Care Homes Framework (NHS England, 2020).

UCLPartners PSC team used a qualitative approach, collecting data through a set of semi-structured interviews with both care home and primary care staff, to conduct the evaluation. This enabled us to build up what felt like a 3-dimensional picture of Whzan Blue Box usage. What became clear was that successful implementation was underpinned by a clear escalation pathway, robust communication, and clearly defined roles. Where Whzan Blue Box usage was less established, this was sometimes due to factors within the care home, such as lack of time and staffing issues. However, often, lack of engagement with Whzan Blue Box was due to GP's concerns that they may find themselves overwhelmed with the volume of physiological data without any other clinical context. These concerns about increased workload, inefficiency and unclear accountability should not be dismissed.

Those who had successfully adopted Whzan Blue Box had developed solutions to these concerns. Primarily, they ensured that a senior person within the care home, able to interpret the results in

a clinical context, communicated the results to the GP and/or primary care staff. There was no expectation for the GP to sit at their desks, manning their Whzan portal – abnormal results were proactively flagged by the care home staff. When used in this context, both GPs and care home staff found Whzan Blue Box improved the quality and efficiency of their work.

Ultimately, what came across is that both sectors felt strongly that Whzan Blue Box was of benefit to residents. Care home staff were more confident to escalate concerns, and GPs liked having both vital signs data and contextual information about the resident. Stories of residents receiving more timely care in an appropriate setting were commonplace.

This report presents the findings of this evaluation, making key recommendations that may promote both the wider utilisation and broader application of the Whzan Blue Box and other remote monitoring solutions. This report is accompanied by two short videos describing the application and benefits of using Whzan Blue Box from a GP and care home staff perspective – these are available at the UCLPartners website.

Recommendations

1. The onus should be on care homes to proactively ‘push’ abnormal NEWS2 scores or Whzan Blue Box results to the GP as this will enable GPs to perform a reactive, rather than continuous monitoring role thereby ensuring they do not become overwhelmed. However, if the care home does not offer this information, GPs should recognise the benefit in prompting them to do so.
2. A member of the care home staff should be nominated as the key person responsible for escalating results to the GP surgery. This person should have some clinical training where possible, and enough clinical acumen to understand the urgency of escalation required in different situations.
3. Multiple staff members across the care home and GP surgery teams should be trained on Whzan Blue Box through joint training events as this will mean an escalation pathway can be mutually agreed.
4. Team members involved in escalation pathway such as 111, LAS, Urgent Community Response Teams should have access to and consistently use Whzan as this will help to increase its adoption and utilisation.
5. Care home staff should be educated in the clinical benefits of using Whzan Blue Box as they will be required to invest significant time in utilising it and so need to understand why this effort is worth it.
6. Bigger care home sites should use multiple Whzan Blue Box kits.
7. Support with IT for care homes is paramount if Whzan Blue Box is to be used to full effect. System log-ins should only exist when required to adhere to data protection requirements. And procedures should be developed or streamlined to reduce inefficiency when operating more than one system across multiple sites.
8. Trouble-shooting sessions should be offered by the training hub after the initial training session has taken place.
9. Further training may be required if the use of Whzan Blue Box is expanded to assist with the EHCH delivery.

Introduction

Purpose of this report

North Central London (NCL) introduced Whzan Blue Box, a remote monitoring digital solution, into care homes in 2019. To date, 116 care homes in NCL are using Whzan, which is just over half (53%) of the total care homes in the NCL area. Overall, care homes across NCL using Whzan Blue Box demonstrated a 14% reduction in London Ambulance Service (LAS) callouts compared to those care homes in NCL who are not using Whzan.

NCL have recognised an opportunity to utilise remote monitoring not only in the recognition and response to acute deterioration, but as part of a comprehensive strategy to deliver the Enhanced Health in Care Homes (EHCH) framework and improve the quality of care for all care home residents, especially those with long-term conditions, frailty or multimorbidity.

Although the rollout of the Whzan Blue Box has been very successful in many care homes, in others it has been less so. There are a variety of reasons why this may be the case, with barriers to uptake encountered at both at the level of the care home and within the primary care services that support them. As such, the aim of this work was to improve understanding of the role of, and engagement with, remote monitoring solutions in primary care settings in North Central London.

This report presents the findings of this evaluation, making key recommendations that may promote both the wider utilisation, as well as the broader application, of Whzan Blue Box remote monitoring solution.

Findings and insights from this report will also be shared more widely using UCLPartners networks to support others who are about to embark or are already on the journey of introducing and implementing a remote monitoring solution in care homes.

Background

Digital technology offers an opportunity to transform how we deliver health and care services, with remote monitoring being increasingly adopted by healthcare systems as an additional method to enhance patient care (Vegnesa et al, 2019). NHSX have endorsed the use of remote monitoring in care homes, and have already supported over 78,000 patients across England in using it between November 2020 and May 2021. Several studies have demonstrated the benefits of remote monitoring. Malasinghe et al (2019) reported that:

The advantages of remote monitoring of patients are: early and real-time detection of illnesses, ability to continuously monitor patients, prevention of worsening of illnesses and untimely deaths, cost reduction in hospitalisations, reduction in the number of hospitalisations, obtaining more accurate readings while permitting usual daily activities for patients, improvement in efficiency in healthcare services by utilising communication technology, timely emergency medical care, and provision of service for patients with mobility issues.

Two recent systematic reviews concluded that remote monitoring had a major role to play in chronic disease management (Vegnesa, 2019) and also in the recognition and early escalation/treatment of acute deterioration of chronic conditions (Peyroteo 2021). A third study by Lakmini et al (2019) deduced that those most likely to benefit from remote monitoring were *'those diagnosed with chronic conditions...and elderly patients'*.

A 2003 study highlighted that, despite the efforts of the extremely dedicated individuals who work in health and social care, health care for care homes residents can easily become *'inconsistent and idiosyncratic'* (Fahey et al, 2003). In addition, Gordon et al (2014) stated that residents of care homes *'are often poorly served by existing healthcare arrangements.'* Postulated reasons for this include: a high rate of multimorbidity within care homes (hence many specialists involved in the delivery of their care), a single care home's population registered across a range of GP practices (resulting in unclear escalation pathways), and lack of staff training on frailty and multimorbidity. In addition, many care home residents are frail (Gordon et al, 2014), resulting in a much greater risk of deterioration and the requirement for emergency or unscheduled care.

If this is not incentive enough to act: care homes are currently home to some 400,000 older people in the UK, and this is projected to rise by 127% over the next 20 years (British Geriatrics Society, 2021). To help address these challenges, the implementation of remote monitoring into care homes presents a logical and innovative solution.

In 2019, the government published The NHS Long Term Plan, which contained a commitment to implement the EHCH Framework across England by 2024. This framework (EHCH V2. 2020) was designed to improve care for care home residents by introducing seven key domains of care (**Appendix 1**). Primary Care Networks (PCNs) were commissioned to help deliver the EHCH framework under a Directed Enhanced Service (DES) agreement (NHS England, 2020). Therefore insights into the barriers and enablers to the effective use of remote monitoring in care homes and its use to support the EHCH framework is needed to ensure its continued use and impact.

Definition of remote monitoring

There are many remote patient monitoring definitions and devices available on the market, but we will be using the below for the purpose of this report:

- The process of using technology to monitor patients outside of a traditional care setting, such as in their own home, or care home
- Involves the ability to measure and transmit physiological data to a clinician in a separate location in order to observe wellbeing, and alert clinicians to signs of deterioration
- Can include symptom trackers, monitoring devices, or patient dashboards
- Can be used in conjunction with remote consultations – but this was not a focus of this work
- Examples in use include:
 - Whzan Blue Box
 - Feebris
 - Dignio
 - Docobo
 - Safe Step



Evaluation design and approach

Aims

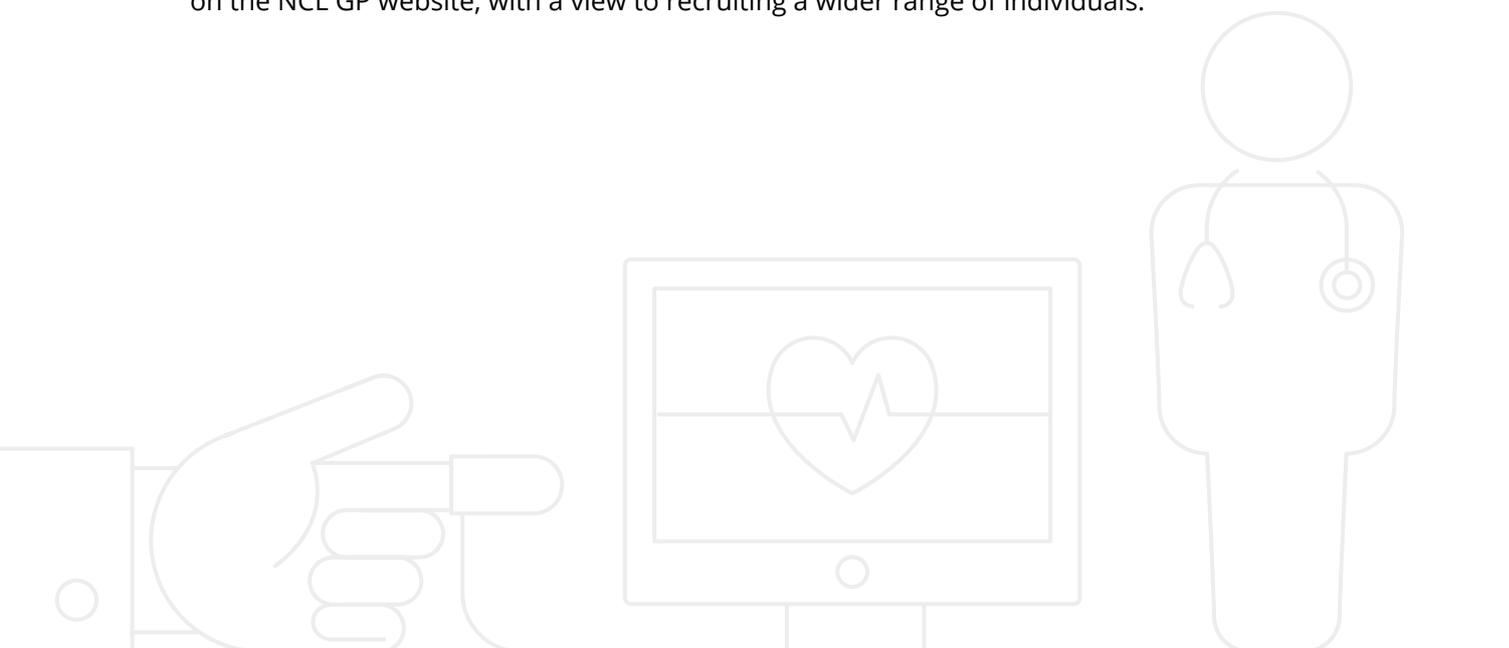
The evaluation sought to improve understanding of the role of, and engagement with, remote monitoring solutions in primary care settings in North Central London, with a view to:

1. Establish current use of remote monitoring solutions amongst a sample of users
2. Determine perceived barriers and enablers to maximising the potential of remote monitoring solutions
3. Capture insights on the potential for remote monitoring solutions to support delivery of elements of the EHCH framework

Methodology

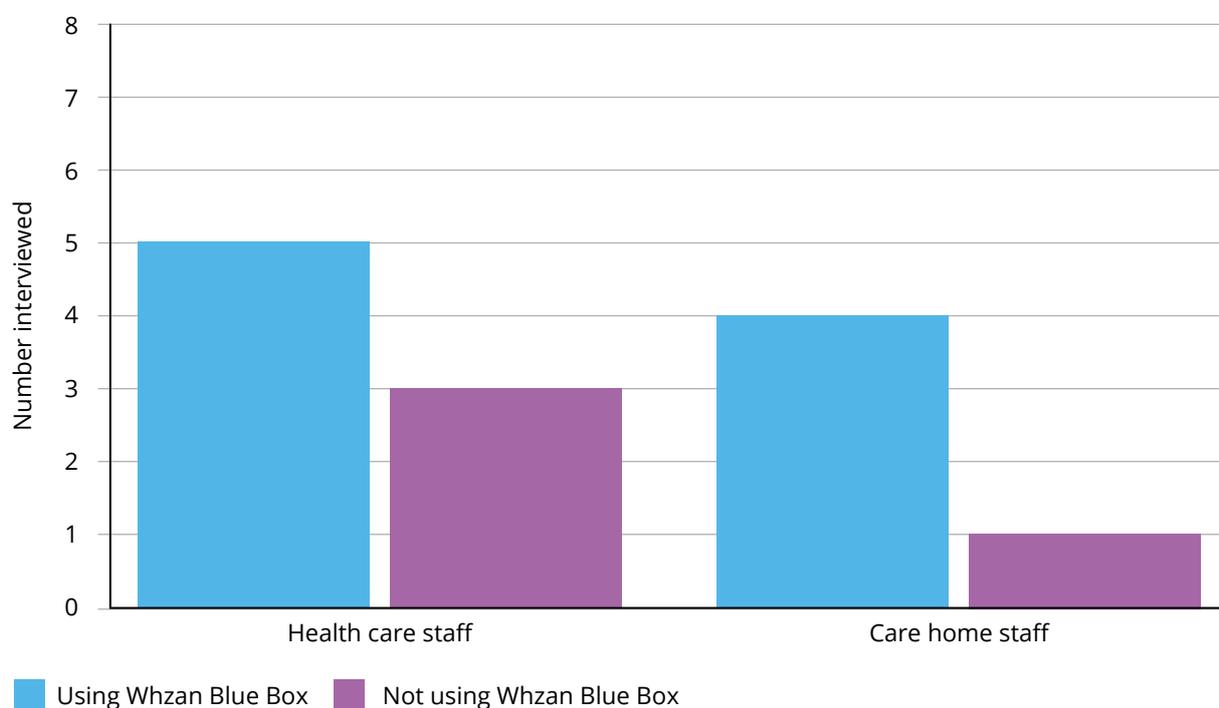
This was a qualitative study, in which data collection occurred using semi-structured interviews. Adopting an interpretive paradigm (Bunniss, 2010) enabled us to capture the insights and opinions of those who were using, or had used, remote monitoring technology. The interview schedule ([Appendix 2](#)) included open questions to capture participants views and emergent themes.

Participants were selected using a purposeful sampling technique. NCL identified a list of potential interviewees, including GPs, Emergency Care Practitioners, Community Nursing team, Care Home Managers and Clinicians in a Quality or Safety role. Participants were selected to promote diversity both by job role and by utilisation of Whzan Blue Box. As such, individuals who were well-known to the training team, or who had either engaged with Whzan Blue Box, or struggled to implement it, or rejected its implementation entirely, were preferentially targeted. Whilst this undoubtedly introduced some selection bias, this selection of 'extreme cases' was justified, given that it was the narrative surrounding challenges and enablers that is of interest. An advert was also placed on the NCL GP website, with a view to recruiting a wider range of individuals.



NCL contacted the potential interviewees, facilitating an introduction with UCLPartners. 33 individuals were contacted in all (21 GP/Community care teams; 12 Care Home Managers). 13 responded and were ultimately interviewed (Figure 1).

Figure 1: Usage of Whzan Blue Box across interviewees



In total, five interviews were undertaken with care home managers. This included the managers of three nursing homes, one residential home, and one manager for a specialist unit for people with learning difficulties.

Eight interviews were undertaken with health care professionals. The health care interviewees included seven primary care practitioners (six General Practitioners and one Emergency Care Practitioner) and one secondary care clinical nurse specialist.

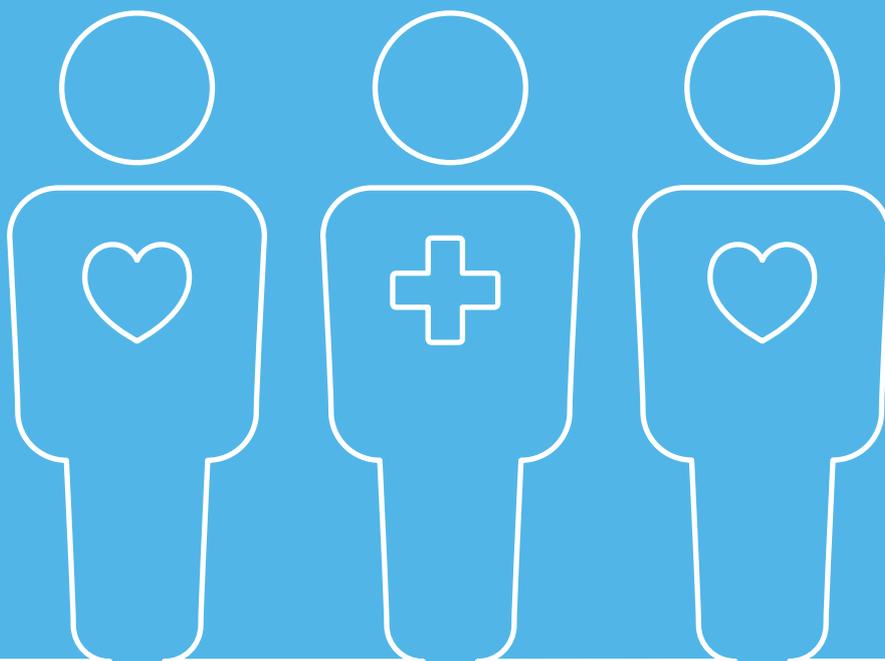
Interviews were conducted via video conferencing over the three month period (February - April 2022). NCL were not present at the interviews as part of a deliberate strategy to protect the anonymity of the participants, and to encourage open dialogue. Thematic saturation was achieved, as no new themes emerged in the later interviews.

Challenges and limitations

Although every intention was made to sample a broad and diverse range of participants, the responses generated from this project are limited to the perspectives of the participants and may not be generalisable. A larger scale study may assist in overcoming this. Additionally, response bias may have been introduced by preferentially selecting 'extreme cases'.

Analysis

The interviews were transcribed, and this data formed the basis for the synthesis of the findings. Two researchers analysed the transcripts, and jointly agreed on subsequent themes. An iterative approach to data analysis was taken, in order to capture emergent themes, and to provide a greater depth to our analysis.



Findings

Data generated through the interviews and thematic analysis produced a number of themes and concepts:



Current use of Whzan Blue Box

- Enablers
- Barriers



Impact

- Upon staff
- Upon patient care
- Health inequalities



EHCH framework

- Current use
- Potential use

Current use of Whzan Blue Box

Use of Whzan Blue Box across both the care home and health care sector had some similarities as well as differences. Most similarities were surrounding the use of remote monitoring in the detection and escalation of deterioration in care home residents. Health care professionals that used Whzan Blue Box regularly reported a similar pattern of use: to support on clinical rounds, as well as in an acute capacity, to measure observations on residents about whom the care home staff had concerns. These processes were supported by the care homes who use Whzan Blue Box in their monthly reviews and ad hoc when care home staff were concerned about a resident. Staff then either escalated these results to the GP, or direct to 999 or 111, depending on the NEWS2 score.

For those interviewees who did not use Whzan Blue Box the below reasons were given:

- Concerns about implementation (*you've really got to sort out the pathway*)
- Either the care home or the GP practice not using Whzan Blue Box
- Colleagues within the practice not using it (both rendering it less useful)
- Reticence due to the possibility of an unmanageable GP workload
- Challenges with using the Whzan Blue Box kit (care home)
- COVID-19 pandemic priorities

Enablers and barriers to the use of Whzan Blue Box were highlighted in each of the interviews and are outlined in detail below. What was evident throughout the interviews was that where one thing could be an enabler the converse of that would be a barrier e.g. a clear escalation pathway was cited as helping the adoption however where the escalation pathway was unclear this inhibited adoption.

Enablers

A range of enablers to implementing Whzan Blue Box were identified by health and social care professionals. Most emerged several times and will be detailed here in order of frequency.

The presence of a good relationship, and a clear process of communication of results as part of a robust escalation pathway was seen as paramount, and emerged as a recurrent theme, predominantly from interviews with healthcare professionals. None of the GPs, who were regularly using Whzan Blue Box, checked residents' observations on the system unless prompted to do so by the care home, or whilst on a ward round.

The healthcare professionals, regularly using Whzan Blue Box, were all the point of contact for an unwell resident, with GP colleagues covering in their absence. There was no requirement for them to opportunistically check Whzan Blue Box, and the expectation was that the care home would actively escalate to the GP. The NEWS2 score was used as a decision aid – where it was high, 999 was often called without involving the GP. The presence of a trusted/reliable person within the home who possessed sufficient clinical acumen to interpret the abnormal Whzan Blue Box results in context, and communicate this to GPs, was seen as integral to this pathway functioning well:

“ I think it's important to have hierarchy within the care home so that junior staff can approach someone with more experience. It's not worth someone saying: 'the score is 9 and what do I do with it?' as it could just be the one observation that could be off rather than everything else. It needs to be dealt with appropriately and so you need someone with clinical acumen.

Another stated that she had a clear policy with the care home – that all residents of concern must be discussed over the phone – it was not enough to email or expect her to continuously monitor Whzan Blue Box. This agreement was seen by the GP as pivotal in making the adoption of Whzan Blue Box a success. Good communication between health and social care staff, in which the system for escalation had clearly been articulated, was seen as essential.

Communicating the benefits of Whzan Blue Box clearly to the care home staff prior to implementation, was seen as important by both healthcare and social care staff, as they would be required to invest considerable time in learning how to and then using Whzan Blue Box. Non-clinical staff were more likely to perceive themselves as being unaware of the potential benefits of Whzan Blue Box prior to implementation. An awareness of these benefits, especially of how taking observations can enhance a resident's care, was thought to help with initial adoption.

Training, both in terms of technical training, but also clinical training to facilitate results interpretation, was also seen as essential. The experience of training was different between health care professionals and social care professionals. All those in care homes had received training, even if they were no longer using Whzan Blue Box, whereas if a healthcare professional was not actively using Whzan Blue Box they had not received training, apart from one.

All the care homes interviewed had received training, and the perception was that this training was high quality, and that the training hub staff were approachable and responsive. Examples were given of where the training team had revisited the home after the training to 'trouble-shoot'.

However, there were mixed opinions on how best to deliver the training. One home felt that the training should be extended to all staff, not just the managers, as it is the ‘staff on the ground’ who use Whzan Blue Box. Several adopted a ‘train-the-trainer’ approach and felt that this worked well.

One home expressed the view that there should be a ‘check-up’ session after the initial training to ensure that homes are using the kit correctly, and that this was particularly important for non-clinical staff, who may have no prior experience of measuring observations. This home had experienced technical problems which had delayed their adoption of Whzan Blue Box.

The general perception, from health care professionals, was that this training was sufficient for their needs: one stated that she was ‘not using it in any technical way’, another said that for GPs, the system is easy to use:

“ I’ve asked the other GPs in the practice to get a log on. I showed them how to use it in a clinical meeting and I think the GP interface is very straightforward. If I’m not around and care home calls about the resident, they can now have a look and make an assessment on the next steps.

Most healthcare professionals discussed training in the context of the care home staff, feeling that their own had been sufficient. One healthcare professional, felt that adopting a team-based, interprofessional approach to training, in which the whole GP surgery, and the care home were trained in parallel, would have been useful. Social care professionals also identified good-quality training as an enabler, and all the homes reported being satisfied with the training that they had received:

“ I had the 50 min training with that lovely nurse who talked me through it. It’s not a difficult thing to master, is it? I mean, it’s you’ve got a log in and then you can just go in and have a look and have a play with it. I suspect I’m using it in a very basic way, perhaps.

Digital enablement was acknowledged as an essential foundation to the training and the importance of practical matters such as ensuring adequate log-ins was also discussed. One healthcare professional stated that there was a requirement to ‘activate’ log-ins, which served as a hurdle to usage.

The necessity of a positive mindset amongst all involved was a theme that emerged in two separate healthcare professional interviews. The requirement for sufficient time and money, for both kit and training, was also highlighted.

Other enablers mentioned less frequently included: high quality internet connection within the care home, the usability and compactness of the kit, a stable resident population in the care home, having someone decide how Whzan Blue Box will be commissioned and implemented, and the possibility of financial incentives.

Interviewees were asked what factors would support on-going use of Whzan Blue Box, besides the enablers already mentioned. Responses included: refresher training, joint training session with the care home, provision of more kit and tablets, assistance with kit maintenance, more training for care home staff, sending of reminder emails, and alignment of Whzan Blue Box data to Emis and SystemOne.

Barriers

Lack of uptake of Whzan Blue Box by all aspects of the system was seen as a barrier to implementation by health and social care providers alike. If one party within the healthcare/ social care partnership was not using Whzan Blue Box, then use by the other party was often negatively impacted. Whole-system access was deemed necessary in order to improve implementation, but also to increase the range of functions that Whzan Blue Box could assist with once implemented.

Several pathways were identified, by social care professionals, for the escalation of unwell residents. Pathways involving the GP, 111, 999 and specialist-nurse led care home support service were all described. Most homes had more than one pathway and used the NEWS2 score to decide which pathway to evoke. Two nursing homes were also part of a pilot scheme, in which observations were automatically communicated to the 111 service.

Social care providers were primarily concerned with the whole system being able to access information on the Whzan portal. This observation emerged in several interviews, including from the discourse of the nursing home who had stopped using Whzan Blue Box because not all parts of the system could utilise it. If the other organisations on the escalation pathway were not engaged with Whzan Blue Box, then the care homes themselves either stopped, or limited, their own use. For example, in addition to the nursing home that discontinued using Whzan Blue Box due to lack of whole system engagement, there was another nursing home that cited lack of whole-system access as a barrier to broader Whzan Blue Box use.

There were mixed reports as to how well these systems of escalation were working. There were examples of residents receiving a good service, i.e. an earlier prescription of antibiotics from GP for a urinary tract infection. But there were also occasions where the pathways were less effective, for example in the case of a GP receptionist who had not heard of Whzan Blue Box, so was dismissive of the care home's concerns. One nursing home reported that their GP was not using Whzan Blue Box, and it could be difficult to get through to them on the telephone, so they tended to escalate concerns via another route.

The nursing home who had discontinued using Whzan Blue Box also escalated information about unwell residents to the ambulance or the GP, depending on the NEWS2 score. However, when escalating concerns to the GP, there was a requirement for the home to print, scan and email the observations, as the GP surgery did not access Whzan Blue Box themselves. It was this duplication of labour that resulted in this home terminating their use of Whzan Blue Box. Lack of GP engagement was felt, by some social care staff, to be a barrier to achieving effective use of Whzan.

The escalation pathway was also highlighted as a barrier for the healthcare professional. For one of the GPs who was not using Whzan Blue Box, a major reservation was that an intermediary in the care home may be lacking, and GPs would be expected to continuously monitor Whzan Blue Box alongside their normal workload. None of the healthcare professionals who were using Whzan Blue Box successfully were undertaking this continuous monitoring role – all were reliant on the information being *'flagged'* to them.

Those health care professionals who use Whzan Blue Box less frequently indicated that their utilisation was based on how the care home used it. One healthcare professional shared that the staff at the home for which she had clinical responsibility were not using Whzan Blue Box for acutely unwell residents, only to take monthly baseline observations. As such, her own use of Whzan Blue Box had declined, since she felt that previous observations were of little use in the context of acute deterioration, without a repeat set to assess the degree of change. Another would only use Whzan Blue Box as part of a multidisciplinary team meeting, would not check results opportunistically and was not involved in the escalation pathway.

Lack of use by colleagues within their GP practice also influenced GP Whzan Blue Box use, with non-users more likely to report that their colleagues also did not use Whzan Blue Box, suggesting a requirement for a 'critical mass' of users within a surgery.

Lack of time, staff and capacity for both training and utilisation of Whzan Blue Box was commonly cited as a challenge by care home staff. Care home staff confidence and lack of training was also often mentioned by healthcare professionals. This was thought, in one case, to be due to high staff turnover, and a lack of digital literacy:

“*About staff training, I think they had a lot of staff turnover and so that people that are currently working aren't confident in using it. So, it's essential that you provide ongoing training and for the right people who are going to be using it.*”

Most healthcare professionals who were not regularly using Whzan Blue Box had not received training. One had, but reported that this had occurred in isolation, reducing its usefulness.

Practical barriers, such as difficulties in operating the kit, insufficient kits, and insufficient log-ins were other frequently-discussed themes across both healthcare staff and social care providers. Lack of understanding about what to do if the kit malfunctioned was also likely to result in slower implementation, although this risk was offset partially by the presence of a responsive and supportive training team.

A lack of integration of Whzan Blue Box into the organisations' own IT system was also highlighted as a challenge by both health and social care staff, who raised concerns about duplication of work. Interoperability between care home computer systems and Whzan Blue Box was seen as the solution to this.

One healthcare professional felt that a home with more residents exhibiting potentially challenging behaviour may be less likely to use Whzan Blue Box, due to difficulties in physically taking the observations. She reported feeling that she could not always 'trust' the information on Whzan Blue Box.

Finally, using the kit in way that was not pre-agreed by all parties in the system, e.g. not using acutely, was felt to be a barrier to Whzan Blue Box being successfully and fully implemented.

Figure 2: Barriers and enablers to Whzan Blue Box adoption

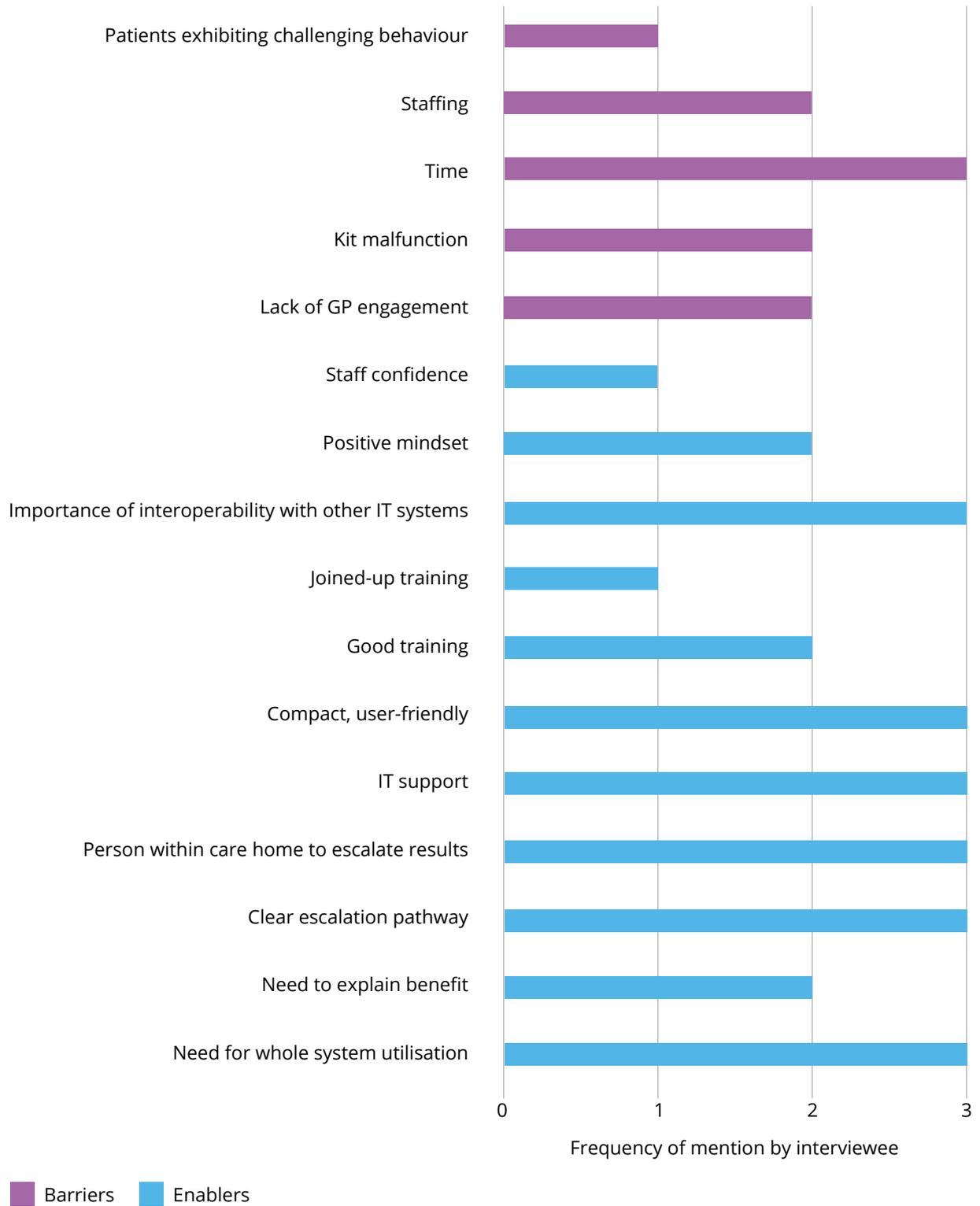


Figure 2: Whzan escalation pathway displayed with enablers identified



■ Enablers

Impact of adoption of Whzan Blue Box

All interviewees felt that the adoption of Whzan Blue Box has made an impact on residents and staff in a positive way. Impact was described in 3 ways; impact on staff, impact on residents and impact on reducing inequalities. Some interviewees had seen tangible impact based on their experience of using Whzan whereas others could predict what impact Whzan may have it utilised effectively.

Impact upon staff

It was felt that Whzan Blue Box had a positive impact on social care professionals, as perceived by healthcare professionals, who cited reasons of carer empowerment, an increased understanding of physiology, and increased efficiency for care home staff (as a ward round could be conducted remotely). Another healthcare professional reflected that the use of Whzan Blue Box reduced duplication of effort, since the observations were logged somewhere and were accessible to all. Most social care providers echoed this view. The home that contradicted it reported an increased workload due to the need to print and scan results over to the GP.

All the healthcare professionals who were using Whzan Blue Box reported that it positively impacted upon their own work. One described that it was *'helpful to have tangible observations if someone is exhibiting soft signs of deterioration'*, reporting that it made the subsequent assessment more robust:

“ I clarified to the team at the care home that these are useful observations and that once taken they can ring up and say so and so doesn't look very well. I'd ask what's their temperature or their pulse and the care home staff can just go and check with the kit. I suppose, it makes it more scientific about people's approach to an acutely unwell patient.

Another reported that it made it easier for her to do her job, as she could see observations, especially trends, and better interpret results in this context. She also reported that Whzan Blue Box makes it easier for colleagues who don't know the residents to assess a deteriorating resident. It was acknowledged that the use of Whzan Blue Box becomes especially important for GPs looking after more than one care home.

One of the three healthcare professionals who was a non-user acknowledged the potential for increased efficiency using Whzan Blue Box but caveated this with the observation that this was dependent on how it was implemented – there was also potential for reduced efficiency if observations were taken unnecessarily, or communicated without any clinical context.

Impact upon residents

All health and social care professionals felt that Whzan Blue Box was likely to result in better resident care. None felt that it resulted in worse care. Four of the five care homes stated that it offered better care compared with standard/usual care. The fifth was a proponent of it, and recognised its merits, but stated that *'nothing beat face-to-face'*.

Reasons for perceived better care when using Whzan Blue Box (cited across both groups of interviewees) included: earlier detection of illness, more timely GP call-out or ambulance conveyance, staff empowerment, easier access to care for residents reluctant to see a GP in person, ability to give and receive objective evidence about deterioration, resident/ relative popularity, ability to track observations over time, a graphical display of information, better communication between primary and secondary care, provision of advice on how to escalate observations based on the NEWS 2 score, and the use of Whzan Blue Box ensuring that the home are aligned with the way that care will most likely be provided in the future. One healthcare professional reported that *'the focus of the way that we are providing care in the community is changing'*.

Another highlighted the potential for it to help with infection control (by minimising the need for face-to-face appointments) and to ensure that those with reduced mobility could access care.

One home discussed how the use of Whzan Blue Box had enabled the development of a resident-centred care plan, in which the criteria for hospital admission was tailored around his personal observations. Two care homes gave examples of times where the use of Whzan Blue Box had resulted in a swifter admission and earlier recognition of the deterioration, whilst an LD care home highlighted the benefit of doing observations in a stress-free environment for their residents:

- “ *We’ve done the observations and it flagged up, so we called 111 at night as the resident oxygen levels dropped – it’s usually 88 and it dropped to 81. 111 service called an ambulance, and they took the gentleman to the hospital who was admitted that night.*
- “ *As a non-nursing provider, we would take temperatures but not necessarily oxygen monitoring on a wide range of people, however that has improved because my staff have become more aware of it and what the normal parameters are, and so that has improved patient care because we’re picking things up earlier.*
- “ *Lots of people we support have autism and the GP practice is not a relaxing environment for them and they find it very stressful, whilst we can carry out observations at home without it being stressful for them and get that information across. Then it’s a better reading because they’re not stressed.*

Two HCPs reported that, although their ‘gut feel’ was one of improved care for residents when using Whzan Blue Box, it is hard to prove this due to presence of multiple confounders, including COVID-19, lockdown and incomplete uptake of Whzan Blue Box.

Three main risks were discussed in the context of impact upon resident care. The first concerned a spate of abnormally high blood pressure readings in a care home, which turned out to be due to faulty kit. However, it was acknowledged that this risk was simple to mitigate, with regular calibration of the kit. The second risk related to the potential for artificially raised observations, more likely to occur with residents who get anxious when having observations, or who may not understand the process, such as those with dementia. A system where ‘difficult to obtain’ observations could be flagged was postulated to be helpful. The final risk was about widening the health gap in the face of variable digital literacy. One healthcare professional stated *‘There is potential for huge benefit as long as we bring everyone with us’*.

Health inequalities

Most health and social care professionals felt that Whzan Blue Box had a neutral effect on health inequalities as compared with standard care. One healthcare professional felt that it had the potential to both reduce and exacerbate inequalities – reduce in so much that people of limited mobility would be able to access care more easily but exacerbate due to the possibility of digital exclusion. Another healthcare professional identified the risk of an increase in health inequality geographically due to variable uptake, and differences in staff credentials (e.g. nursing homes more likely to be confident in using kit). One social care provider felt that it negatively impacted health inequality by reducing resident choice in terms of modality of consultation.

The Specialist Learning Difficulties home strongly felt that Whzan Blue Box had a major role in reducing health inequality, by improving access to care for those residents who would struggle to attend a traditional GP or hospital setting. This manager could think of several of her residents who, due to their conditions, could not access standard care.

Some felt that the question was unanswerable without more information but identified it as an area for further research.

Use of Whzan Blue Box to support the delivery of the EHCH framework

Current use of Whzan Blue Box to support the EHCH framework

Most of the interviewees were familiar with the EHCH framework but required a reminder of the elements.

The majority of healthcare professionals were already using Whzan Blue Box to support the delivery of care home ward rounds, and to assess deteriorating residents acutely. Whzan Blue Box was felt to be beneficial in undertaking MDT and collaborative working, and in the creation of personalised-care support plans. A social care professional who looked after residents with advance care plans advising treatment within the care home used Whzan Blue Box to ensure that residents received excellent quality care in the care home.

Two healthcare professionals mentioned using Whzan Blue Box to support on long-term condition reviews. Three healthcare professionals were using Whzan Blue Box to undertake structured medication reviews, for example by checking blood pressure readings when reviewing antihypertensive medication.

Other uses included: diagnosing end-of-life, assessing people who fall recurrently (as part of a falls prevention strategy), assisting in a safeguarding case, managing wounds (using serial photographs of a wound), helping staff navigate the medical system (by calculating the NEWS2 score), developing the workforce, information sharing between primary and secondary care, and improving IT systems.

Potential utilisation of Whzan Blue Box to support the delivery of the EHCH framework

Most interviewees could identify further areas of the EHCH framework that Whzan Blue Box could potentially support with. However, it is important to note that all five care homes, and two healthcare professionals mentioned that the barriers to implementation (as discussed previously) would need to be addressed before Whzan Blue Box could be used to support a more extensive range of care pathways.

Two healthcare professionals and one social care provider were of the opinion that Whzan Blue Box could be used to support on nutrition management, but some thought that the lack of ability to measure weight within the kit, and the small number of Whzan Blue Box tablets within the care home may hinder this.

Increased MDT working was a frequently emerging theme, with one healthcare professional and two social care providers raising this:

“ *If you need access immediately, you can look at the data, especially if you're in the middle of an MDT meeting, for example, and you're talking about a patient specifically and someone raises a concern or asks the question, you've got it quite quickly and easily. In those terms, yes, MDT would definitely benefit from care home staff using the kit.*

HCP

“ *I save observations on the system, GP logs in 5-10 minutes before the meeting, and anybody from MDT, they look at my data and can see whose blood pressure is too high on the day, we can then talk about it and look at the data from last week and see the trend and mark for escalation or not.*

SCP

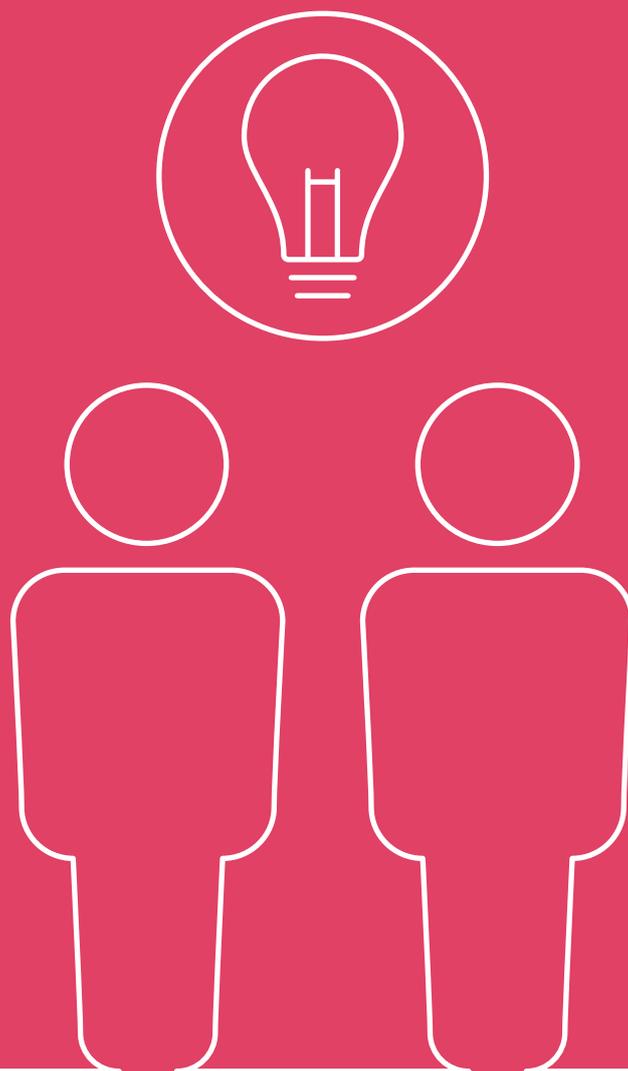
“ You don't need to do it again when you pass the information on to the nutritionist, to the MDT geriatric consultant, pharmacist, all is there. All they have to do is to access the information.

Other proposed areas of the framework which could potentially be delivered using Whzan Blue Box included: the development of personalised care plans, improved access to and optimal utilisation of out-of-hours services/ urgent care, improved technology within care homes, workforce development of care home staff, palliative care provision and mental health checks.

Table 1: Utilisation of Whzan Blue Box and the EHCH framework: current and proposed domains – key themes

Current uses of Whzan Blue Box to support EHCH framework	Potential uses of Whzan Blue Box to support EHCH framework
Collaborative working	Nutrition reviews
Support on MDTs	
Facilitation of ward rounds	Palliative care provision
To provide care within the care home as part of a patient-centred advance care plan	
Falls prevention	
Wound care	Mental health checks
Safeguarding	
Structured medication reviews	Dementia care
Acute assessment of deteriorating residents	
Better use of IT	
Workforce development	

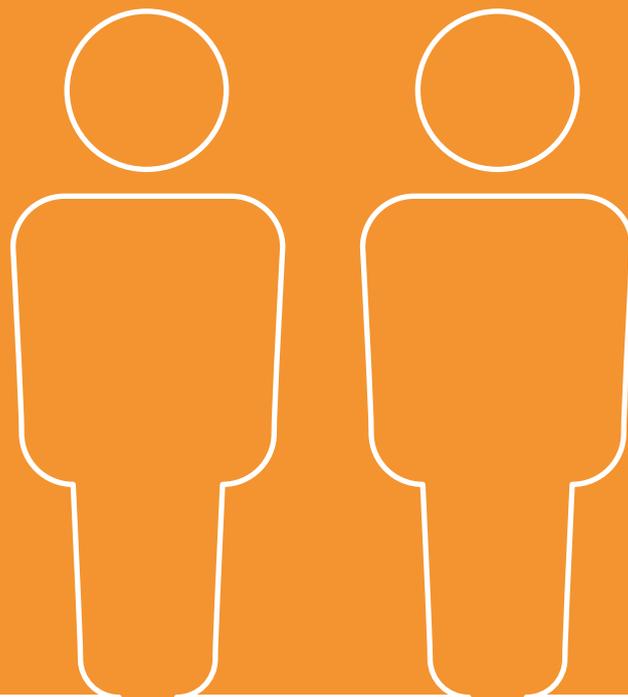
Key recommendations



Key recommendations

1. The onus should be on care homes to proactively 'push' abnormal NEWS2 scores or Whzan Blue Box results to the GP as this will enable GPs to perform a reactive, rather than continuous monitoring role thereby ensuring they do not become overwhelmed. However, if the care home does not offer this information, GPs should recognise the benefit in prompting them to do so.
2. A member of the care home staff should be nominated as the key person responsible for escalating results to the GP surgery. This person should have some clinical training where possible, and enough clinical acumen to understand the urgency of escalation required in different situations.
3. Multiple staff members across the care home and GP surgery teams should be trained on Whzan Blue Box through joint training events as this will mean an escalation pathway can be mutually agreed.
4. Team members involved in escalation pathway such as 111, LAS, Urgent Community Response Teams should have access to and consistently use Whzan as this will help to increase its adoption and utilisation.
5. Care home staff should be educated in the clinical benefits of using Whzan Blue Box as they will be required to invest significant time in utilising it and so need to understand why this effort is worth it.
6. Bigger care home sites should use multiple Whzan Blue Box kits.
7. Support with IT for care homes is paramount if Whzan Blue Box is to be used to full effect. System log-ins should only exist when required to adhere to data protection requirements. And procedures should be developed or streamlined to reduce inefficiency when operating more than one system across multiple sites.
8. Trouble-shooting sessions should be offered by the training hub after the initial training session has taken place.
9. Further training may be required if the use of Whzan Blue Box is expanded to assist with the EHCH delivery.

Acknowledgements, glossary and abbreviations and references



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UCLPartners is an Academic Health Science Network helping five million people from North London to the Essex coast live longer, healthier lives. We bring together expertise from across our health innovation partnership, drive research and innovation to co-create, test, implement and evaluate solutions to the biggest health challenges our communities are experiencing. This report was prepared by Dr Sarah Armstrong, Rebecca Dubben and Valentina Karas.



Glossary and abbreviations

CHAT	Care Homes Assessment Team
DES	Directed Enhanced Service
ECP	Enhanced Care Practitioner
EHCH	Enhanced Health in Care Homes Framework
GP	General Practitioner
HCP	Healthcare Professional
IT	Information Technology
LAS	London Ambulance Service
LD	Specialist Learning Difficulties Residential Home
MDT	Multidisciplinary Team
NCL	North Central London
NEWS	National Early Warning Score 2
NH	Nursing home
PCN	Primary Care Networks
RH	Residential home



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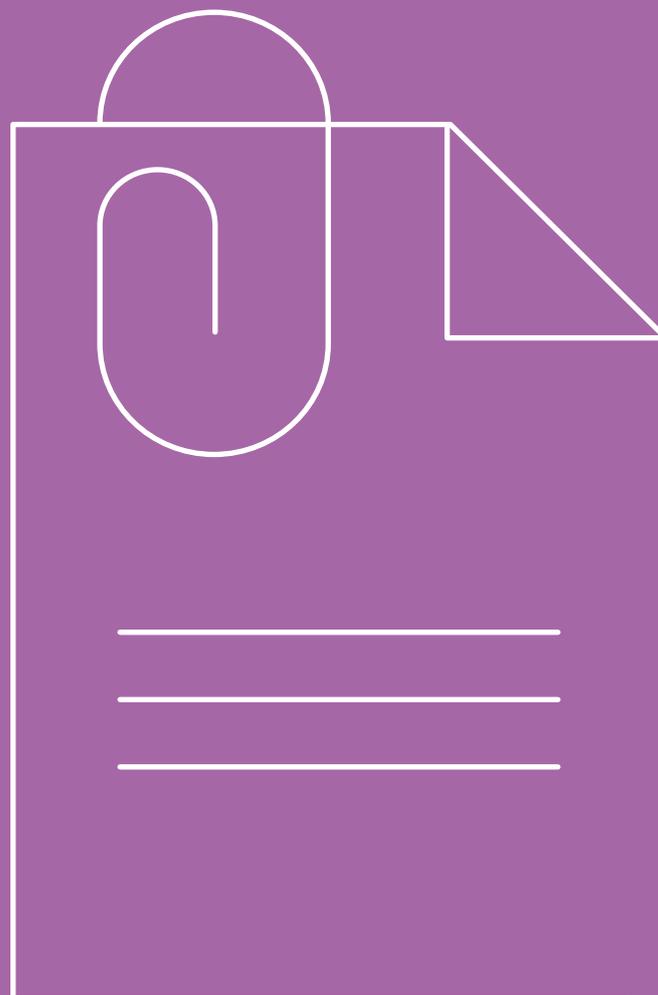
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Whzan Blue Box remote monitoring. Available at: <https://www.whzan.uk/care-homes>



Appendix



Appendix 1

The framework for enhanced health in care homes

Table 2: Care elements and sub-elements

Care element	Sub-element
1. Enhanced primary care support	Access to consistent, named GP and wider primary care service
	Medicine reviews
	Hydration and nutrition support
	Access to out-of-hours/urgent care when needed
2. Multi-disciplinary team (MDT) support including coordinated health and social care	Expert advice and care for those with the most complex needs
	Helping professionals, carers and individuals with needs navigate the health and care system
3. Reablement and rehabilitation	Rehabilitation/reablement services
	Developing community assets to support resilience and independence
4. High quality end-of-life care and dementia care	End-of-life care
	Dementia care
5. Joined-up commissioning and collaboration between health and social care	Co-production with providers and networked care homes
	Shared contractual mechanisms to promote integration (including Continuing Healthcare)
	Access to appropriate housing options
6. Workforce development	Training and development for social care provider staff
	Joint workforce planning across all sectors
7. Data, IT and technology	Linked health and social care data sets
	Access to the care record and secure email
	Better use of technology in care homes

Appendix 2

North Central London remote monitoring evaluation

Staff interview schedule

Introduction

Good morning/afternoon/evening and thank you for agreeing to take part in this call, as part of our evaluation to gain insights into the use of remote monitoring and how it can be used to support the Enhanced Health in Care Homes Framework (EHCH).

Introduce yourself and your organisation

North Central London has commissioned this evaluation to improve the understanding of the role of, and engagement with, remote monitoring solutions within primary care settings and associated care settings, in North Central London.

For the purpose of this call remote monitoring refers to the process of using technology to monitor patients outside of a traditional care setting such as their own home or care home and requires the transfer of physiological data, for example a blood pressure reading, from a patient to a clinician in a separate location.

Our call will last approximately 30 minutes. Taking part in this is voluntary, and all your responses will be kept anonymous and confidential. There aren't any right or wrong answers, we just want to understand your opinions and experiences. This interview will be recorded and transcribed and then interviews will be analysed and written into a report. This report will be shared back with interviewees and the wider system.

Are you still happy to take part? Is it okay for me to take notes so I can look at them later with all the other interview notes to do the evaluation? [yes/no]

Start transcription. If on MS Teams, explain:

I will now start the transcription. I will also be taking some notes to help with the transcription, to correct some of the errors that can occur on MS Teams.

Can I please confirm the following information: your name, role, organisation, where you are based (borough)

Thank you. On to the questions now and we'd like to firstly understand more about your experience of remote monitoring.

Do you currently use remote monitoring within your role or organisation?

If yes:

- *What remote monitoring do you use and in what circumstances?*
- *How frequently do you use it?*
- *What is the system of communicating results?*
- *What training is in place? Are there any gaps in this training or what further training is needed?*
- *What is the pathway of escalation?*

If no:

- *Have you had experience of using remote monitoring before?*
- *What was this experience? In what circumstances? Is there a reason for no longer using it?*
- *Do you know if anyone else within your organisation uses remote monitoring, if so, do you know what for?*
- *What training would be useful to help to use remote monitoring?*

Thank you, we'd now like to move on to your views on using remote monitoring.

What, in your opinion, are the enablers to using remote monitoring?

- *What elements of this example made the use of remote monitoring successful?*
- *Has using remote monitoring made it easier to do your job?*

What are the barriers to using remote monitoring?

- *What elements of this example made it difficult to use remote monitoring successfully?*

To what extent do you think the remote monitoring technology reduces or exacerbates health inequalities?

- *An example of this might be digital literacy of residents, relatives, and carers*
- *Financial limitations*

What has been the impact of remote monitoring on patient/resident care?

- *Can you think of any examples where remote monitoring has positively benefitted patient care and worked well?*
- *Can you think of any examples where remote monitoring has negatively impacted patient care?*

Overall, do you think remote monitoring technology promotes better or worse patient care?

Thank you, that's been really helpful. We'd like to now find out how remote monitoring might be able to support the delivery of elements of the Enhanced Health in Care Home framework.

Are you familiar with the EHCH Framework?

If yes:

Move on to question below.

If no:

Recap what the EHCH Framework is (EHCH Framework explanation at end of script).

Have you any thoughts on how remote monitoring, such as Whzan Blue Box, can be used to support the delivery of the EHCH framework?

- *Can you provide any examples?*
- *Does anyone else within your system (e.g. 111, LAS) have access to using Whzan Blue Box?*
- *Do you use Whzan Blue Box to support on a care home ward round? Has this helped and if it has how and why? Or if not why?*
- *Does or could Whzan Blue Box (or other remote monitoring) have an impact on (ask option depending on type of remote monitoring):*
 - *MDT delivery*
 - *medicines reviews*
 - *expert advice for complex needs? E.g. wound pictures*
 - *Palliative care management*
 - *Co-production of a resident/patient plan between GP, care home, resident and relatives*
 - *Linking datasets*
 - *Building capability in using technology*
 - *Can you provide any examples?*

What would be helpful to support your continued use of remote monitoring/Whzan Blue Box?

Prompts – what training is available (if not answered above), financial, protected time, ongoing system support – access to digital helpdesk if issues with tech.

Are there any further reflections you would like to add?

Thank you. You've provided some really great examples and experiences of the use of remote monitoring.

(If uses Whzan Blue Box and has a positive experience): We are looking to produce a very short film highlighting the benefits of using Whzan Blue Box, would you be willing to be filmed and interviewed for this project?

If yes – thank you will be in contact if we need you for this.

Finally, all your comments and quotes used will be kept anonymous, however if the team at North Central London are interested to find out some more information about something you've shared will it be okay for us to share your contact details with them?

Thank you that is the end of our questions, your responses have been very helpful.

Is there anything you'd like to ask us?

Thank you again, we greatly appreciate you taking the time to discuss these questions with us.

