

Airedale & Partners Enhanced Health in Care Homes (EHCH)

Telemedicine Vanguard

Local Evaluation

Qualitative Insights from an External Developmental Evaluation

Final Report August 2017

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Executive Summary: Airedale & Partners Vanguard Local Evaluation: Qualitative Insights

Context of Report

This report focuses on the qualitative component of the Airedale and partners Vanguard local evaluation. It is important to note the context of this report at the outset:

- 1) This work was intended to be part of a mixed-methods approach to provide qualitative insights alongside the quantitative component of the Vanguard evaluation. This was not intended to be a stand-alone report and taken in isolation will not provide the reader with the broader findings of the Vanguard programme.
- 2) Purposive sampling reflects an attempt to include a range of key stakeholders to generate themes from their perspectives (rather than statistically representative sampling).
- 3) Feedback from a key Airedale stakeholder, following soundings, recommended that further insights may be gained from GPs and other primary care clinicians and options of further evaluation support are currently being explored by them.

The Airedale Vanguard has experienced considerable challenges in establishing a linked quantitative dataset for the purpose of evaluation. This report therefore provides qualitative insights from the local Developmental Evaluation of the Airedale & Partners Vanguard based on key stakeholders' views and experience.

Background

In March 2015, Airedale & Partners was one of six 'enhanced health in care homes' (EHCH) Vanguards selected by NHS England as part of its New Care Models Programme¹. Airedale Telemedicine Vanguard aimed to:

"improve the quality of life and end of life experience of thousands of nursing and care home residents living in Bradford, Airedale, Wharfedale, Craven and East Lancashire – and ultimately for their model to be adopted throughout the country." (3).

The Airedale and Partners Vanguard was led by health and social care professionals from 3 hospitals, 4 CCGs, 3 councils, community healthcare, mental health, IT partners, numerous GP practices, GP federations and both local authority-run and independent care home (4). Notably, the Airedale Telehealth Hub was established in 2011, and predates its Vanguard status. The Airedale Vanguard involves delivering 'Telemedicine', at scale, to 248 care homes, with an estimated 7,687 residents, across 4 CCG areas: Bradford City, Bradford District, Airedale, Wharfedale, Craven (AWC) and East Lancashire (EL). In April 2017, this Vanguard changed to focus on delivery of the new 'EHCH Framework' (5) in one CCG area, East Lancashire, which is being evaluated separately.

Airedale Telemedicine 'Intervention'

The Airedale and Partners Telemedicine service involves "remote consultation and support care" for care home residents via video-link to Airedale Digital Care Hub. There is a **standard** service model with options to add **enhanced** service models individually, or in combination as described by 'Immedicare', part of the joint venture delivering it (6):

1. **Standard:** A single point of contact (video calls) for care home staff for support from 24/7 access to telehub nurses, with an average of 4 clinical assessment calls, per home, per month, across a CCG.
2. **GP Triage:** is developed in partnership with local GPs; care home staff are encouraged to default all day time calls to the Telemedicine hub for triage, freeing up GP practice staff for more appropriate work.
3. **Goldline:** provides dedicated 24/7 phone line support to patients known to be in the last year of their lives and their careers, to support staying at home or preferred place of care, wherever possible.

The Airedale Telemedicine implementation process includes:

- Each commissioned **home** receiving information packs and installation of the technology by joint venture partner 'Involve'. This includes a laptop enabled by Wi-Fi or 4G and training in the use of the equipment delivered by both the clinical and technical teams.
- Each **resident** being added to a systemOne caseload ensuring clinical information is available at the first point of contact to guarantee a safe assessment. Consent is asked at each resident's first consultation and documented in their electronic patient record (6).

Developmental Evaluation Approach

NHS England adopted a three layered approach to vanguard evaluation: (1) national, (2) local and (3) independent summative, with each layer providing a different view of the programme. The Yorkshire and Humber AHSN was commissioned to provide robust, but, light touch, external local evaluation support for the Airedale & Partners Telemedicine Vanguard. The Airedale Vanguard and Telemedicine service predated evaluation involvement, therefore

¹ A total of 50 Vanguards across five New Care Models made up the entire national programme at that time. NCMs emerged in response to the Keogh review of Urgent and Emergency Care (1) and the NHS Five Year Forward View (2).

aspects of the evaluation are retrospective. A theory-based, mixed-methods, developmental evaluation approach was adopted with 'embedded' evaluation support to co-produce a logic model to inform local evaluation metrics². A retrospective before-and-after design (quantitative data) with retrospective controlled comparisons (where possible) was anticipated, with stakeholder reflections (survey and interviews) conducted post-intervention as TM was installed prior to evaluation involvement. A separate health economic evaluation and third-party data linkage partner were also commissioned. Significant challenges experienced by Airedale in gaining access to linked quantitative data have been well documented³. This report, therefore focuses on the *qualitative component* of the Airedale Vanguard Local Developmental Evaluation and key insights for the programme. These are based on data from a range of qualitative methods, involving more than 60 key stakeholders formally:

- N = 14 semi-structured interviews: care home staff (7) and residents (4) key stakeholders (3)
- N = 3 key stakeholders in a focus group;
- N = 42 online/paper surveys from Vanguard care home staff;
- N = 5 questionnaires from one care home staff team about potential barriers and enablers to utilization

The evaluation is also informed from phone calls with 17 care home managers and 2 other Vanguard stakeholders.

Key Findings

The local evaluation team have not, to date, been able to access Airedale Vanguard project metrics, utilisation data or outcome data. Summary briefings since August 2016 have documented ongoing challenges. The evaluation team has supported the ongoing data sharing and linkage process.

Implementation

Using a recently developed 'look up table' for the purposes of the evaluation, it appears the Airedale Telemedicine Vanguard has delivered its 'Telemedicine' service to 235⁴ care homes across four CCG areas:

- 148 of these care homes were installed pre-Vanguard and 87 homes during the Vanguard period (in 2016).
 - 41⁵ care homes were de-installed; 34 in March 2017, the others before this date.
- Of the remaining 194 'live' Vanguard care homes:
 - 132 are classified as 'residential' care homes and 62 are nursing homes⁶.
 - 174 care homes receive the standard TM service, and 20⁷ homes the enhanced GP Triage model.
 - 50 care homes have not received Telemedicine, and may potentially act as 'control' homes.⁸
 - Available data does not provide information on number of residents receiving the Goldline service.

Utilisation

Local evaluation access to limited data (presented by Dr McDonach at Jan 2017 Evaluation Dress Rehearsal) highlighted several important aspects of TM utilisation across the Vanguard including:

- Substantial variation in TM use across Care Homes;
- Lower uptake of TM in Nursing Homes versus Residential homes;
- Variation in out-of-hours versus in-hours TM use;
- High rates of non-utilisation of TM; differences across the CCG localities;
- Small number of homes may responsible for large volume of calls.

Stakeholder views and experiences

A number of key themes emerged from evaluation participants' experience of the Airedale TM Vanguard:

- **The complexity of TM utilisation;** it is not necessarily a level playing ground, comparing 'like with like'. This has profound implications for understanding TM utilisation rates:
 - Multiple models of TM are in operation across the vanguard; some homes have the standard service (which includes 4 calls per month), while others have the GP Triage model, which requires homes to use TM to access GP services (with some GPs formally mandating access via TM, others do not).

² The local evaluation team also attended Airedale project meetings in 16/17, and had access to selected papers and minutes. Five evaluation dress rehearsals to review progress, emergent data/learning and challenges were held between July 16 and Mar 17 (Appendix 2).

³ A summary of data challenges is included in Section Two. These have been reported and escalated since August 2016.

⁴ Discrepancy noted between look up table (n = 235) in April 2017 and Immedicare live list Jan 2017 (n=227) and being explored.

⁵ Records indicate that one care home was disputing this outcome so may not have been de-installed.

⁶ It is not clear from the current 'look up table' (developed for Pi in April 2017) how many of the care homes are of mixed structure – nursing/residential structure as none are classified as such. Qualitative work indicates this may be important aspect to reconcile.

⁷ Discrepancy noted between number of GP triage homes from January 'live list' (19) and April 'look up table' (20)

⁸ It is not clear why these homes have not received telemedicine. They may be atypical, therefore suitability as controls to be determined.

- Local stakeholder support for TM may vary. Some care home staff have been asked by their local stakeholders to only use the TM service at certain times (e.g. out of hours) or within a certain number of calls per month (possibly due to service model and cost implications). Some care homes reported that only some of their residents were registered to receive TM. One manager noted that some GPs had signed up to TM while others hadn't, with different systems in place within the one home, leading to added complexity.
- Local services available to care homes may vary. Care homes have access to different levels of local services which may influence TM use. Some staff and residents report weekly GP/ District Nurse home rounds so issues can be 'saved' for then.
- Within care homes, staff generally reported having the knowledge and skills to use the TM kit, with most receiving instruction (from the TM provider or by a colleague). There were a few reports of staff (particularly older) being 'nervous' about the technology and more frequent reports by staff of technical issues such as connection, reception and waiting time. It is not clear the extent to which staff' views and experiences of TM influences their use of it; those that are really positive may be limited in TM use by their service model or residents' health profiles, and those that perceive TM negatively may be required to use it to access GP services (such as a GP Triage home).
- **Perceived benefits of TM:** there was overlap in the benefits identified by stakeholder groups in the evaluation:
 - **Residents** reported benefits including avoiding hospital visits and friendly, quick, face-to-face.
 - **Care home staff** in the online survey reported benefits including: Avoiding unnecessary health care; providing support/advice; patient experience; available when needed; reassurance; and quality of the consultation.
 - **Other stakeholders noted:** reduced workload of GPs, better end of life care and the potential to improve the quality of care of vulnerable older people and efficient use of resources.
- **The divergence of care home staff views of TM.**
 - Some care home staff identify positive benefits and impact of TM (as described above), whereas another group of staff are less positive and identify problems and disadvantages; what we have come to refer as the 'Marmite' effect. It may be useful to understand this within the context of the TM service model:
 - Some staff from GP Triage homes identified disadvantages of: wasting time/ gatekeeping access to services and professional infringement which may reflect views on the TM model in operation. The concerns were shared by both residential and nursing staff, although nursing staff often thought that TM may be more useful for non-qualified staff. Concerns about equity of access for residents and tensions in professional boundaries were noted in some interviews and telephone discussions.
 - Some of the improvements reported in the online survey may reflect dissatisfaction with TM service model: 'Not for everything service'; 'stop professional infringement'; 'Nothing'; and 'Remove'.
- **The convergence of care home staff views on TM:**
 - However, some issues were raised by staff in both Standard and GP triage homes, and even among staff who rated TM positively, such as technology issues involving Wi-Fi, reception coverage, image/sound and perceived long waiting times for calls to be answered especially in out of hours periods.
 - Potential improvements mirrored the reported problems with improved technical issues and the need to answer calls quicker.
 - Four participants identified potential expansion of the TM service; both from services offered by the Hub but also within care home, with carers doing observations to support the TM consultation.
- **Engagement and Implementation Challenges:**
 - A range of stakeholders identified engagement and implementation challenges in the scale up and roll out of the TM service; although there had been pockets of good practice.
 - A 'disconnect' between the clinical and marketing offer was reported.
 - The logic model work identified gaps in current engagement activity which had implications for the TM 'theory of change'.
 - Residents and many care home staff report that residents are not always made aware of TM prior to using it. The same was true of relatives. Although some care home managers identified TM as a selling point which they advertised to relatives as access to 24/7 clinical support.
 - A focus group/workshop explored shared learning from key stakeholders to identify the key aspects of 'good' implementation for future service improvement.
- **Programme challenges:**
 - Stakeholders who took part in the evaluation identify a number of strengths in the programme, particularly around the TM clinical offer.
 - However, a number of organisational challenges were identified including: the buy-in, effectiveness and engagement of the partnership over time; the changed focus of the Vanguard in its final year with

funding tied to the delivery of an entire framework; loss of organisational memory and internal data resource; and mechanisms for initiating continuous improvement.

- Data challenges included delays in establishing a linked, validated dataset; limitations of recording systems and identifying care home residents and those who have used TM or not; and continued difficulties in accessing primary care data where benefits and impacts of TM may be seen.

Future Development

Qualitative insights from this external, developmental evaluation of the Airedale Telemedicine Vanguard have identified some key issues which need to be addressed:

1. **Understanding TM utilisation** across the Vanguard is critical to developing the service; providing access to TM utilisation data at the care home level therefore *remains* an essential evaluation requirement.
 - Limited access to partial utilisation data indicated substantial variation for example, in-hours versus out of hours, nursing versus residential and across CCG areas. Some homes use TM often, while others not at all.
 - Understanding the factors which enable or impede TM use provides opportunities for service improvement. The COM-B model⁹ of behaviour change suggests there are three key elements to effective behaviour change: ensuring people have (1) the capability, (2) the opportunity, and (3) the motivation, to do things differently. Qualitative insights suggest that utilisation is complex; it may involve skills and knowledge of care home staff (the capability), but it is not all about what goes on in the care home or indeed the hub.
 - There are potentially multi-level barriers and enablers to TM utilisation, including the service model in operation (e.g. GP triage is likely to increase utilisation), local stakeholder support for TM and effective engagement with care homes, as well as resolution of technical issues (the opportunity). Variation in care home access to local health care professionals (e.g. weekly GP or district nurse home rounds) as well as beliefs about TM, prior experience, and resident views may also influence utilisation (the motivation).
2. **An integral measurement framework** is needed to monitor progress of implementation and to track key metrics.
 - This is essential to help understand the link between TM utilisation and outcomes, and establishing a before and after or controlled comparison design to enable attribution of change to TM rather than secular trends.
 - A robust measurement framework is also important for exploring 'optimal' TM use; for example, no/low TM use may not necessarily be 'sub-optimal', it depends on residents' needs as well as appropriate or inappropriate use of other health care services (e.g. out of hours GP, A&E etc.)
3. **Divergence in care home staff views of TM** and understanding the role of the TM service model:
 - Some care home staff are extremely positive about the TM service, its benefits and potential impact. A key stakeholder noted the positive impact of the GP Triage Model on reducing GP workload and improving their planning. However, some care home staff, particularly those who took part in the evaluation from GP Triage homes are less positive. Establishing if these tensions are common to all GP Triage homes is warranted and further engagement may be necessary to resolve. This is particularly important, given the potential scale up of the GP Triage model within the East Lancashire EHCH Vanguard.
 - Incorporating opportunities for regular, formal feedback from care home staff and residents is recommended, perhaps using the TM technology itself, similar to SMS feedback gathered by NHS services.
4. **Potential Service Improvements:**
 - Care home staff identify a number of improvements, some of which relate to the GP Triage service model. It may require further engagement to resolve identified tensions.
 - However, others improvements are common across both standard and GP triage models: such as the need to improve aspects of the technical service (Wi-Fi coverage throughout the home, patchy reception, visual/sound issue) and the need to answer calls quicker.
5. **Shared learning to improve future Engagement and Implementation:**
 - The local evaluation team facilitated a session to explore tacit and shared learning about what characterises 'good' implementation. This was intended to inform future engagement/ implementation strategies and address the gaps identified by stakeholders. Established monitoring and evaluation tools such as the Stages of Implementation Completion¹⁰ may help to add structure and rigour to these processes.

⁹ The COM-B model proposes three essential conditions for behaviour change: capability, opportunity and motivation (Michie et al, 2011)

¹⁰ Stages of Implementation Completion (SIC) was developed by Chamberlain et al. (2011) as part of randomised controlled trial as a tool to objectively measure, overcome barriers and improve the effectiveness of implementation

- Clinically-led engagement with local commissioners and a realistic offer on impact and targets was highlighted by some stakeholders, along with opportunities to build relationships with care homes prior to installation.¹¹ The need to develop resources and protocols for staff, residents and relatives which reflect the TM model offer and how they can use it was also identified.
- Staff (and residents) indicate that residents and relatives may not always be aware of TM. The need for earlier and ongoing engagement with all the key stakeholders was noted.

6. Shared learning from Programme Challenges:

- Airedale TM Vanguard has been at the forefront of TM delivery in care homes, at scale for years. It has the potential to offer unique insights, not only in the process and outcomes of the TM intervention, but also about the complex challenges involved in attempting to embed new technology into routine practice within different health and social care systems.

¹¹ This fits with NHS England's commissioned literature review by Claire Goodman et al about Vanguard care home readiness

Introduction to the Airedale & Partners Telemedicine Vanguard Evaluation Report

This document provides a summary of the YHASN supported evaluation of Airedale & Partners Telemedicine Vanguard. It focuses on the qualitative

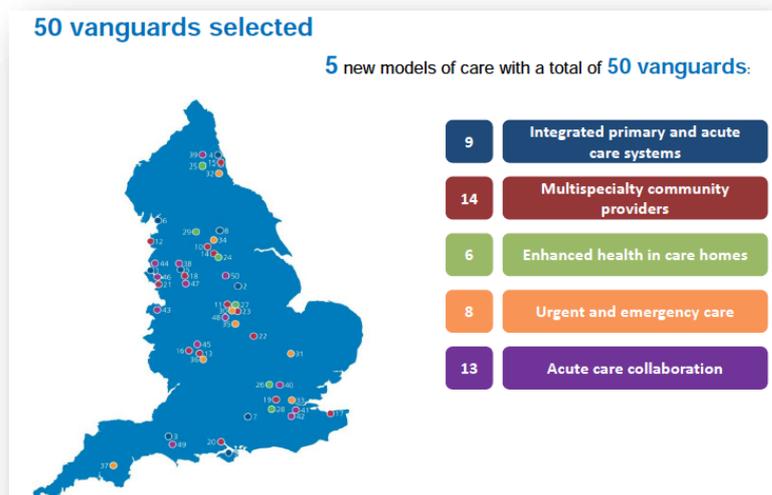
- Section 1 describes the **background** to the Airedale TM Vanguard
- Section 2 outlines the **evaluation approach**, key questions, and methods
- Section 3 provides a **summary of the key qualitative findings**
- Section 4 discusses **key learning points and recommendations**

Section 1: Background

Airedale Enhanced Health in Care Homes Vanguard

In March 2015, Airedale & Partners was one of six 'enhanced health in care homes' vanguards selected by NHS England as part of their New Care Model (NCM) programme. A total of 50 Vanguards across five New Care Models made up the entire national programme at that time as shown in Figure 1.

Figure 1: New Care Models Vanguard map: Source NHS England: Kings Fund, 7 June 2017



The NCM initiative was established in response to the Keogh UEC review (1) and the NHS Five Year Forward View (2). Each vanguard was intended to take a lead in developing one of five new care models. Vanguards were, therefore, the delivery mechanism for the new care models programme which aimed to catalyse widespread adoption and evaluation of new models of care that improve:

1. the health and wellbeing of patients;
2. the quality of care that patients receive; and
3. the efficiency of the overall system.

The Airedale & Partners Vanguard aimed to scale up the delivery of Telemedicine in care homes to:

“improve the quality of life and end of life experience of thousands of nursing and care home residents living in Bradford, Airedale, Wharfedale, Craven and East Lancashire – and ultimately for the model to be adopted throughout the country.” (3)

This involved a wider implementation footprint than the other five EHCH Vanguards as the Telemedicine service model(s) were to be delivered at scale to 248 care homes across four CCG areas with a diverse range of partners including: three acute trusts, three local authorities, two community and mental health

providers, more than 130 GP practices, a number of third-sector organisations, universities and colleges and more (7).

Defining 'Telemedicine'

The promise of 'new technology' in delivering alternative to face-to-face consultations, improving efficiencies, clinical effectiveness and relieving pressure on the NHS has been long recognised (8). A range of new technologies have been introduced in recent years (9) including video, telephone, email, online text, telemedicine (linking between two services, often primary and secondary care), telehealth (which involves biometric data such as blood pressure collected, sent and evaluated later by a health professional) and telecare (which involves sensors carried by person or installed in home for remote monitoring, such as falls) or combinations of the above. It is important to note the established taxonomy and definitions of new technologies; telehealth and telecare generally refer to 'assisted living technologies' which have been the subject of ongoing debate about their efficacy and cost-effectiveness within the NHS. (9) Airedale Vanguard refers to 'Telemedicine' which involves, 24/7, remote access for care homes to trained nurses via video or telephone consultations, rather than the other telehealth and telecare technologies.

Care Home Sector

The care home sector is an integral part of the health and social care system and is reported to be under pressure. The need to enhance care in care homes is borne out of a number of imperatives including demographic changes, multi-morbidities and frailty, pressure on urgent and emergency care, inequality of care, quality and safety concerns, and patient experience, as well as economic drivers (5,10). A brief summary of some of these points is included below.

Demographic Changes: Older Population Growth

Work conducted by Quality Watch (10) estimates that 325,000 older people live in care homes in England; approximately four per cent of the total population aged 65 and over (11). Projected population figures suggest the number of older people in the UK will double in the next 20 years with implications for the care home sector, health care providers, commissioners and policy makers.

Quality of Care

It has been suggested that patterns of use of hospital services by care home residents may raise questions about the quality of their care and the need for improvement (12). Smith and colleagues (2015) note that *"care home residents are among the frailest in society and depend on good integration between health and social care services. This means they are particularly at risk of emergency hospital admissions."* These authors translated the use of hospital admissions as markers for potentially avoidable harms (from the health sector) to the care home sector, and used de-identified person-level data to analyse hospital admission rates among people aged 75 and over, for small geographical areas, from April 2011 to March 2012. Key findings from this work included:

- Older people living in a care home postcode had 40-50 per cent more emergency admissions and A&E attendances than the general population of the same age, but significantly fewer planned admissions and outpatient appointments.
- Patterns of hospital admissions from areas containing care homes were often linked with people who were in the last few months of their life. However, care homes appear to help prevent emergency admissions in the final two months of life.
- Certain conditions were over three times more common in areas that had more care home residents. These include: pneumonia, pneumonitis, Alzheimer's disease, dementia and epilepsy. Care home patients were also less likely to be admitted for heart disease and circulatory system problems.
- Areas containing a care home showed significant variation in hospital admission rates.

This suggests that intelligent monitoring of hospital activity could provide a useful measure of care home quality.

- Information about the quality of care provided in residential and nursing homes is not always easy to access.
- Many of the datasets that would be required for external monitoring of care homes may take some time to establish, and indicators relating to hospital admissions will need careful handling in terms of both validation and interpretation. However, monitoring by individual providers could be made much easier to implement with the appropriate statistical tools and supporting software.

Airedale Digital Care Hub

Notably, the Digital Care Hub at Airedale NHS Foundation Trust was established in 2011, and predates the vanguard and this local evaluation. It delivers 'telemedicine' to care homes as part of a partnership with a company called 'Involve' under the joint venture company 'Immedicare'. Its remit is broader than the vanguard care homes programme, with services being delivered to care homes and prisons around the country. Literature from Involve suggests that telemedicine for care homes offers the potential to address a number of key challenges for health services:

"The UK elderly population is growing and the complexity of health requirements, particularly for residents in the care home sector is increasing. The drive to avoid risks within some homes can lead to the inappropriate use of health services which can result in capacity issues, and pressure points within local systems. Developing new ways to ease this situation is clearly a priority for clinical commissioning groups (CCGs) across the country." (13)

The following features of the Airedale Digital Care Hub and telemedicine service were noted by 'Involve' (13):

- "It provides a secure telemedicine link to care homes across the country.
- The hub is staffed 24 hours a day, 365 days a year by a multidisciplinary team of doctors, nurses and therapists.
- Care home residents are assessed by the clinical team who are able to advise and suggest treatment for a variety of complex health needs. The aim is to provide early intervention, which can often prevent the need for escalation. When escalation is required, the hub clinical assessor ensures the resident is referred to the correct local service for action.
- The telemedicine service is particularly useful in care homes, as their staff are not usually medically trained, and the clinical team are able to provide extra support which benefits the residents. Care home residents are assessed and if necessary, treatment is arranged without the need for a hospital admission or ED attendance.
- The use of technology enables the delivery of services such as telemedicine, which also supports GP triage for vulnerable, frail, elderly people, many of whom suffer with multiple long term conditions. Immedicare provides a valuable service to residential homes as carers are able to access expert acute care advice and support out of hours.
- Keeping care home residents within surroundings that are familiar, reduces anxiety, and the Immedicare service is designed to help these residents to live well. The service has been positively evaluated by care home staff, residents and the families of those in this care setting."

Airedale 'Telemedicine' Intervention

The Airedale and Partners Telemedicine service involves "remote consultation and support care" for care home residents (6) either by video link or telephone. There is a **standard** Telemedicine Service model, with options to add **enhanced** service models which may include GP Triage or Goldline services individually, or in combination. A description of each of the service models based on the Immedicare Service description (June 2016) is provided.

Standard Telemedicine Service Model

The Airedale Vanguard standard Telemedicine service model is described as providing:

- "A single point of contact for care home staff for help and advice, 24-hours-a- day, seven-days-a-week.

- Across a CCG, an average of 4 clinical assessment calls, per home, per month is supported in the pricing model. Advice calls and follow up from the clinical team in the hub will not be charged.
- Video calls are answered by a team of experienced nurses, therapist and paramedics as soon as they are available to take a call.
- The clinical team carry out an A-E assessment using their experience and a standard proforma in order to assess the needs of the resident. Staff in the Digital Care Hub at Airedale are supported by a multi-disciplinary team in the hospital and are linked to the local community-based services that can visit patients if necessary.
- The hub nurses refer to the resident's electronic health care records (this is mainly through TPP SystemOne but work is underway to expand and improve with other systems such as EMIS) and try to avoid GP call outs, trips to the Emergency Department (ED) and admission to hospital if this can be safely avoided.
- If required, Hospital admissions can also be arranged.
- Advice and support from the registered nurses, paramedics and therapists is provided 24/7 and the resident's own GP can view all consultations that take place between them and the hub at any time.
- This service is not expected to replace the use of the GP and other community health care facilities but aims to deflect inappropriate use of such services where they can be safely dealt with by the trained staff in the telemedicine hub." (6).

GP Triage Service Model

The GP Triage Service model can be added to the standard Telemedicine service.

- It is described as "a model developed in partnership with local GP practices and federations where care home staff are encouraged to default all day time calls to the Telemedicine hub for triage, freeing up GP practice staff for more appropriate work."
- "The clinical assessor in the hub carries out a remote consultation utilising the video and electronic patient record in order to decide whether a GP is required to visit or whether this can be dealt with by the hub remotely, or the community team locally." (6)

Goldline Service Model

The Goldline service provides a single point of access, 24/7 dedicated phone line support to patients known to be in the last year of their lives, and their carers aimed at supporting people to stay at home or preferred place of care, wherever possible. It does not replace patients' use of their GP and other community health care services, during normal working hours, but aims to enhance and co-ordinate their care, especially when daytime services have closed.

- "Calls are answered by a team of experienced nurses in the Digital Care Hub at Airedale Hospital linked to community-based teams, who can visit patients if necessary. The hub nurses can refer to the patients' full health care records. Hospital or hospice admissions can also be arranged if required.
- Some patients are given an iPad so they can access the service through telemedicine – a secure video connection – and speak to nurses face-to-face." (6).

Previous Research/ Evaluation on Telemedicine

In 2015, Hex and colleagues at the York Health Economics Consortium (YHEC) highlighted the "*dearth of evidence to support the effective and cost-effective use of telemedicine, particularly in care homes*" (14). They conducted a retrospective, uncontrolled, 'before and after' review of patient data in relation to care homes with telemedicine in Airedale, Wharfedale and Craven. Significant methodological limitations due to poor quality of data were identified at that time. However, they concluded that the use of telemedicine in these care homes was cost-effective after controlling the data (as much as possible), and adopting a more cautious approach to interpretation.

A number of other projects have been undertaken in relation to Airedale Telemedicine. A list of these is provided in Appendix 4. We are not aware of any, to date, that have been able to link the TM process and health outcome/ service use data to establish impact. The current local evaluation has attempted to explore the potential for including retrospective controlled comparisons; this continues to be challenging, not least due to issues around data access discussed earlier and in more detail in Section 2.

A recently published qualitative study protocol on remote video consultation by Trisha Greenhaugh and colleagues (2016), also noted the scarcity of both robust qualitative research and adequately powered randomised trials and few controlled, before-and-after studies (9). The authors note that the few studies available have shown the potential of this technology but have generally focused on the outcomes of the technology intervention (e.g. clinical indicators, service utilisation) but do not inform our understanding of:

“the complex and inter-related challenges that teams will face—at both local and national level—when attempting to embed the technology within healthcare organisations.”

A review conducted by Armfield and colleagues in 2015 on the use of Skype in clinical care, identified 27 published studies, with reported positive benefits reported in 26 of them (15). However, the majority of these were descriptive, small pilot projects (with some only involving five patients) (9). This issue highlights the potential value for Airedale Telemedicine in developing a linked dataset which offers opportunities, at scale, for before-after or controlled comparison study designs, using a robust measurement framework.

Bridget Fletcher, CEO at Airedale NHS Trust suggested in May 2016 (7) that Airedale and Partners Telemedicine Vanguard offers an important opportunity to demonstrate that Telemedicine:

- Can work at scale;
- Can fit with and support local primary/ community services undergoing significant transformation;
- Is transferable, not bound by the limitations of buildings and can be used to support different patient cohorts, different age groups and disease cohorts;
- Can link with other digital and technical applications to keep people safe and well, and in control of their own health.

NHS England Enhanced Health in Care Homes

In September 2016, NHS England outlined its ambitions for spread of the Enhanced Health in Care Homes framework aimed at achieving:

“a deliverable, credible and affordable plan for adoption of the EHCH model across England in 2017-18 – recognising not everything is new, and some areas will already be implementing parts of the model” (16)

NHS England notes that this is a series of smaller, ‘low or no cost’ ideas and actions which individually may not make a significant impact, but, aggregated make a series of marginal gains which can significantly improve quality, sustainability and outcomes. The EHCH care model contains some elements which require entire system working and commissioner action to ensure delivery as well as components that providers can adopt without commissioner action. It also notes that it is neither possible or desirable to mandate everything; some adoption will be organic, and some elements necessitate longer-term collaboration between providers and commissioners. The EHCH framework was also predicted to be most effective when “used together as a suite of interventions” rather than in isolation (which may have some limited impact). A 5-year R.O.I of 84% was calculated from early costings based on a savings analysis from 2016-17 value propositions of the six existing EHCH vanguards. This comprised both local contribution and national transformation funding. Local savings were expected to vary, however initial analysis by the NCM Finance team suggested expected cash releasing savings and demand moderation arising from:

- (1) Reductions in ambulance call outs;
- (2) A&E admission and non-elective admissions;
- (3) Improved nutrition and hydration; and
- (4) Reduced drugs costs.

In April 2017, the Airedale Vanguard changed to focus on delivery of the new ‘EHCH Framework’ (5) in one of the CCG areas, East Lancashire which is being evaluated separately.

Section 2: Evaluation Approach

NHS England adopted a three layered approach to the New Care Model (NCM) Vanguard programme evaluation with: (1) national, (2) local and (3) independent summative components. Each layer was intended to provide a different view of the NCM programme¹². The Yorkshire and Humber AHSN was commissioned to provide robust, but light-touch, external **local** evaluation support to the Airedale Vanguard. The Airedale Vanguard programme, including the evaluation was initially funded by NHS England until March 2017. The programme changed focus in April 2017 and moved to East Lancashire for the delivery of the new EHCH framework; this evaluation is being delivered separately. The local evaluation of Airedale Vanguard was extended to July 2017. Airedale NHS Foundation Trust commissioned a separate health economics evaluation and separate data linkage, visualization, and analytics tool from a third party provider.

A theory-based, mixed-methods, local developmental evaluation approach was agreed with the leadership and Programme Advisory Group to locally evaluate the Airedale Telemedicine Vanguard which aimed to:

“improve the quality of life and end of life experience of thousands of nursing and care home residents living in Bradford, Airedale, Wharfedale, Craven and East Lancashire – and ultimately for the model to be adopted throughout the country.” (3)

Developmental Evaluation has been proposed as an alternative to traditional formative/summative approaches to evaluation (17,18). It acknowledges the complexity, uncertainty, and non-linearity of complex initiatives in dynamic contexts (such as healthcare settings) and the real-world limitations of randomised controlled trials and experimental designs, which may not be feasible, or indeed, desirable in these settings. Local evaluation support was provided by Dr McDonach, Professor Mohammed and Dr Stephen Stericker on behalf of the Yorkshire and Humber AHSN. Our approach (Figure 2) aimed to combine frontline expertise and knowledge, with academic/evaluation insights in key areas, which have traditionally been neglected in complex, quality improvement initiatives and their evaluation (19).

Figure 2: Key components of our Developmental Evaluation approach

- Describing the **intervention in sufficient detail** to inform fidelity and potential scale up or replication
- Co-producing **logic models** to develop **robust evaluation measurement framework** (Appendix 1) which were subsequently approved by the Airedale Vanguard leadership team. The local evaluation team noted the challenges of using such a ‘linear’ static tool within a complex intervention, in an evidently dynamic, complex adaptive system with multiple uncertainties. However, reported benefits of using ‘programme theory’ in evaluation include: better designed interventions which articulate: (1) what is the intervention and its key components or ‘active ingredients’; (2) how the intervention is implemented and delivered with fidelity; and (3) as a tool for planning, monitoring, evaluating and communication.
- Co-producing **programme theory/ theory of change** to understand and test hypothesized ‘active ingredients’ and key ‘mechanisms’ by which change may (or may not) take place.
- Strengthening **project design** and exploring opportunities for **controlled comparisons**.
- Monitoring the **fidelity of the intervention and its implementation**.
- Using quality improvement **small scale testing and measurement of change**.
- Applying **theoretical approaches to behaviour change** (where appropriate).
- Obtaining **views/ experiences** of those closely connected to initiative over time (positive and negative).
- Instilling a culture of openness and **opportunity for learning** within ‘Evaluation Dress Rehearsals’ where emergent data and learning can be reviewed and appropriate action agreed.

¹² NHS England Central Evaluation team have developed a Dashboard on key national metrics and efficiencies for the EHCH Vanguard
McDonach & Mohammed Airedale TM Vanguard Local Evaluation: Qualitative Insights

Set up Phase

Early scoping work in Airedale by the internal team defined the local evaluation as the digital hub telemedicine offer to care homes. This worked noted that the Vanguard was characterised by a variety of incremental development, with multiple pilots and initiatives underway; these were being evaluated separately. The local evaluation team provided embedded support to facilitate co-production of a logic model for the digital hub telemedicine offer (v7, Sept 2016 Appendix 1). This formed the basis of the evaluation metrics and detailed the rationale, contextual inputs, proposed key activities, short and medium-term outcomes and longer-term impacts of Airedale Telemedicine vanguard. It was also used to identify the range of key stakeholders to be included in the qualitative component of the evaluation. Primary outcomes included, resident¹³ and staff experience, system outcomes and associated efficiencies:

- CH Residents find TM acceptable way of receiving care
- CH Residents perceive their needs met effectively by TM
- CH Staff find TM acceptable way of supporting residents
- CH Staff perceive residents' health needs met effectively by TM
- Reduced A&E attendances
- Reduced hospital admissions
- Reduced Non-elective admissions
- Reduced inappropriate GP appointments/call outs
- Reduced ambulance conveyance?
- Reduction of NHS 111?
- Reduced associated healthcare system costs

Later work with the Airedale project team during Evaluation Dress Rehearsals attempted to test and refine the 'theory of change' for Airedale Telemedicine based on emergent learning and identifying aspects of potential implementation failure (Appendix 5). The local evaluation team were also invited to several Airedale Telemedicine Vanguard project meetings and an honorary contract provided. In addition, our evaluation approach required commitment to Evaluation Dress Rehearsals which aims to:

- Enable key people to engage and actively participate in the evaluation process;
- Review project progress and sense-check emergent findings and learning;
- Identify potential project/ evaluation challenges and co-produce solutions in an open and constructive way;
- Provide rapid two-way feedback and double-loop learning i.e. both within and between the project and evaluation;
- Review and update logic models and theory of change in response to greater understanding and changing circumstances;
- Provide opportunities to build a culture of learning that is not threatening and a place for open dialogue of real world challenges of project implementation and evaluation.

Five evaluation dress rehearsals were held in Airedale between August 2016 and March 2017 (Appendix 2). Members of the project team, Vanguard leadership and wider Vanguard partners were invited. Other engagement has included attendance and presentation at the Airedale & Partners Vanguard PAG, Data Management meetings and regular Pi WebEx's.

The evaluation team adhered to appropriate ethical standards with confirmation of service evaluation sought, and information governance and data sharing arrangements established at the outset.

¹³ NHS England planned to implement patient experience tool 'ASCOT' in all six Vanguards. This has been delayed and will now be implemented in 3 care homes within this Vanguard.

Evaluation Questions

The Airedale Vanguard local evaluation was focused on NHS England's requirements of understanding key areas of: context in which the service is being delivered; the nature of the intervention(s), fidelity and implementation, outcomes, stakeholder's views and experiences; and emergent learning for improvement, replication or scale up. Specific evaluation questions have focused on the following three key questions.

This report focuses on the third question:

1. How does the model of TM impact on care home utilisation?
 - Which care homes use TM and why?
 - Which care homes don't use TM and why?
 - What role does TM model in place play - e.g. standard contract, GP triage, CCG area?
2. What impact does TM utilisation have on key outcomes of healthcare utilisation?
 - A&E attendances, Non-elective admissions, conveyance, GP call outs...
 - sub-group analyses/ retrospective controlled comparisons if possible
 - and associated costs (University of Sheffield)
3. Is TM perceived by those closest to it as an appropriate, acceptable, effective healthcare delivery method? (Stakeholder Experience)
 - what difference does the model of TM make?
 - what are the key benefits, challenges of TM?
 - how can TM in care homes be improved?

Evaluation Methods

It was anticipated that the mixed-methods evaluation would involve collating and validating routine quantitative project metrics and generating additional qualitative data, using semi-structured qualitative individual interviews, focus group interviews and online or paper surveys. This *'light touch'* approach was designed to reduce burden on the organisation and optimise value for money.

Quantitative Data Analyses

An early Evaluation Dress Rehearsal (August 2016) identified a number of data challenges for the Airedale Vanguard programme which were fed back to the wider team and PAG. These included:

- Lack of robust measurement framework to establish impact:
 - Sub-optimal data collection/reporting system: New system April 2016 – still limitations
 - Key data items missing:
 - No live list of care home residents or tracking system of care home/ non care home patient flow.
 - No visibility of healthcare use which does not flow through hub (e.g. ambulance called but no hub call)
 - No call duration – record when call opens but not call closure (e.g. resource input/cost per call).
 - Numerator (no of calls) easier to establish/ denominator more challenging (max no. of beds)
 - Data linkage problems: unable to establish link between process (using the hub) and outcomes (e.g. reduced A&E attendances)
- Potential risk of loss of internal analytic support
- Challenge/ limitations of retrospective data analyses and lack of controlled comparisons – difficulties in attributing change to TM

Some potential solutions to improve the process at installation were discussed:

- Consider building in update of care home residents every quarter.

- Possibility of tracking ‘tracer set’ (those on list at care home install) – over time – number of admissions post-install via hub and not via hub.

The local evaluation team have not, to date, been able to access Airedale Vanguard project metrics, utilisation data or outcome data. This has been documented and reported over time and summarised recently by the internal evaluation lead. At an early phase of the evaluation, the project team also had to delete a dataset in line with new changes to Information Governance procedures. Monthly reports on TM utilisation by care homes are produced for CCG purposes, however, the local evaluation team have not been able to access this data directly. Instead it should flow through Pi Analytics, Airedale’s third party provider when all data is available and linked through pseudo-anonymisation processes. As well as delays in receiving data flows, some issues around data quality and validity require further scrutiny.

The local evaluation team have supported the Airedale Data Sharing process and DARS application to NHS Digital as well as the development of the data visualisation and analytics tool by Pi Analytics. A Data Access Request Service (DARS) application for each CCG area to obtain routine data (e.g. HES and SUS data) which can then be linked with Airedale Telemedicine Hub data using NHS numbers was submitted in August 2016 by NHS Airedale Trust to NHS Digital (which replaces HSCIC).

Qualitative Data Collection

Advice was sought from key stakeholders about a pragmatic approach to involving those close to the Airedale Telemedicine in the evaluation. We often refer to this as developing a ‘human sensor network’ of people who are close to an intervention which gives them ‘privileged’ insights. The local evaluation has included direct input from more than 60 key informants with direct knowledge of the Airedale Telemedicine Vanguard, either as care home staff or resident, project team or part of wider partnership. Sampling for diversity was attempted to obtain care home participants from high, medium and low TM utilisation homes as well as a range of stakeholder groups and professional roles.

This involved qualitative semi-structured interviews, face-to-face in several care homes, as well as telephone interviews and online surveys. The interviews (Appendix 3) and online survey were conducted independently by the evaluation team to help preserve impartiality, and participants’ confidence in reporting their experiences of the pilot (both positive and negative) anonymously. The method of participation was preference based, where possible, with options for face-to face, telephone or online survey. Recruitment took place between January and July 2017; interviews took between 20-60 minutes and the online survey a few minutes. Several care homes did not have access to online facilities and requested paper copies. These were either posted or hand delivered and collected.

Recruitment of care home residents was particularly challenging as it involved people who met the specific criteria of (1) having used TM in the past six months and (2) remembering using it. This specific inclusion strategy was selected in response to the limitations of a previous project which involved residents who could not remember using the TM service. The issue of capacity to consent and take part was also an issue, with many of the care home managers reporting residents not having such capacity. Initial plans to develop and implement a nested behavior change study using a validated Theoretical Domains Framework Implementation approach (20) did not prove possible due to lack of: engagement from care homes and the wider mechanisms required for developing, implementing, monitoring and revising potential interventions. This process did, however, prove useful in surfacing some of the nuances of the TM utilisation issue. One staff team and their manager (n= 5) from a ‘low-utilisation’ care home did complete the ‘barriers and enablers’ questionnaire. Low use was due to residents’ needs rather than perception of TM, which was reported to be good, despite infrequent use.

In addition, the local evaluation is informed by field-notes from phone calls with n =17 care home managers about their experience and views of TM compiled during the recruitment phase and field-notes from telephone discussions with two other Vanguard stakeholders.

Interviews were audio taped and transcribed. Framework Method (21,22) was used to develop a common coding frame across methods to identify key themes and patterns in relation to evaluation questions and logic model, in order to develop explanatory accounts. This approach offers a systematic and robust method of thematic analysis. Framework method is often used in applied health research and is a potentially useful approach when working with interdisciplinary teams (23). Framework method moves through various stages from familiarising and indexing the data to charting and developing matrices to identify patterns and key themes. Essentially, this helps to explain the data, rather than simply describing it. This method was also useful in presenting formative information to the team. It may also provide important narrative to understand quantitative findings and assist in the data quality and validation process. In order to preserve the anonymity of participants in the evaluation, specific identifiers have been removed from illustrative quotations.

Section 3: Key Findings

Quantitative Data

Implementation

The local evaluation team have not, to date, been able to access Airedale Vanguard project metrics, utilisation data or outcome data. A recently developed 'look up table' suggests that the Airedale and partners Vanguard delivered its 'Telemedicine' service to 235¹⁴ care homes across the four CCG areas:

- 148 of these care homes were installed pre-Vanguard and 87 care homes during the Vanguard period in 2016.
 - 41¹⁵ care homes were de-installed; 34 in March 2017, the others before this date.
- Of the remaining 194 'live' care homes:
 - 132 are classified as residential homes and 62 are designated nursing homes¹⁶
 - 174 care homes received the standard TM service and 20¹⁷ care homes received the enhanced GP Triage service model.
 - 50 care homes have not received Telemedicine, and may potentially act as 'control' homes, although they may be 'atypical' and their suitability as 'controls needs to be explored further.
 - Available data does not indicate the number of residents receiving Goldline service.

An earlier snapshot in January 2017, using Immedicare's live list, indicated a total of 227 'live' care homes (Table 1); 52 homes were in Airedale, Craven, Wharfedale CCG; 81 in Bradford CCGs and 94 in East Lancashire CCG, of which 19 at that point received the enhanced GP Triage Service.

Table 1: Airedale & Partners Vanguard 'live' care homes (Source: Immedicare live list, Jan 2017)

CCG Area	Airedale Craven Wharfedale	Bradford	East Lancs	Totals
No. of Nursing Homes	16	37	28	81
No. of Residential Homes	36	44	66	146
Total No. of Care Homes	52	81	94	227
Of which GP Triage	0	0	19	19

¹⁴ Discrepancy noted between look up table (n = 235) in April 2017 and Immedicare live list Jan 2017 (n=227) being explored.

¹⁵ Records indicate that one care home was disputing this outcome so may not have been 'de-installed'.

¹⁶ It is not clear from the current 'look up table' (developed for Pi in April 2017) how many of the care homes are of mixed structure i.e. nursing/residential as none are classified as such. Qualitative work indicates this may be an important aspect to reconcile.

¹⁷ Discrepancy noted between number of GP triage homes from January 'live list' (19) and April 'look up table' (20)

Utilisation

Access to a limited dataset highlighted several important aspects of TM utilisation across the Airedale and partners Vanguard¹⁸ which included:

- Substantial variation in TM use across Care Homes;
- Lower uptake of TM in Nursing Homes versus Residential homes;
- Variation in out-of-hours versus in-hours TM use;
- High rates of non-utilisation of TM; differences across the CCG localities;
- Small number of homes were potentially responsible for larger volume of calls.

The following challenges of care home utilisation were identified during the set up phase of the local evaluation, using information from the Vanguard Programme Update in August 2016:

- Hub data from August 2016 indicated that a large percentage of Vanguard care homes did not make any telemedicine calls in that month: 56% of nursing homes and 43% of residential homes;
- The number of Vanguard nursing homes calling the hub decreased 12% in three months, from 56% in April 2016 to 44% in August 2016. The Airedale Vanguard Programme team speculated that this is due to low utilisation by newly installed homes (n=8). It is not currently known, if there is an average period for care homes to embed hub use following installation.
- Some care homes have also never used the hub since it was installed in their home. Reasons why this might be the case are not well understood. The external local evaluation team sought data on patterns of care home telemedicine utilisation from the total vanguard sample (n=248). However, in a subsample of 76 Bradford CCG care homes, 10 (13%) had never used the hub; nine out of these ten of these care homes were within 7 months' post-installation.
- It is also difficult to know what is 'optimal' or 'suboptimal' vanguard care home usage of Airedale telemedicine service. No use of the service is obviously zero calls, but what can be defined as 'low use'? Current levels of care home usage of the telemedicine service may be appropriate based on their resident's needs or it may be suboptimal if care homes are accessing other health care services inappropriately (in-hours, out of hours and urgent and emergency care). It is not currently known whether care homes which do not use or have low use of the hub telemedicine service, have higher levels of inappropriate health care use (e.g. ambulance conveyance and A&E attendance) than those care homes who do use the hub/ have higher number of calls. This is a key question for the wider vanguard evaluation and requires linked datasets to answer it.
- Care homes not using the hub telemedicine service has cost implications, not just in unrealised potential benefits, but in kit installation and monthly service contracts.

Qualitative Data

This report focuses on the *qualitative component* of the Airedale Vanguard Local Developmental Evaluation and provides key insights for the programme. These are based on data from a range of qualitative methods involving more than 60 individuals from the following key stakeholder groups:

- N = 14 semi-structured interviews: care home staff (7) and residents (4) key stakeholders (3)
- N = 3 key stakeholders in focus group;
- N = 42 online/paper surveys from Vanguard care home staff;
- N = 5 questionnaires from one care home staff team about potential barriers and enablers to utilization.

Additional field-notes from telephone conversations with 17 care home managers and 2 stakeholder partners also helped to inform the local evaluation.

¹⁸ Presented at January 2017 Evaluation Dress Rehearsal.

An attempt was made to group care home respondents by the level of TM utilisation within their care home (Table 2). As well as recruiting a diverse sample of different stakeholders, CCG areas, home types, the local evaluation wanted to include a range of TM use.

Table 2: Qualitative sample categorisation based on frequency of reported TM use in care home

	High Utilisation	Medium Utilisation	Low Utilisation
Care Home Residents ⁵	3	1	/
Care Home Staff Interviews	4	2	1
Care Home Staff Survey*	28	9	1

⁵ Care home residents were recruited from care homes stratified by TM utilisation.

* 38/42 online survey respondents reported their frequency of TM utilisation. A crude classification system was developed with: daily, weekly monthly usage defined as 'high'; and 'every 3 months' use as 'medium'; and 'once a year' use as 'low'.

Care Home Resident Experience

Care home resident recruitment was challenging, not least because of the specific criteria of finding residents who had (1) used TM, and (2) remembered doing so, and (3) were interested and/able to take part in the evaluation. This meant that residents were more likely to be recruited from higher TM utilising homes. Many care home managers reported their residents were unable to take part due to cognitive or physical frailty. Future work would benefit from other methods of resident engagement, including perhaps more observation type methods.

A total of four residents took part in face-to-face interviews in their care homes. All had used TM at least once, some many times. The following key themes emerged in relation to lack of pre-engagement about TM, perceived benefits of the service, and potential limitations. The local context of the care home was also important as some residents could access district nurse or GP services easily during weekly home rounds.

Lack of TM Engagement

All four residents who took part, reported that they did not receive any TM information prior to first use.

Perceived Benefits of TM

Three of the four residents interviewed were extremely positive about the TM service, noting various benefits, including avoiding hospital visits, and the friendly, quick nature of service received:

"I think it is good...Because it saves you going to the hospital for instance, you see there are always something, bits of things [health issues]" (Care Home Resident, High TM use home)

"Oh it was, they were excellent. They were really helpful, really helpful. And they went and got, and they said they needed advice from a doctor and they did that and they came back to me. As it happened, I ended up having to go into hospital anyway, but they were very helpful.... I thought it was a really good idea." (Care Home Resident, Medium TM use home)

"It's very good. Very friendly and you get seen to straightaway so..." (Care home resident, High TM use home).

Although the fourth resident was less positive, noting limitations, they did see benefits of TM in their care home in potentially avoiding unnecessary hospital visits for things like falls:

R: *"... I mean we often hear so and so has had a fall you know and she has either ... they have either gone to hospital or perhaps seen the telemed but we don't hear it all.*

I: **From your point of view if the telemedicine could save you a visit to the hospital would that be a good thing?**

R: *Oh that is a good thing, well it saves you a journey as it is [long] journey and then you have to wait around for the ambulance to come and for it to come back...I mean it is a big thing to go to the hospital from here if you don't need to." (Care home resident, High TM use home).*

One of these residents also noted the benefits of the face-to-face video link:

"Nice to see a face rather than just speak to somebody on the phone" (Care home resident, Medium TM use home).

The use of new technology was not an issue for three of the residents as the following quotation illustrates:

"It doesn't bother me, no. It makes a change having somebody to talk to." (Care home resident, High TM use home).

Although the fourth would have preferred an 'in person' consultation, they did report that getting the 'right treatment' was the important thing:

"Well no if they give the right answers to that they give the right treatment I mean that is all that matters whether you go to the doctors or that you know." (Care home resident, High TM use home).

One resident also suggested that prior experience of computers may be important for some older people:

"Well it depends whether you're used to that sort of scenario or not, doesn't it? ... It might be an issue with people who are not used ... some of the older people in here don't know anything at all about technology, but not for me." (Care home resident, Medium TM use home).

Three of the residents reported having a clear picture when using TM, although one noted 'people walking about in the background'. It is not clear what this meant, and is worthy of follow-up by the TM team.

The importance of physical examination

The fourth resident reported limitations with the virtual aspect of TM, preferring the one to one consultation and opportunity for physical examination, noting a 'waste of time' aspect in some TM encounters:

"Well I have had it once or twice, but I mean it is very clever, but I don't consider it a one to one. It is a ... well let me put it this way, I am an old fashioned person, you go to the doctor and they examine you and he does what he wants and I think that is better because what you see on a slide could be a bit fuzzy, it is not to the touch. When a doctor feels you, you go perhaps with a pain in your tummy or something but they won't only feel there they will feel all around to see if it is appertaining to anywhere else. Well you can't do that on a picture." (Care home resident, High TM use home).

The importance of physical examination was also noted by another resident who had a recurring medical issue where examination was necessary to confirm diagnoses:

"So I've got to say that being able to be examined is better in my situation." (Care home resident, Medium TM use home).

Care home staff time

The issue of care home staff's time in setting up and supporting the telemedicine was also a concern for a resident (and was an issue noted by some staff in the survey and during interview):

R: "Well for what the amount of time it takes the team leader to do it and to wait while the other end is ready and all the rest of it, it can be quite a time consuming thing.

I: Does it take a while to get set up?

R: Well I don't ... they have got the machine set up there, it is just setting from one place to another and getting the person you need. I suppose not a while. But if you have a doctor you go straight into him and he deals with you straight away and I don't ... I don't know." (Care home resident, High TM use home).

TM Consultation location

Most residents reported the telemedicine kit being brought to their bedroom, and were positive about this aspect, for example:

"Yes. I think it is wonderful. One time I was in bed ill and they brought it ... to me." (Care home resident, High TM use home).

However, one resident commented that having TM kit brought to their bedroom was not always the case and would prefer if it was:

“Well I think anybody would, it is more homely. I mean I know you go to a doctor’s surgery and that sort of thing but ...” (Care home resident, High TM use home).

It is not clear if this alternative location, rather than the resident’s bedroom for telemedicine consultation was due to wi-fi coverage etc. as staff from this care home had noted technology issues.

Importance of local context

The local health services available to care home residents and the staff may impact on their use of TM. Two residents noted that they could easily access a nurse or GP during their regular (often weekly) home round:

“it’s different when you’re in a nursing home, isn’t it, because you, we have a practice, a nurse practitioner that comes in every week so you can always ask to see her. So you’ve got the opportunity once a week of seeing her. And then, you know, the GP’s available to come in if need be...So really it would only, to my way of thinking, be an issue at the weekend when you were ...Because it’s, you know, it’s difficult for the staff, isn’t it, to decide whether you were a priority at the weekend or not.” (Care home resident, Medium TM use home).

Another resident noted that district nurses came into their home and felt that they would rather see that nurse in person if their health concern required taking clothes off:

“I wouldn’t want to be nude on the screen or anything like that... I don’t think I’d like it though. It’s not clothes on. Like a district nurse comes around for anything like that.” (Care home resident, High TM use home).

Care Home Manager/Staff Experience

In addition to care home residents’ interviews, an online survey was conducted to generate qualitative insights from a wider group of care home staff, as part of the developmental evaluation approach. A summary slide deck about this piece of work is available (McDonach, July 2016).

42 care home staff responded, with a range of experience, from different types of homes, and with different levels of TM use:

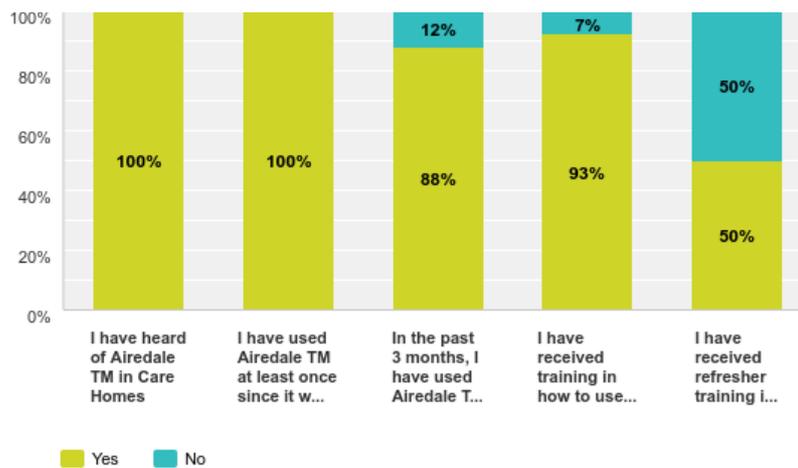
- Range of staff:
 - 16 Managers/ Deputy, 7 Nurses, 3 Senior/ 2 Care Assistants (of those who reported);
 - 1-2 years to 25+ years’ experience.
- Range of Homes/ characteristics:
 - 20+ different care homes represented (of those reported);
 - Residential (18), Nursing (3) and Mixed (11) Care Homes (of those who reported);
 - Both Standard model and GP Triage Homes;
 - Homes in each CCG: Bradford, Airedale, Wharfedale and Craven and East Lancashire;
 - Homes in urban and rural contexts.
- Range of reported TM use:
 - From ‘daily’ to ‘once a year’

Capability to use TM: Knowledge, Skills, Training

Having the knowledge, skills and confidence or ‘capability’ to use TM is an important aspect of behaviour change. Care home staff who took part in the local evaluation generally reported being able to use the kit, with a few notable exceptions. In separate telephone discussions of interviews with care home managers, the majority of care home managers reported that just the senior team would typically use the TM service.

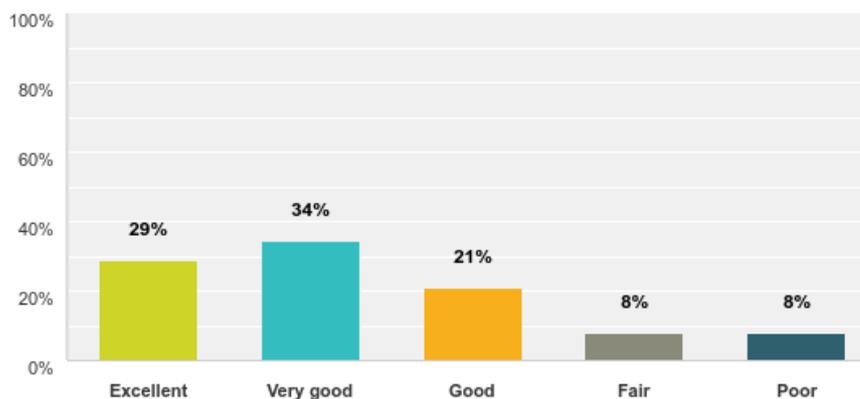
The vast majority of survey respondents (Figure 3) had heard of TM (n =38), used it at least once in last year (n = 37), and had used it in the last 3 months (n = 38). In separate discussions with key stakeholders, it had been reported that ‘refresher’ training was offered to care homes who had low or no TM use within a certain time period. In this online survey, of the nineteen care home staff that reported refresher training, eighteen rated the telemedicine service positively as: ‘good’ (3), ‘very good’ (4) or ‘excellent’ (11). One respondent left blank.

Figure 3: Online Care Home Survey: TM use and training



Of the 38 staff who answered the question, the majority (84%, n =32) rated the training received positively (Figure 4).

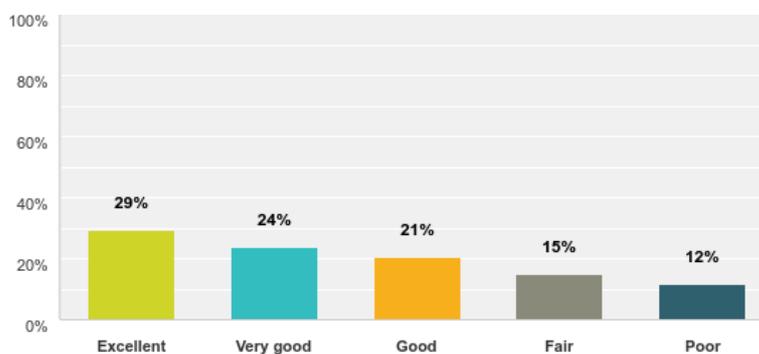
Figure 4: Online Care Home Staff Survey: Rating of Training



Perceived TM 'Experience'

The majority of care home staff respondents 84% (n=25) rated their experience of using TM positively (Figure 5).

Figure 5: Online Care Home Survey: Rating of TM experience



Perceived Benefits of TM

Eight key benefits emerged from the free text comments provided by 29 online staff survey respondents. Many of the respondents identified multiple benefits. Illustrative quotations are provided below:

1. **Avoiding unnecessary GP visits, OOH GP, A&E attendance, admissions (n = 13)**

Seven survey respondents reported thirteen benefits of TM around avoiding a range of unnecessary health care use; five of these respondents were from standard contract home. Illustrative quotations are provided:

"The amount of residents admitted into hospital has reduced." (Care Home Staff, Medium TM use home)

"Less visits to A&E, less out of hours GP Visits" (Care Home Staff, Medium TM use home)

"Supports staff, saves ringing doctors/ambulance out of hours reassures both resident and staff." (Care Home Staff, Medium TM use home)

"Prevent hospital admissions or unnecessary out of hours GP visits, to avoid GP appointments for simple queries - i.e. using a cream in a different area of the body." (Care Home Staff, High TM use home)"

"Responsive reduces inappropriate hospital admissions." (Care Home Staff, High TM use home)

2. **Supporting Care Home staff (n = 13)**

Eleven care home staff in the survey report the benefit of TM as 'supportive' and 'helpful'. Five of these staff were based in GP Triage homes. The following free text comments illustrate the 'support' theme identified by staff:

"...And talking to someone face to face on the lap is very good the staff are very supportive and patient when we are talking to them via lap top. This also helps because the consultation is done in the presence of the resident." (Care Home Staff, Medium TM use home)

"Quick advice and support." (Care Home Staff, High TM use home)

"To enable staff to get support and necessary assistance when needed." (Care Home Staff, High TM use home)

Two of these staff identify the support for non-qualified staff and another two staff in providing clinical support for nursing staff:

"Additional clinical support for Registered Nurses." (Care Home Staff, High TM use home)

"Assisting nurses to make decisions about sending someone to hospital or not." (Care Home Staff, TM frequency not reported)

"Good support/ advisory service for non-qualified staff." (Care Home Staff, High TM use home)

"as a senior carer it offers support and advice in regards to residents" (Care Home Staff, High TM use home)

3. **Patient experience (n = 5)**

Four staff identified five benefits around improved patient experience; three of these staff were based in a standard contract home:

"Out of hours advice and support, Unrequired hospital admission via 999 to A&E. Improved customer care and advice immediately at hand." (Care Home Staff, High TM use home)

"...Quicker response to resident concerns. Ensuring appropriate support for residents." (Care Home Staff, High TM use home)

“Colleagues available to discuss proposed treatment for the benefit of our residents.” (Care Home Staff, Medium TM use home)

“And talking to someone face to face on the lap is very good the staff are very supportive and patient when we are talking to them via lap top. This also helps because the consultation is done in the presence of the resident.” (Care Home Staff, Medium TM use home)

4. Available when needed/ out of hours (n = 8)

Five staff identified benefits relating to support when needed, particularly out of hours. Three of these staff were based in Standard contract homes:

“Knowing there is someone on the end of the line that can help you is important. If we can’t get through to GP then we can use Telemedicine. we can ring just for advice. for night staff who are lone working its invaluable.” (Care Home Staff, High TM use home)

“Out of hours advice and support, Unrequired hospital admission via 999 to A&E. Improved customer care and advice immediately at hand.” (Care Home Staff, High TM use home)

“Immediate response, out hours response.” (Care Home Staff, Medium TM use home)

“Quick access to help when needed.” (Care Home Staff, Medium TM use home)

“Responsive reduces inappropriate hospital admissions.” (Care Home Staff, Medium TM use home)

The following four additional benefits were also identified by care home staff in the online survey.

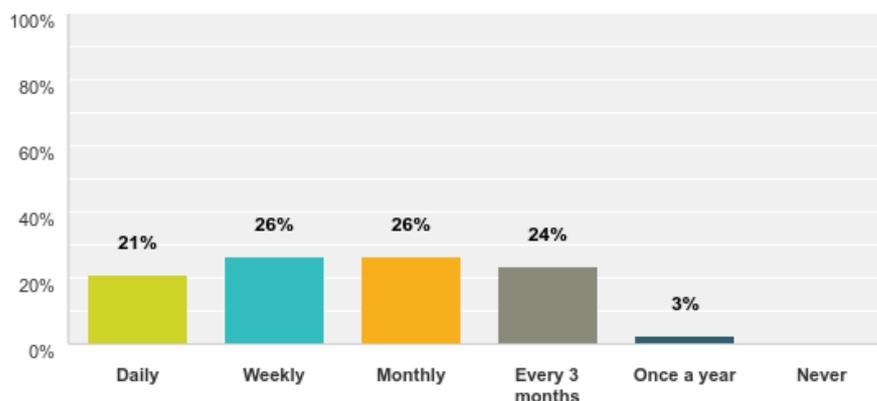
5. **Quick** (n = 5)
6. **Advice** (n = 4)
7. **Reassurance** (n = 3)
8. **Quality** (n = 3)

Three staff did note that TM was more appropriate for minor conditions rather than more serious ones.

TM Utilisation

Of the 34 care home staff who reported frequency of TM usage in the online survey, almost three quarters (73%, n = 28) used it at least monthly (Figure 6).

Figure 6: Online Care Home Staff Survey: Frequency of TM use



It is important to note, the issue of TM utilisation in Vanguard care homes is complicated; it does not appear to be a simple *‘like it-use it’* transaction. Other factors influence TM use, and importantly, it is not all about what goes on in the care home or in the digital hub. The following points from the online survey

taken together, may help to illustrate this important point; respondent's ratings of telemedicine were not neatly associated with frequency of utilisation.

- For example, survey respondents who rated their experience of TM as 'excellent' (n = 10) ranged from self-reported TM use daily to every three months, the same was true of those who rated TM experience 'very good' or 'good' (n = 15).
- The four respondents who rated TM experience poor were all self-reported 'frequent' TM users (daily, weekly, monthly). They were also staff from GP Triage care homes.

Another way of looking at this utilisation issue is:

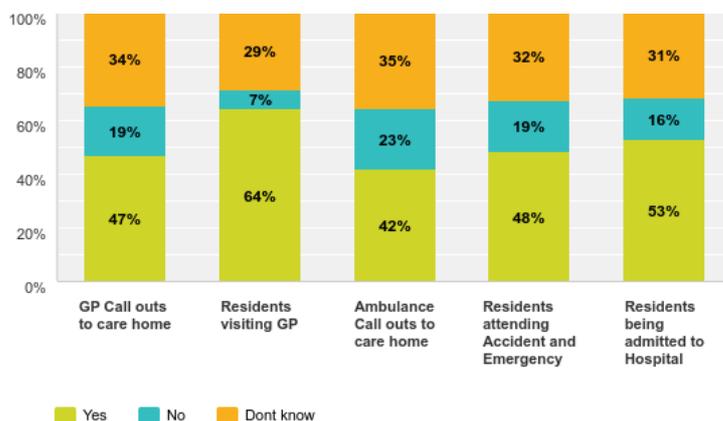
- Of the eighteen respondents who reported daily or weekly use: n = 8 rated their experience as 'good', 'very good' or 'excellent', n = 3 rated their experience 'fair' and n = 3 as 'poor' - all of which were GP Triage homes.
- Of the nine respondents who reported TM use 'every three months' or 'once a year', n = 8 rated it as 'good' 'very good' or 'excellent', n = 1 rated it 'fair' and one left blank.

This suggests that the model(s) of TM in operation may be a bigger predictor of utilisation than staff views and experience of using it; for some staff there may be no choice in the matter, if for example they work in a GP Triage home, where GP services are accessed through the Telemedicine service. On the other hand, those who have lower utilisation may actually rate TM very positively; their low use be more due to the model of TM available in their care home (which might only be OOH access), or the particular needs of their resident group.

Perceived Impacts of TM

Online survey respondents perceived a range of impacts from their use of TM (Figure 7) with 15 identifying reduced GP call outs; 9 reduced residents visiting the GP; 13 reduced ambulance call outs; 15 reduced A&E attendances and; 17 reduced hospital admissions.

Figure 7: Online Care Home Survey: Perceived Impact



Perceived Aspect of TM that Works Well

Six key aspects of the TM service were reported to be 'working well' by 28 survey respondents providing free text comments; some participants identified multiple aspects.

1. Quick (n = 6) – two said this was variable with some longer waiting
2. Support Residential Staff (n= 5)
3. Clinical Support (n = 4)
4. Available when needed (n = 4)
5. Patient Experience (n = 3)
6. Avoids unnecessary visits, attendance, admissions (n = 1)

Three participants reported that 'nothing' in relation to their TM experience was working well.

Perceived Disadvantages of TM

Eight key disadvantages of TM were generated from 29 respondents' free text comments; some respondents identified multiple issues. Six respondents noted that there were no disadvantages to TM.

1. **Technical Issues** (n = 8) (Wi-Fi connection, sound/video quality, coverage across home)

Six of the online survey participants noted eight aspects of the technical service as a disadvantage of TM. Three of these were in standard contracts and three in GP Triage homes:

"Sometimes the video link does not work." (Care Home Staff, Medium TM use home)

"Poor reception." (Care Home Staff, High TM use home)

"Unable to always have good vision of resident and doesn't work in parts of the home." (Care Home Staff, High TM use home)

"Connection Issues - Sound Quality" (Care Home Staff, High TM use home)

"Laptop / Wi-Fi and reception not always great" (Care Home Staff, High TM use home)

"Wireless in old building can be difficult" (Care Home Staff, High TM use home)

2. **Long waiting times to be answered** (n = 5)

Four of the five respondents who identified waiting times to get call answered as a disadvantage of TM were based in homes with standard TM model service:

"Not always able to get through on the telephone." (Care Home Staff, Medium TM use home)

"Not being answered quickly enough." (Care Home Staff, High TM use home)

"Sometimes the system is busy and there are long waits to access assistance and advice, this can be distressing if a [resident] has fallen." (Care Home Staff, High TM use home)

"Slow contact. Often long waiting time." (Care Home Staff, High TM use home)

The fifth respondent identifying waiting times to get TM call answered was based in a GP triage home:

"Cannot get through at times, lengthens the time of access to the GP." (Care Home Staff, High TM use home)

3. **Wastes time/ lengthens time to access services** (n = 5)

All five respondents who identified the issue of time to access services were from GP Triage homes. The following quotation illustrates the point:

"Wasting time getting through when already know what my residents need!" (Care Home Staff, High TM use home)

4. **Gatekeeping access to services** (n = 4)

Perhaps not surprisingly, survey respondents who identified 'gatekeeping access to other services' were also all from GP triage care homes, illustrative quotes are provided:

"Having to use it to book a routine GP appointment. When you know what you need for S.U but telemedicine make you repeat all observations etc. then get same outcomes takes too long. When a nurse contacts telemedicine can be undermining for them as they are qualified." (Care Home Staff, High TM use home)

"Can sometimes be frustrating- i.e. meeting a criteria for a GP visit sometimes residents end up hospital bed as prompt action needed & process too long." (Care Home Staff, High TM use home)

During a separate face-to-face interview, a staff member from a GP triage home articulated the perceived role of TM in 'gatekeeping', 'increasing time' and 'professional infringement', where they twice described their experience as 'demeaning':

"The problem with the telemed system is that it is time consuming from a nurse's point of view. It is quite demeaning and I can categorically say that we all agree with that. It is not that, it is nothing against the nurses at the hub at all we are all professional nurses but we do feel that we need... if we are asking to speak to a doctor it is because we need to speak to a doctor or if we are asking for a GP visit it is because it is justified." (Care Home Staff, High TM use home)

"So I don't feel that I need to go through anybody else to say well have you done their observations, have you tested her urine, have you done this, have you done that, because I have already done it, because I actually know what I am doing. That is what I mean about being demeaning really. It is kind of questioning our knowledge and our experience." (Care Home Staff, High TM use home)

This same respondent did, however, report that they had experienced professional support from the telemedicine service at times, although felt that this could have also have been received from other out of hours services:

"...and there have been times, when and I have had this myself, where there has been support from the telemed service in that I mean sometimes you just need to verify with a fellow professional that you are doing the right thing and I have had that, I have experienced that. I rang one weekend; I forget what it was about but I felt supported in that because the nurse I spoke to said yes I would have done exactly the same. So that was fine are you with me, so from a professional support point of view, it is good to have somebody there but at the same time I could have rung the surgery or the out of hours and got the same support there as well." (Care Home Staff, High TM use home)

The issue of 'choice' and lack of choice when GP Triage service model mandates use of TM was raised by several respondents in the online survey and during telephone discussions during the local evaluation recruitment phase. Two managers raised questions of fairness and equity of access for their residents to primary care services, by virtue of being in a care home.

5. Professional infringement (n = 3)

Three survey respondents identified professional tensions with TM, mostly to do with trained nursing staff but sometimes for residential care home staff too:

"I prefer to discuss my patients myself not through a third party" (Care Home Staff, High TM use home)

"Ineffective for qualified staff." (Care Home Staff, High TM use home)

"Tel-med staff need to be aware of care home staff's knowledge and insight into customers concerns." (Care Home Staff, High TM use home)

6. Getting staff to use (n = 2)

Two respondents (both from standard contract homes) noted staff habit and nervousness as possible barrier:

"Getting staff in to the habit of using it." (Care Home Staff, High TM use home)

"Some staff remain nervous about using it." (Care Home Staff, High TM use home)

7. For minor issues/ Not for serious conditions (n = 2)

8. Residents prefer face to face (n = 1)

Suggested TM Improvements

Twenty-eight participants provided free text comments about improvements to the TM service. Some respondents identified multiple improvements. The suggested improvements were categorised into the following eight areas; some illustrative quotations are provided:

1. Improved technical issues (n = 7)

"The home is large and the service only works in certain parts of the building, unable to get Wi-Fi signal throughout, it would be great if we could" (Care Home Staff, High TM use home)

"Better WI FI connection to the hub." (Care Home Staff, Medium TM use home)

2. Answer calls quicker (n= 3)

"No waiting times of 30-40 minutes- don't have that time to sit and wait." (Care Home Staff, High TM use home)

"Quicker access/ answer calls." (Care Home Staff, High TM use home)

"If they answered it quicker" (Care Home Staff, High TM use home)

3. Expansion of TM services in care homes (n = 2)

"More services being available like physio referrals. SALTS referrals, more online training." (Care Home Staff, High TM use home)

"Training sessions for staff. OT and speech and language therapist contact. patient reviews. extend to local GP to reduce need for physical visits." (Care Home Staff, High TM use home)

4. Expansion of carer role in TM (n = 2)

"Being able to carry out obs (this is a home training issue not teemed)" (Care Home Staff, High TM use home)

"Observations should be allowed to help us." (Care Home Staff, High TM use home)

5. Professional infringement (n = 2)

"Not having 'know-it-all' nurses on when we know our residents." (Care Home Staff, High TM use home)

"Being able to contact GP for review, referrals rather than going through telemed." (Care Home Staff, High TM use home)

The remaining three improvements to TM service were suggested by staff in the online survey:

6. Not for everything service (n = 2)

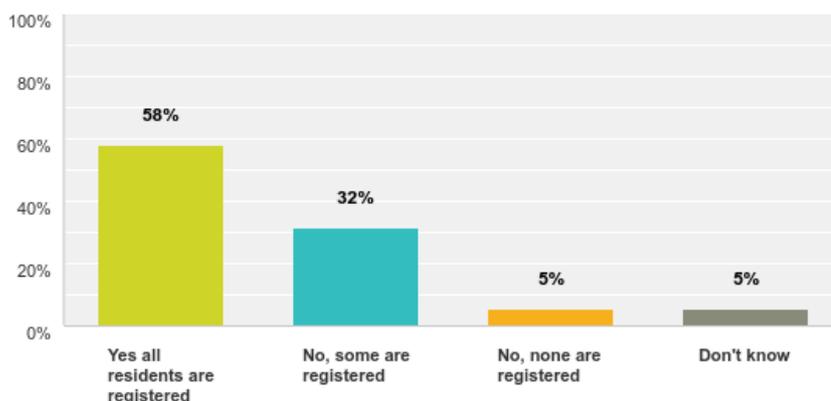
7. Nothing (n = 2)

8. Remove (n = 1)

Registration of Care Home residents

Early set up work highlighted issue of lack of 'live list' of care home residents. In this online survey, six of the nineteen respondents who answered the question, reported that only some of their residents were registered (Figure 8). This echoes the report from a care home staff member that some of home's GPs had not signed up to TM. Therefore, some of the residents in the home used TM and others did not. The staff knew which was which and acted accordingly. This adds further complexity to challenge of identifying individual residents who have used TM as part of any evaluation.

Figure 8: Online Care Home Survey: Residents Registered to receive TM



Vanguard Stakeholder Insights

Benefits and Impact of Airedale and Partners Vanguard

Stakeholders who took part in the evaluation identified a number of strengths in the Vanguard programme, particularly around the TM clinical offer including quality of care and efficient use of resources, and competency of the TM nurses in the hub:

“The aim has been to improve the quality of care for people who are very vulnerable in care homes, whilst at the same time, trying to make the best use, the best efficient use of resources in the hard pressed health and social care system.” (Vanguard Key Stakeholder)

“I will admit to being very dubious about this initially. Because we’re used to working with district nurses who work very well within their competency levels and they know far more about things like ulcers and so on and wound infection than we do but if it’s anything outside that they would invariably ring us and we were a little bit worried that this could actually result in more calls but the competency levels of the telehub nurses are just totally different from the district nurses, they deal with all the sort of things that a nurse practitioner in a GP practice would deal with and they do it very safely and effectively.” (Vanguard Key Stakeholder)

“I think what’s worked very well has been the reliability of the technical service and the quality of the care of the assessment. I think that although we do have some feedback, the technology doesn’t always work, I think there’s, a lot of that is about user error and I think that there’s very little poor feedback on the quality of care from the nurses, and much less per unit of care delivered than many other settings, and that’s a very good sign of quality.” (Vanguard Key Stakeholder)

Although it is difficult to establish empirical data on impact in primary care, a GP noted considerable differences in their workload, particularly using the GP Triage model:

“Just off the top of my head, from our biggest home we used to get I would say around twelve visits a week and now it’s down to maybe three or four.” (Vanguard Key Stakeholder)

However, they also noted some of the challenges of engagement and overcoming resistance to this new way of working, particularly in homes with nursing staff. The need to formally ‘switch off’ GP access in order to optimise the workload benefits of GP Triage TM, was also identified:

“Well, there needs to be some sort of liaison and event with the care homes and that was done, that was arranged by the CCG. And then the telehub, [named person] from the telehub went in and talked to the staff and then the IT people from the telehub went in and sometimes they had to do bits of IT upgrades before it would work. And then obviously a bit later the GP practice said right, we’re stopping all requests from the home now because we tried just asking them to ring telehub first and they didn’t. So that actually came a little bit later. And some practices, I think, in other areas, you know, the other 19 homes, haven’t done this and actually aren’t fully utilising this because they haven’t done it which is a pity because it makes a huge difference in GP workload.” (Vanguard Key Stakeholder)

Potential challenges in care home staff perception of the GP Triage service model and the need to engage effectively with these homes was also noted by another participant:

"I've only seen a few pieces of feedback that suggested that when it has been used, it hasn't been considered valuable and that could actually be in relation to homes that have had the GP triage service whereby they are required to phone the hub in working hours, rather than contact the GP direct and they say well actually, we knew we needed a GP and if that's what the hub says was required, well it didn't add any value. There's definitely something around the GP triage so-called service which requires a different approach and I think that that's an area to develop in terms of call it marketing, but it's actually engaging effectively in homes to make sure they can make the best of that." (Vanguard Key Stakeholder)

The impact of Airedale Telemedicine on improving end of life care was also noted:

"Possibly I think it's probably improved the end of life pathway because historically end of life patients often ended up in hospitals, there's an increasing push to keep them at home. And I think the telehub are very good at recognising when a patient is approaching the end of life and rather than saying this patient's ill they need admission, they will actually spend the time ringing the district nurse to arrange them to come and also ringing us or out of hours to say, you know, I think we need to get there just in case medication is in place and try and keep this patient at home rather than admitting." (Vanguard Key Stakeholder)

Programme Challenges

Key stakeholders who took part in the evaluation also identify a number of challenges in relation to the structure and organisation of the Vanguard partnership, changes in key personnel and ongoing challenges with data access. Two vanguard stakeholders question the effectiveness and buy-in from the Vanguard partnership over time. Reasons for this include: potential lack of clarity about roles and expectations, change in key personnel and leadership, lack of outcome data impacting on motivation as well as local issues:

"People were engaged and then were invited to join the steering group or the board, but I think that the aims and objectives were probably not well articulated and having got people to the table, perhaps there wasn't enough resource to focus on keeping them engaged. In part that's because the initial long period of programme, the first year and a bit was actually rolling out another 100 and something care homes across a very wide footprint, rolling out the delivery of technology in the service and scaling up the service. So actually what you have to show for that is well, it's just activity data and even that I think was pretty limited until [named person] came into post" (Vanguard Key Stakeholder)

"Finding people who were involved at the start of the partnership is virtually impossible. All the senior leadership has changed and even notwithstanding I think there was the documentation at the start of the programme was light/non-existent apart from the original application." (Vanguard Key Stakeholder)

The issue of utilisation variability and its impact on commissioning decisions was also noted by a key stakeholder:

"The variability in utilisation was something which I was interested in right from the outset, and that's really because in most of these settings, in most of the delivery of services, actually the variability of utilisation is something to consider from a focused commissioning point of view because it can value things around acceptability of the service, its reliability and its effectiveness and ultimately access issues and it will cover judgement in the informed decisions about re-commissioning. So it's a very important area. Nobody is going to re-commission a service which is underused." (Vanguard Key Stakeholder)

The pace of change and perceived lack of early engagement with Airedale were identified as challenges, by a key stakeholder, in relation to difficulties in maintaining CCG engagement. The changing Vanguard focus for 2017/18 on delivering the entire EHCH Framework, with the same pot of money across four CCG areas proved difficult. Vanguard delivery changed to including East Lancashire only.

Data Challenges

The ongoing challenge in accessing data has been discussed earlier in this report. The Vanguard project team initiated data sharing applications back in August 2016. Frustration at the pace and bureaucracy of the process was frequently noted:

“A critical challenge has been one you'll be very familiar with, which is obtaining the data to enable the evaluation to be undertaken in a timely way. That's been an enormous challenge because the principle operators and decision makers around releasing that data are really outside of the influence of the partnerships, or indeed even the most senior individuals in any of the organisations, NHS digital operate as part of the NHS, but are an arms' length organisation and clearly that suffers from lots of changes in the way they operate and have a bureaucratic approach, partly resulting from care.data and some of the other concerns which have led to public and political outcry about the use of data. So the effect has been to control data release so tightly to make it almost impossible to access data. Finally, now the data is starting to flow but how much better it would've been had we had this three/four months ago, we'd be well on with the evaluation. We'd have real clarity about where things were working, where things weren't working so well, rather than using, you know, the crude data we've managed to source to make those decisions, because they had to be made, as it were.”

Another Vanguard stakeholder notes frustration with the lack of data flow and structures in place within the Vanguard to feedback learning and capitalise on the developmental aspect of the commissioned evaluation. The potential role and benefits of evaluation in shaping the delivery of the programme was also identified by the following stakeholder:

“I think it forms part of the broader message which is you need to think about the evaluation the day after you thought about you might have an idea of a programme or a project. The evaluation needs to be in place before the programme starts, or at the start out of the programme. Where I've seen in that in other places, it's pretty rare, but where I have seen it, actually what the evaluation has done is shaped the delivery of the programme because it's made the actors ask questions about well, or answer questions around well what is it you're trying to achieve and how are you going to evidence that or why might become conflicting and complicating factors. I think that's the value of evaluation which is you know, almost more important than the evaluation report because if you structure your work correctly, then the outcome won't be a surprise to everyone and it will be that much more reliable and people will have thought of really what they're doing in a more effective way and that helps business cases and articulating outcomes and benefits.” (Vanguard Key Stakeholder).

The lack of access to primary care data was also highlighted as a limitation, especially as hub counterfactual data points to saved GP visits as one of the key benefits of the service.

Engagement and Implementation challenges

Several key stakeholders identified engagement and implementation challenges in the scale up and roll out of the TM service across the Vanguard; although there had been pockets of good practice. Lack of involvement in this process was clearly indicated by the following stakeholder:

“We don't have any, and I mean any involvement in implementation and engagement. So that to me is the biggest flaw.” (Vanguard Key Stakeholder)

A 'disconnect' between the clinical and marketing offer was reported, with 'marketing collateral' that was at times, unrealistic, with unachievable targets which had implications for contracts. Few opportunities for clinical input into marketing material was reported.

The logic model work also identified gaps in current engagement activity which had implications for the TM 'theory of change'. Residents and many care home staff also reported that residents are not always made aware of TM prior to using it. The same was true of relatives. Although it is important to note that some care home managers identified TM as a selling point which they advertised to relatives as access to 24/7 clinical support.

A focus group/workshop was conducted to explore the tacit knowledge of key stakeholders and identify aspects of 'good' implementation from their experience, for future service improvement. The Stages of Implementation Completion (SIC)¹⁹ was used as a conceptual tool to think about the key phases and stages of engagement and implementation. This tool was developed as part of a randomised controlled trial in response to common barriers in monitoring effective implementation. Table 3 provides a summary of the

¹⁹ Chamberlain et al (2011) Implementation Science

key activities identified by participants in the focus group, which they felt needed to be conducted before implementation takes place (and the first call to the hub is even made). Clinical leadership and local engagement were seen as key, along with a 'realistic' offer, and targets which could be achieved. Further work on this may framework may help to inform future engagement and implementation strategies.

Table 3: Key Activities in 'good' Pre-Implementation Phase Source: Focus Group workshop

Phase	Stage	Proposed Airedale Activities before first call to hub is even made
1. Pre-implementation	Engagement	<ul style="list-style-type: none"> Clinically led, direct relationships with commissioners Clinical involvement in fora where key stakeholders/system come together: commissioners, lead GPs, nurse manager, care homes, community teams Commissioners have realistic offer on impact, targets which are deliverable Opportunity and time to build relationship with CH prior to installation - hub visits, virtual tours Local intelligence on CH and its needs and wider system - contract which fits Role for Clinical Band to continuous engagement to identify/address barriers - using data and clinical knowledge
	Feasibility considerations	<ul style="list-style-type: none"> Technical discussions: Access to SCR, Live lists, IP 11 DoS, Wi-fi requirements Call Management System Monitoring & Evaluation Framework
	Readiness Planning	<ul style="list-style-type: none"> Staff training/understanding when to use hub - protocol reflects TM model Process for agency staff in care home Commitment to maintaining updated resident lists with the hub Residents/Relatives aware of hub offer and how they can use it - protocols

Wealth of learning in relation to New Models of Care

Airedale Telemedicine has been around since 2009. The Airedale Digital Hub was established in 2011. It predates its Vanguard status. A lot of the key personnel with tacit knowledge of Telemedicine as a new care model are still in place. Shared learning from Airedale, such as lessons in good practice in engagement and implementation, and scaling up illustrated in Figure 3 above, are important for other areas attempting to embed new technologies within their health and social care system.

Section 4: Learning and Recommendations

Qualitative insights from this external, developmental evaluation of the Airedale Telemedicine Vanguard have identified some key issues which need to be addressed:

- 1. Understanding TM utilisation** across the Vanguard is critical to developing the service; providing access to TM utilisation data at the care home level therefore *remains* an essential evaluation requirement.
 - Limited access to partial utilisation data indicated substantial variation for example, in-hours versus out of hours, nursing versus residential and across CCG areas. Some homes use TM often, while others do not use it at all.
 - Understanding the factors which enable or impede TM use provides opportunities for service improvement. The COM-B model²⁰ of behaviour change suggests there are three key elements to effective behaviour change: ensuring people have (1) the capability, (2) the opportunity, and (3) the motivation, to do things differently. Qualitative insights suggest that utilisation is complex; it may involve skills and knowledge of care home staff (the capability), but it is not all about what goes on in the care home or indeed the hub.
 - There are potentially multi-level barriers and enablers to TM utilisation, including the service model in operation (e.g. GP triage is likely to increase utilisation), local stakeholder support for TM and effective engagement with care homes, as well as resolution of technical issues (the opportunity). Variation in care home access to local health care professionals (e.g. weekly GP or district nurse home rounds) as well as beliefs about TM, prior experience, and resident views may also influence utilisation (the motivation).

- 2. An integral measurement framework** is needed to monitor progress of implementation and to track key metrics.
 - This is essential to help understand the link between TM utilisation and outcomes, and establishing a before and after or controlled comparison design to enable attribution of change to TM rather than secular trends.
 - A robust measurement framework is also important for exploring 'optimal' TM use; for example, no/low TM use may not necessarily be 'sub-optimal', it depends on residents' needs as well as appropriate or inappropriate use of other health care services (e.g. ooh GP, A&E etc.).

- 3. Divergence in care home staff views of TM** and understanding the role of the TM service model:
 - Some care home staff are extremely positive about the TM service, its benefits and potential impact. While others, particularly those who took part in the evaluation from GP Triage homes are less positive. Establishing if these tensions are common to all GP Triage homes is warranted and further engagement to resolve. This is particularly important, given the potential scale up of the GP Triage model within the East Lancashire EHCH Vanguard. Incorporating opportunities for regular feedback from care home staff and residents, perhaps using the TM technology itself, as used by NHS services, is recommended.

- 4. Potential Service Improvements:**
 - Care home staff identify a number of improvements, some of which relate to the GP Triage service model. It may require further engagement to resolve identified tensions.
 - However, others improvements are common across both standard and GP triage models: such as the need to improve aspects of the technical service (Wi-Fi coverage throughout the home, patchy reception, visual/sound issue) and the need to answer calls quicker.

²⁰ The COM-B model proposes three essential conditions for behaviour change: capability, opportunity and motivation (Michie et al, 2011)

5. Shared learning to improve future Engagement and Implementation:

- The local evaluation team facilitated a session to explore shared learning about what characterises 'good' implementation. This was intended to inform future engagement/ implementation strategies and address the gaps identified by stakeholders. Established monitoring and evaluation tools such as the Stages of Implementation Completion²¹ may help to add structure and rigour to these processes.
- Clinically-led engagement with local commissioners and a realistic offer on impact and targets was highlighted, along with opportunities to build relationships with care homes prior to installation.²² The need to develop resources and protocols for staff, residents and relatives which reflect the TM model offer and how they can use it was also identified.
- Staff (and residents) indicate that residents and relatives may not always be aware of TM. The need for earlier and ongoing engagement with all the key stakeholders was noted.

6. Shared learning from Programme Challenges:

- Airedale TM Vanguard has been at the forefront of TM delivery in care homes, at scale for a number of years.
- It has the potential to offer unique insights, not only in the process and outcomes of the TM intervention, but also about the complex challenges involved in attempting to embed new technology into routine practice within different health and social care systems.

²¹ Stages of Implementation Completion (SIC) was developed by Chamberlain et al. (2011) as part of randomised controlled trial as a tool to objectively measure, overcome barriers and improve the effectiveness of implementation

²² This fits with NHS England's commissioned literature review by Claire Goodman et al about Vanguard care home readiness

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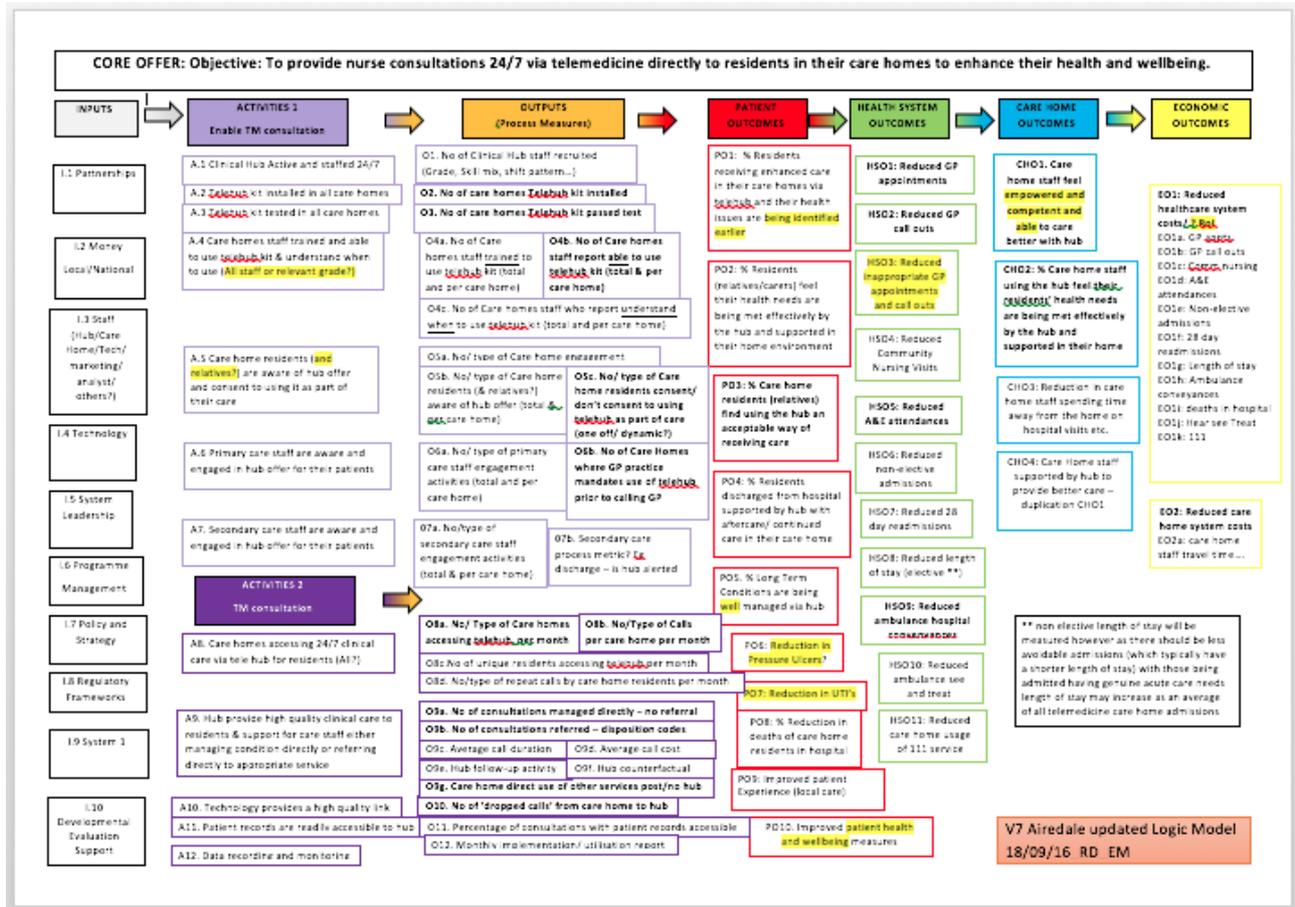
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Appendices:

Appendix 1: Co-produced Logic Model v7 September 2016

Involvement from Airedale Vanguard Project team and sign off from leadership and PAG.



Appendix 2: Local Evaluation Engagement

Date	Evaluation Dress Rehearsal	Project Advisory Group	Additional updates	Pi Webex	Airedale Data Management Meeting
July 2016	Introductory Meeting	Airedale PAG update			
July 2016	Airedale EDR 1				
Aug 2016			Briefing: Vanguard Challenges		
Sept 2016	Airedale EDR 2	Airedale PAG update			
Oct 2016					Attend ADM
Nov 2016	Airedale EDR 3	Airedale PAG update	Briefing: Evaluation Update		Attend ADM
Nov 2016					
Jan 2017	Airedale EDR 4				Attend ADM
Mar 2017	Airedale EDR 5	Airedale PAG update		Attend Pi	
Apr 2017				Attend Pi	
May 2017				Attend Pi	
Jun 2017			Briefing: Evaluation Update	Attend Pi x2	
Jul 2017				Attend Pi	

Appendix 3: Qualitative Interview Schedule

PROMPTS AT START:

INTERVIEW SCHEDULE:

A. Participant Details:

1. What is your job role?
2. What is your role within the Airedale Telemedicine Vanguard?
3. How long have you been involved in the Airedale Telemedicine Vanguard?

B. Project Details:

4. Can you briefly describe the **main aims** of the Airedale Telemedicine Vanguard?
5. What is the **current status** of the Airedale Telemedicine Vanguard?

C. Views, Experience & Learning – Process

6. Overall, how would you **describe your experience** of being involved in the Airedale Telemedicine Vanguard?
7. From your experience, what has **worked well** with the Airedale Telemedicine Vanguard?
8. From your experience, what have been the main **benefits** of the Airedale Telemedicine Vanguard?
9. From your experience, what have been the main **challenges** of the Airedale Telemedicine Vanguard?
10. What would you **do differently** if you were doing it again?
11. What are the **key aspects** of the Airedale Telemedicine Vanguard which need to be in place if it was being rolled out wider?

D. View, Experience & Learning Potential Impact

12. Do you think the Airedale Telemedicine Vanguard have achieved what it set out to do? If not, why not?
13. What do you think the main impact of the Airedale Telemedicine Vanguard has been? Prompts:
 - On your service/ Patient experience and outcomes/ Staff experience and outcomes/ On the system
14. Any additional comments.....

Appendix 4: Summary of recent Telemedicine Research and Audit publications and presentations

Presented at the November 2016 PAG

Author	Organisation	Date	Title	Type
Rebecca Hewitt	Healthwatch	2016	Telemedicine in Care Homes: A Qualitative Evaluation	Report
Oliver Jackson	NHS England	2016	Top 100 Care Homes Ambulance Conveyance	Excel File
Pete Chamberlain	South Sefton CCG	2016	Care Home Innovation Programme (CHIP)	Powerpoint
Farha Abbas	Lancashire County Council	2016	Analysis of NWAS call outs to care homes – older people service user category	Report
?	East Lancashire District North West Ambulance Service	2015	NWAS Cost savings per care home data	Excel File
Fran Duxbury	Airedale Digital Hub	2016	Audit of 30 GP referrals for Pendle Care Homes	Zip file
Bain & Co	Bain & Co	2016	Airedale & Partners Detail to support development of Vanguard Hypothesis Generation	Word file
Airedale & Partners	Airedale EHCH Vanguard	2016	Value Proposition	Word File
?	?	?	A&E attendance by age Pendle	Excel file
Tuggey et al	AWC CCG/ANHSFT	2015	AWC Review of case notes to assess effectiveness of TM	Report
Rachel Binks	Airedale Digital Hub	2016	Telehealth Jan 2016 current awareness	Word File
Airedale NHS Trust	Airedale	2016	Bringing Healthcare Home. Final Report. Health Foundation. Shared Purpose	Report
Nick Hex et al	YHEC	2015 2015 2016	Telemedicine Service Evaluation and Economic Modelling Telemedicine in care homes in AWC. Clinical Governance Evaluation of a Pilot project for the implementation of TM in CH in Bradford	Report Journal Report

Presented at March 2017 Evaluation Dress Rehearsal



Airedale Telemedicine Vanguard: Using ‘Apple a Day’ Approach (McDonach, 2017)

‘Apples Delivered’ TM implemented	Apples Eaten TM Used	Vitamin levels Raised Mechanism of Change	Improved outcomes & efficiencies	Interpretation
<p>TM Hub staffed 24/7</p> <p>TM kit installed, tested and working</p> <p>CH Residents/ Relatives aware of TM and consent</p> <p>CH managers and staff engaged and able to use TM and know when to use</p> <p>Primary Care Staff engaged and signed up for their patients</p> <p>Secondary Care Staff engaged and signed up</p> <p>Local Commissioners engaged and support</p> <p>28/06/2017</p>	<p>All CareHomes access TM Hub 24/7 (or as per contract)</p> <p>Hub provides high quality clinical care to residents & support for care staff (enhanced services) (managing condition directly or referring directly to appropriate service)</p> <p>CH local context supports use of TM</p> <p>Technology works and provides high quality link</p> <p>Patient records are readily accessible to hub</p> <p>Data recording and monitoring</p>	<p>Increasing number of CH Residents receiving EHC through TM</p> <p>Increasing number of staff being supported to manage CH residents needs through TM</p> <p>Identification and support of CH residents with health care needs that can be appropriately supported at home (avoiding unnecessary healthcare use)</p> <p>Care home adherence</p> <p>Identification and referral of appropriate residents who require further health care</p>	<p>Patient Experience & Outcomes CH Residents find TM acceptable way of receiving care CH Residents perceive their needs met effectively by TM</p> <p>Staff/ Stakeholder Experience CH Staff find TM acceptable way of supporting residents CH Staff perceive residents health needs met effectively by TM</p> <p>System outcomes/costs Reduced A&E attendances Reduced hospital admissions Reduced NEL admissions Reduced inappropriate GP appointments/call outs Reduced ambulance conveyance? Reduction of NHS 111? Reduced healthcare system costs</p>	<p>21</p>