

Supplementary file 8 – Additional information relating to patient findings

Table 1. Example findings for factors influencing engagement.

Theme	Sub-theme	Key findings (interviews and survey)	Example quotes (illustrative of key findings for each sub-theme)
Patient factors	Knowledge	<p>Facilitators</p> <ul style="list-style-type: none"> 55% (n=583/1069) of respondents felt that knowing what to do helped them to engage with the service (<i>survey findings</i>). Many participants felt that they had the appropriate knowledge to use the oximeter, monitor and record/communicate readings and escalate care (<i>interview findings</i>). <p>Barriers</p> <ul style="list-style-type: none"> 1% (n=7/1069) reported that not knowing what to do was a barrier to engagement (<i>survey findings</i>). Some participants mentioned in ‘other’ that not knowing what to do in regards to escalating care was a barrier (<i>survey findings</i>). Some survey participants mentioned problems in relation to not knowing what to do following discharge (<i>survey findings</i>). Interview findings indicated that one of the main barriers was a lack of knowledge for all pathway aspects. This included: a lack of knowledge in relation to understanding and interpreting information and equipment, language barriers, a lack of knowledge on how to fill out the diary or complete the recordings, knowledge barriers around escalating care and knowing when to call for help (<i>interview findings</i>). 	<ul style="list-style-type: none"> “Well I mean. It’s quite straightforward isn’t it. You just put it on your finger and let it settle down and read the figures off. Pulse-pulse and oxygen levels. So no, I didn’t find it complex at all.” (Site C, interviewee 2) “I’ll be truthful, no, not to tell you now, however, I’m sure in the instructions, it would have been there but no I couldn’t tell you what they meant, I just recorded it and I think when you recorded it in the app, I think that’s where you would trust the doctors or the nurses to phone and say, “That stat doesn’t feel right.” (Site I, interviewee 6) “And I think my dad got confused a couple of times with the readings, because she would still be asleep when he’d do the observations. And obviously you’re not supposed to do when they’re asleep.” (Site F, interviewee 6)
	Memory	<p>Facilitators</p> <ul style="list-style-type: none"> Some participants spoke about how phone calls helped them to remember to do the readings or that they wrote their readings on Post-it notes to facilitate memory (<i>interview findings</i>). <p>Barriers</p> <ul style="list-style-type: none"> 4% (n=37/1069) reported that forgetting to do it was a barrier to engaging with the service (<i>survey findings</i>). Memory was also reported as an issue for monitoring and recording and communicating readings (<i>interview findings</i>). 	<ul style="list-style-type: none"> “I think it was better to actually take the readings while they were talking to me on the phone, because the majority of people possibly around my age and probably a little bit older, their memory probably wouldn’t be as good, and they could get their figures distorted and so forth if they had to write them down. So the way it was approached over the phone was more reliable.” (Site N, interviewee 1) “And eventually I seemed to reach the point that I hadn’t done it for so long that I got a phone call, but that was just by me being really forgetful rather than wanting to waste people’s time.” (Site N, interviewee 3)
	Physical health	<p>Facilitators</p> <ul style="list-style-type: none"> 54% (n=581/1069) of respondents felt that their own health helped them to engage with the service (<i>survey findings</i>). <p>Barriers</p> <ul style="list-style-type: none"> 4% (n=39/1069) of respondents reported that their own health was a barrier to engagement, and some participants mentioned in ‘other’ that being too unwell to take readings or use app was a barrier (<i>survey findings</i>). Barriers relating to physical health included: feeling too poorly / not in the right frame of mind / sleeping a lot / having a health condition that made it difficult to monitor / needing to ask people to repeat themselves / difficulties getting to telephone / difficulties reading oximeter due to eyesight (<i>interview</i> 	<ul style="list-style-type: none"> “Sometimes the reading took quite a long time to come through and that was because of my circulation, my circulation was quite poor so it was taking a while to calibrate.” (Site B, interviewee 2) “I’ve got a severe visual impairment, so I couldn’t see the numbers and everything, so that had to do all the for me.” (Site E, interviewee 4) “Really they just, in the main I was quite poorly, in fact I would say I was really poorly, it’s the only time I’ve thought I was going to die in my life [...] so really in the main my husband dealt with them, I couldn’t really be remotely bothered with them if I’m honest and I can’t remember what they told me, I don’t think they told me a lot.” (Site I, interviewee 3)

		<i>findings).</i>	
Attitudes towards the service and behaviours	<p>Facilitators</p> <ul style="list-style-type: none"> 60% (n=637/1069) of respondents felt that knowing why the service is important helped them to engage with the service (<i>survey findings</i>). 46% (n=491/1069) of respondents felt that wanting to do it helped them to engage with the service (<i>survey findings</i>). 27% (n=288/1069) felt that positive views of the service helped them to engage with the service, some participants mentioned in 'other' that the support/reassurance helped them to engage (<i>survey findings</i>). Determination, knowing it was important, being happy to follow advice, liking contact via phone, motivation, seeing their own progress and confidence escalating care facilitated engagement (<i>interview findings</i>). <p>Barriers</p> <ul style="list-style-type: none"> 1% (n=8/1069) felt that concerns about being monitored or data use was a barrier to engagement (<i>survey findings</i>). 1% (n=6/1069) felt that not wanting to do it was a barrier to engagement (<i>survey findings</i>). A key barrier was a lack of interest in monitoring/recording, or views that monitoring did not help or that it made the participant anxious if the reading was low (<i>interview findings</i>). Barriers to seeking further support/escalating care included worries and concerns around going to hospital (due to COVID-19, lack of support in hospital, difficulties communicating, COVID risk) (<i>interview findings</i>). 	<ul style="list-style-type: none"> "But there are sometimes, I must admit, sometimes it makes you feel a little bit anxious [...] but then you can leave it – because you want to get things all right – but towards the end of the day it is so worth it – it is 100% worth it to have the oximeters reading every day to know; to understand where you are [...] but I still guarantee that 100% it is a very good idea." (Site A, interviewee 1) "Just really, they encouraged me to ring an ambulance if I needed it. And I wasn't ringing them, because I felt like I was wasting their time, or whatever. I didn't want to, because I was worried they might want to take me in." (Site B, interviewee 4) "And it came to a point where her oxygen levels had dropped significantly that morning. I rang the nurse. She was like, you need to get an ambulance to your mum. And we were like, look we really don't want to send her to hospital." (Site F, interviewee 6) 	
Time to do behaviours	<p>Facilitators</p> <ul style="list-style-type: none"> 20% (n=217/1069) of respondents felt that having sufficient time helped them to engage with the service (<i>survey findings</i>). Building the behaviours into their routine and keeping equipment nearby made it easier (<i>interview findings</i>). <p>Barriers</p> <ul style="list-style-type: none"> lack of time (those working from home) made it difficult (<i>interview findings</i>). 	<ul style="list-style-type: none"> "To be quite honest after I got used to exactly what it was asking me, I was then ready for exactly each thing. I was getting through the phone call within less than a couple of minutes." (Site B, interviewee 1) "No, no it was all really clear and after the first couple of days it became like a routine." (Site J, interviewee 2) "Well it probably says more about me than anything else, but there was times when I was catching up, even though I had nothing else much to do, I was trying to busy myself with activities, even if it was just watching a silly video [...]. So even though I was just sat there not really doing anything, I would still think, Oh my gosh, it's 10 o'clock, I haven't done my 9 o'clock [...] I'm really bad with time keeping. So you'd think, just set an alarm and do it. Which is exactly what I did [...] and that solved that problem." (Site N, interviewee 3) 	
Wider support and resources	<p>Facilitators</p> <ul style="list-style-type: none"> 46% (n=488/1069) of respondents felt that support from healthcare professionals helped them to engage with the service, some participants mentioned in 'other' that a clinician referring them helped them to engage (<i>survey findings</i>). Support from staff/service was a facilitator: it helped to understand information, helped with monitoring, e.g. dropping oximeter off, being responsive to questions about monitoring, with recording & communicating, e.g. ringing patients if they forgot, being patient/giving feedback, face-to-face 	<ul style="list-style-type: none"> "The nurse was very good, can't praise her really high enough. She was a friendly voice to speak to. Fair enough, you know, I've got a bit of a support system, but for somebody who hasn't got that much of a support system around them, I think that friendly voice would go a long way just to, you know, easing their minds." (Site D, interviewee 5) "And then near the end when I was getting a bit complacent, I was sort of almost well, a couple of times I didn't put them in and they would phone and say, "Are you okay? You've not submitted you reading." So that was just really supportive, and I said it certainly reassured me." (Site M, interviewee 	

	<p>appointments, continuity and explanations. And support in escalating care – having a number to call/positive views/practical advice/reassurance (<i>interview findings</i>).</p> <p>Barriers</p> <ul style="list-style-type: none"> • 2% (n=24/1069) reported that lack of support from healthcare professionals was a barrier to engagement, some participants mentioned in ‘other’ that being unable to contact staff was a barrier (<i>survey findings</i>). • A few participants did report lack of support from staff re. recording and communicating readings and also that some participants couldn’t get through to the team when needed (<i>interview findings</i>). 	<p>1)</p> <ul style="list-style-type: none"> • “So, the lady phoned me in the morning to say that the machine would be dropped off and then she said that they would text me every day and I said, “Are you not coming out to see me?” and she said, “No, we will text you and we are on the end of the phone.” [...] I thought if they are coming out to see me, they will know by looking at me or if I’m okay but nobody ever came out [...] because you feel like you are just on your own, just left on your own really.” (Site D, interviewee 3)
Support from family members/friends	<p>Facilitators</p> <ul style="list-style-type: none"> • 25% (n=266/1069) of respondents felt that support from family members/friends helped them to engage with the service (<i>survey findings</i>). • Support from family/members and friends helped with all aspects of the process including understanding information, collecting oximeter and other equipment, doing the monitoring, recording and communicating readings, escalating care (<i>interview findings</i>). • Prior family experience was also found to be helpful (<i>interview findings</i>). <p>Barriers</p> <ul style="list-style-type: none"> • 1% (n=9/1069) reported that lack of support from family and friends was a barrier to engagement (<i>survey findings</i>). 	<ul style="list-style-type: none"> • “So my dad was initially involved in, I think it was nine days, so the first nine days he took full care of mum to be honest clinically I was involved in a lot of the calls because I think my dad’s getting quite stressed. [...] so yes, he did the physical side of it. He would do the observations. And then he’d call me first thing in the morning, or he’d drop a text to say these are the observations. I’d call and have a quick chat, knowing the nurse was going to call us. So I guess it was a bit of a joint effort between us.” (Site F, interviewee 6) • “My husband had to fill it in, he had to take my temperature and things like that, and they were phoning up every day for the results. And if my husband had any questions he wanted to ask, if he was worried or anything, they told him what to do and if there was any problems.” (Site K, interviewee 2) • “In the beginning I found it difficult because I was poorly but then I had a member of my family to help me and then it was just easy to do and I’m not good at things like that. I found it easier to do after a while. It’s just when you’re poorly you find it a bit difficult but no, it was easy. [...] they would help me to do my test. They would sit with me and help me write it down and then send it through to the text. That was when I first became, you know, poorly with it and I wasn’t sure what to do and they found it easy to help me.” (Site C, interviewee 6)
Accessibility and availability of materials	<p>Barriers</p> <ul style="list-style-type: none"> • Many participants spoke about how they did not receive enough/received too much information and that some information was contradictory and confusing and not accessible (<i>interview findings</i>) • Some participants were not given resources such as paper diaries (<i>interview findings</i>) 	<ul style="list-style-type: none"> • “I had a leaflet and everything, but again the only thing with that, because every time I did get a call from the doctor. Quite often it was a different doctor [...] I was getting different advice. [...] I think the leaflet says to use either your middle finger or your pointy finger. A couple of times I got dodgy readings or a little bit off. So, some of the doctors were saying use your little finger, obviously keep it steady.” (Site P-A, interviewee 1)
Equipment	<p>Facilitators</p> <ul style="list-style-type: none"> • Some participants spoke about buying their own equipment or already having the equipment and that this helped (<i>interview findings</i>). <p>Barriers</p> <ul style="list-style-type: none"> • 1% (n=8/1069) reported that not having the right equipment was a barrier to engagement, some participants mentioned in ‘other’ that the oximeter not working was a barrier (<i>survey findings</i>). • Barriers to monitoring included not being able to collect oximeter, equipment 	<ul style="list-style-type: none"> • “I didn’t have a thermometer, no, so I didn’t know what my temperature was. It never asked you for the temperature anyway. I wouldn’t have been able to do it anyway because I didn’t have one.” (Site A, interviewee 5)

not working and not being able to use own equipment (*interview findings*).

Technology	Facilitators <ul style="list-style-type: none">Some participants mentioned in 'other' that reminder texts or alerts from the app helped them to engage (<i>survey findings</i>).Some participants said that the technology being easy to use helped (<i>interview findings</i>). Barriers <ul style="list-style-type: none">Some participants mentioned in 'other' that difficulties with the app was a barrier (<i>survey findings</i>).Some survey participants mentioned problems relating to the oximeter not working, and tech problems (<i>survey findings</i>).Some participants spoke about how technology systems had some barriers e.g. clunky / not including free text (<i>interview findings</i>).	<ul style="list-style-type: none">"I mean perhaps with others did offer text but maybe they were away I don't have a smart phone, well I don't have a mobile phone." (Site B, interviewee 5)"I didn't have any problems. [...] But no, we didn't have any problems using any of the machinery." (Site L, interviewee 5)
Service factors	Monitoring characteristics Barriers <ul style="list-style-type: none">Some participants mentioned in 'other' that the inconsistent timing of calls was a barrier (<i>survey findings</i>).Some survey participants mentioned problems relating to too many calls (<i>survey findings</i>).Interview findings indicated that monitoring characteristics were a barrier in some cases. For example, not being able to see the data to look at progress, monitoring not capturing difficulties and the frequency of monitoring and recording being too much/too frequent (<i>interview findings</i>).Some participants also wanted more phone calls or a more consistent phone call time (<i>interview findings</i>).	<ul style="list-style-type: none">"I found, to start with I found the text messages useful but the longer they went on the more irritating. I was, I felt like I was chained to the phone and you know and to my equipment. So three times a day is, I know that's necessary to start with but I just felt that maybe twice a day after that might have been better." (Site B, interviewee 3)"Mostly afternoons which were ideal because I'd already done a few readings, a couple of readings. But the thing is the odd time ringing at say 10 o'clock in the morning and because I'd only done one like I'd had to do another one there and then first while I was talking. It would have been better ringing up afternoon type thing so you've already done a couple of readings." (Site F, interviewee 5)
Service characteristics	Facilitators <ul style="list-style-type: none">Some participants mentioned in 'other' that being able to be cared for at home helped them to engage (<i>survey findings</i>). Barriers <ul style="list-style-type: none">Some survey participants mentioned problems relating to a delay in enrolment, and limited hours of service operating (<i>survey findings</i>).Some participants wanted to continue monitoring after the service (<i>interview findings</i>).	<ul style="list-style-type: none">"I think that lapse in time was because they didn't realise that I had been discharged, so there was a little bit of miscommunication there I think. But again it's a new thing isn't it so." (Site B, interviewee 1)"They were quite easy to contact." (Site C, interviewee 2)"So at the time I wasn't having any shortness of breath, any light headedness or anything but if that changed then obviously, I'd need to phone them but I didn't have their number." (Site C, interviewee 4)
Scope of service	Barriers <ul style="list-style-type: none">Scope of service was a barrier to escalation as some participants didn't know whether to ring to ask for help. Additionally others felt the service was not holistic (i.e. did not cover all wider symptoms of COVID) (<i>interview findings</i>).	<ul style="list-style-type: none">"But I think what confused them was that there was – and I wasn't really dropping below 90 at that time and I think they thought it was COPD so they didn't you know – that's my only feedback to all of it. There again just because you've got COVID and just because you're positive, if you don't tick the boxes like short of breath, cough and high temp [...] it will all unfold in a minute [...] I think they probably had a very clear directive as to what they were looking for the objective of this support system yeah. And I sort of slipped – I can't say slipped through the net." (Site B, interviewee 2)"I think somebody should maybe discuss some of the other things. To me, I got the impression that as long as I as breathing and my oxygen levels were reasonable, that is all they were interested in. Where there were other things that I was a bit concerned about which I don't think were discussed unless I

Availability of treatment	Barriers	<ul style="list-style-type: none"> Some survey participants mentioned problems relating to difficulties contacting their GP (<i>survey findings</i>). Inability to receive oxygen in own home if needed (<i>interview findings</i>). 	<i>brought it up.</i> " (Site J, interviewee 1)
			<ul style="list-style-type: none"> "At times I could have done with an extra shot of oxygen I can assure you." (Site F, interviewee 5) "I would just think that this is a service that should be there for everybody." (Site B, interviewee 4)

<i>Very easy</i>	177 (59.0)	269 (62.4)	110 (65.9)	219 (61.5)	111 (60.0)	13 (41.9)	408 (62.5)	35 (50.0)	161 (57.3)	242 (63.0)
<i>Easy</i>	82 (27.3)	106 (24.6)	35 (21.0)	91 (25.6)	48 (25.9)	15 (48.4)	165 (25.3)	18 (25.7)	79 (28.1)	93 (24.2)
<i>Neutral</i>	30 (10.0)	33 (7.7)	16 (9.6)	32 (9.0)	14 (7.6)	1 (3.2)	52 (8.0)	11 (15.7)	22 (7.8)	34 (8.9)
<i>Difficult/very difficult</i>	11 (3.6)	23 (5.3)	6 (3.6)	14 (4.0)	12 (6.4)	2 (6.4)	28 (4.3)	6 (8.6)	19 (6.8)	15 (3.9)
Total	300	431	167	356	185	31	653	70	281	384
P-value	p=0.437 ¹		p=0.216 ²			p=0.015 ¹		p=0.128 ¹		
Rating of the service										
<i>Excellent</i>	247 (65.5)	360 (69.2)	137 (71.0)	295 (69.7)	159 (64.9)	22 (52.4)	555 (68.2)	50 (70.4)	228 (67.1)	325 (68.9)
<i>Good</i>	106 (28.1)	126 (24.2)	48 (24.9)	101 (23.9)	69 (28.2)	13 (31.0)	206 (25.3)	18 (25.4)	85 (25.0)	121 (25.6)
<i>Neutral</i>	21 (5.6)	28 (5.4)	8 (4.1)	23 (5.4)	13 (5.3)	6 (14.3)	46 (5.7)	2 (2.8)	25 (7.4)	20 (4.2)
<i>Poor/very poor</i>	3 (0.8)	6 (1.2)	0	4 (0.9)	4 (1.6)	1 (2.4)	7 (0.8)	1 (1.4)	2 (0.6)	6 (1.2)
Total	377	520	193	423	245	42	814	71	340	472
P-value	p=0.289 ¹		p=0.034 ²			p=0.634 ¹		p=0.478 ¹		
How helpful was the service										
<i>Very helpful</i>	225 (60.3)	339 (66.3)	129 (67.2)	277 (66.7)	145 (60.2)	18 (42.9)	515 (64.2)	47 (65.3)	213 (63.8)	291 (62.3)
<i>Helpful</i>	105 (28.2)	128 (25.0)	47 (24.5)	104 (25.1)	66 (27.4)	16 (38.1)	207 (25.8)	20 (27.8)	86 (25.7)	131 (28.1)
<i>Neutral</i>	33 (8.8)	29 (5.7)	13 (6.8)	24 (5.8)	20 (8.3)	5 (11.9)	58 (7.2)	2 (2.8)	26 (7.8)	30 (6.4)
<i>Not very helpful/not at all helpful</i>	10 (2.6)	15 (3.0)	3 (1.5)	10 (2.4)	10 (4.2)	3 (7.1)	22 (2.7)	3 (4.2)	9 (2.7)	15 (3.2)
Total	373	511	192	415	241	42	802	72	334	467
P-value	p=0.056 ¹		p=0.004 ²			p=0.762 ¹		p=0.515 ¹		

Note. Bold text indicates significance at p< .01 level.

P-values are derived from Mann-Whitney U test¹ or Kruskal-Wallis H test.²

Table 2b. Socioeconomic factors and patient engagement with and experience of the service.

	Level of education			Employment status		First language		Living situation	
	No formal qualification <i>N (%)</i>	GCSE level or equivalent <i>N (%)</i>	AS, A level, degree level or equivalent <i>N (%)</i>	Full-time, part-time or self-employed <i>N (%)</i>	Not in employment <i>N (%)</i>	English first language <i>N (%)</i>	Other <i>N (%)</i>	Living alone <i>N (%)</i>	Living with others <i>N (%)</i>
Understanding information									
<i>Very easy</i>	86 (60.1)	178 (67.7)	202 (65.2)	325 (66.5)	238 (60.6)	532 (63.9)	30 (51.7)	73 (55.6)	477 (64.3)
<i>Easy</i>	51 (35.7)	74 (28.1)	89 (28.7)	142 (29.0)	129 (32.8)	254 (30.5)	22 (37.9)	49 (38.0)	219 (29.5)
<i>Neutral</i>	5 (3.5)	11 (4.2)	15 (4.8)	20 (4.1)	21 (5.3)	39 (4.7)	6 (10.3)	5 (3.9)	39 (5.3)
<i>Difficult/very difficult</i>	1 (0.7)	0	4 (1.3)	2 (0.4)	5 (1.3)	8 (1.0)	0	2 (1.6)	7 (0.9)
Total	143	263	310	489	393	833	58	129	742
P-value	p=0.352 ²			p=0.053 ¹		p=0.050 ¹		p=0.134 ¹	
Achievability of service tasks									
Using the oximeter									
<i>Very easy</i>	115 (80.4)	216 (82.1)	261 (82.3)	404 (82.8)	315 (78.8)	675 (80.5)	44 (75.9)	103 (76.9)	604 (81.0)
<i>Easy</i>	28 (19.6)	44 (16.7)	45 (14.2)	76 (15.6)	74 (18.5)	146 (17.4)	13 (22.4)	27 (20.1)	126 (16.9)
<i>Neutral</i>	0	1 (0.4)	9 (2.8)	8 (1.6)	6 (1.5)	13 (1.5)	1 (1.7)	2 (1.5)	12 (1.6)
<i>Difficult/very difficult</i>	0	2 (0.8)	2 (0.6)	0	5 (1.3)	5 (0.6)	0	2 (1.5)	4 (0.5)
Total	143	263	317	488	400	839	58	134	746
P-value	p=0.931 ²			p=0.115 ¹		p=0.418 ¹		p=0.262 ¹	
Recording readings									
<i>Very easy</i>	95 (75.4)	190 (79.5)	223 (76.6)	359 (79.1)	257 (72.8)	580 (76.3)	37 (67.3)	79 (68.1)	526 (76.5)
<i>Easy</i>	30 (23.8)	44 (18.4)	55 (18.9)	82 (18.1)	86 (24.4)	159 (20.9)	16 (29.1)	31 (26.7)	144 (20.9)
<i>Neutral</i>	0	3 (1.3)	9 (3.1)	9 (2.0)	6 (1.7)	13 (1.7)	2 (3.6)	1 (0.9)	14 (2.0)
<i>Difficult/very difficult</i>	1 (0.8)	2 (0.8)	4 (1.4)	4 (0.9)	4 (1.1)	8 (1.1)	0	5 (4.3)	4 (0.6)
Total	126	239	291	454	353	760	55	116	688
P-value	p=0.600 ²			p=0.044 ¹		p=0.136 ¹		p=0.043 ¹	
Providing readings									
<i>Very easy</i>	105 (76.1)	196 (77.5)	231 (75.2)	378 (79.1)	278 (73.2)	618 (76.3)	39 (69.6)	92 (70.8)	553 (76.7)
<i>Easy</i>	30 (21.7)	53 (20.9)	64 (20.8)	91 (19.0)	90 (23.7)	172 (21.2)	14 (25.0)	33 (25.4)	149 (20.7)
<i>Neutral</i>	3 (2.2)	4 (1.6)	9 (2.9)	7 (1.5)	10 (2.6)	16 (2.0)	3 (5.4)	3 (2.3)	16 (2.2)
<i>Difficult/very difficult</i>	0	0	3 (1.0)	2 (0.4)	2 (0.6)	4 (0.5)	0	2 (1.6)	3 (0.4)
Total	138	253	307	478	380	810	56	130	721

P-value	p=0.753²			p=0.038¹		p=0.229¹		p=0.138¹	
Seeking further help									
<i>Very easy</i>	76 (62.3)	146 (68.5)	146 (57.7)	277 (65.3)	165 (55.9)	410 (61.1)	32 (58.2)	59 (54.1)	374 (62.0)
<i>Easy</i>	39 (32.0)	48 (22.5)	63 (24.9)	101 (23.8)	84 (28.5)	172 (25.6)	16 (29.1)	33 (30.3)	152 (25.2)
<i>Neutral</i>	4 (3.3)	16 (7.5)	23 (9.1)	32 (7.5)	28 (9.5)	56 (8.3)	6 (10.9)	7 (6.4)	53 (8.8)
<i>Difficult/very difficult</i>	3 (2.5)	3 (1.4)	21 (8.3)	14 (3.3)	18 (6.1)	33 (4.9)	1 (1.8)	10 (9.2)	24 (4.0)
<i>Total</i>	122	213	253	424	295	671	55	109	603
P-value	p=0.015²			p=0.007¹		p=0.775¹		p=0.100¹	
Rating of the service									
<i>Excellent</i>	109 (75.9)	172 (66.7)	208 (66.2)	356 (72.7)	247 (63.2)	564 (67.8)	40 (67.8)	88 (67.2)	500 (67.5)
<i>Good</i>	29 (20.1)	69 (26.7)	84 (26.8)	114 (23.3)	111 (28.4)	213 (25.6)	16 (27.1)	34 (26.0)	194 (26.2)
<i>Neutral</i>	5 (3.5)	16 (6.2)	16 (5.1)	19 (3.9)	26 (6.6)	47 (5.6)	3 (5.1)	7 (5.3)	40 (5.4)
<i>Poor/very poor</i>	1 (0.7)	1 (0.4)	6 (1.9)	1 (0.2)	7 (1.8)	8 (0.9)	0	2 (1.5)	7 (0.9)
<i>Total</i>	144	258	314	490	391	832	59	131	741
P-value	p=0.094²			p=0.001¹		p=0.932¹		p=0.912¹	
How helpful was the service									
<i>Very helpful</i>									
<i>Helpful</i>	99 (69.2)	164 (63.8)	183 (59.6)	326 (68.1)	232 (59.6)	524 (63.9)	34 (58.6)	83 (63.4)	467 (64.1)
<i>Neutral</i>	36 (25.2)	71 (27.6)	88 (28.7)	120 (25.1)	108 (27.8)	214 (26.1)	18 (31.0)	37 (28.2)	189 (25.1)
<i>Not very helpful/not at all helpful</i>	6 (4.2)	17 (6.6)	23 (7.5)	28 (5.8)	30 (7.7)	59 (7.2)	4 (6.9)	7 (5.3)	51 (7.0)
<i>Total</i>	2 (1.4)	5 (1.9)	13 (4.3)	5 (1.0)	19 (4.90)	23 (2.8)	2 (3.4)	4 (3.1)	22 (3.1)
	143	257	307	479	389	820	58	131	729
P-value	p=0.077²			p=0.003¹		p=0.464¹		p=0.972¹	

Note. Bold text indicates significance at $p < .01$ level.

P-values are derived from Mann-Whitney U test¹ or Kruskal-Wallis H test.²

Table 2c. Geographic factors and patient engagement with and experience of the service.

	Deprivation score Deciles*				
	D1&2 (most deprived) N (%)	D3&4 N (%)	D5&6 N (%)	D7&8 N (%)	D9&10 (least deprived) N (%)
Understanding information					
<i>Very easy</i>	113 (62.4)	80 (59.7)	93 (63.7)	107 (67.3)	92 (69.2)
<i>Easy</i>	58 (32.0)	46 (34.3)	43 (29.5)	46 (28.9)	37 (27.8)
<i>Neutral</i>	10 (5.5)	6 (4.5)	7 (4.8)	5 (3.1)	4 (3.0)
<i>Difficult/Very difficult</i>	0	2 (1.5)	3 (2.1)	1 (0.6)	0
Total	181	134	146	159	133
P-value	p=0.404 ²				
Achievability of service tasks					
Using the oximeter					
<i>Very easy</i>	132 (74.2)	108 (80.0)	130 (87.8)	134 (83.8)	116 (84.1)
<i>Easy</i>	43 (24.2)	23 (17.0)	14 (9.5)	23 (14.4)	20 (14.5)
<i>Neutral</i>	3 (1.7)	3 (2.2)	3 (2.0)	2 (1.3)	2 (1.4)
<i>Difficult/Very difficult</i>	0	1 (0.7)	1 (0.7)	1 (0.6)	0
Total	178	135	148	160	138
P-value	p=0.026 ²				
Recording readings					
<i>Very easy</i>	110 (70.1)	94 (76.4)	110 (80.3)	118 (81.4)	98 (79.7)
<i>Easy</i>	40 (25.5)	23 (18.7)	26 (19.0)	24 (16.6)	21 (17.1)
<i>Neutral</i>	4 (2.5)	4 (3.3)	1 (0.7)	3 (2.1)	2 (1.6)
<i>Difficult/Very difficult</i>	3 (1.9)	2 (1.6)	0	0	2 (1.6)
Total	157	123	137	145	123
P-value	p=0.107 ²				
Providing readings					
<i>Very easy</i>	127 (73.8)	103 (76.9)	111 (77.6)	122 (79.2)	103 (78.6)
<i>Easy</i>	39 (22.7)	25 (18.7)	29 (20.3)	29 (18.8)	26 (19.8)
<i>Neutral</i>	5 (2.9)	5 (3.7)	3 (2.1)	3 (1.9)	0
<i>Difficult/Very difficult</i>	1 (0.6)	1 (0.7)	0	0	2 (1.6)
Total	172	134	143	154	131
P-value	p=0.772 ²				

Seeking further help					
<i>Very easy</i>	89 (61.8)	63 (55.8)	73 (60.8)	82 (63.1)	72 (68.6)
<i>Easy</i>	37 (25.7)	33 (29.2)	32 (26.7)	32 (24.6)	22 (21.0)
<i>Neutral</i>	12 (8.3)	10 (8.8)	9 (7.5)	14 (10.8)	6 (5.7)
<i>Difficult/Very difficult</i>	6 (4.2)	7 (6.2)	6 (5.0)	2 (1.5)	5 (4.8)
<i>Total</i>	144	113	120	130	105
P-value	p=0.425 ²				
Rating of the service					
<i>Excellent</i>	116 (65.2)	87 (65.9)	105 (71.4)	108 (67.5)	97 (71.9)
<i>Good</i>	53 (29.8)	40 (30.3)	36 (24.5)	40 (25.0)	29 (21.5)
<i>Neutral</i>	9 (5.1)	4 (3.0)	5 (3.4)	11 (6.9)	5 (3.7)
<i>Poor/Very poor</i>	0	1 (0.8)	1 (0.7)	1 (0.6)	4 (2.9)
<i>Total</i>	178	132	147	160	135
P-value	p=0.699 ²				
How helpful was the service					
<i>Very helpful</i>	113 (64.2)	83 (64.3)	98 (67.1)	97 (61.8)	91 (68.4)
<i>Helpful</i>	48 (27.3)	34 (26.4)	34 (23.3)	47 (29.9)	30 (22.6)
<i>Neutral</i>	15 (8.5)	9 (7.0)	8 (5.5)	7 (4.5)	7 (5.3)
<i>Not very helpful/Not at all helpful</i>	0	3 (2.4)	6 (4.1)	6 (3.8)	5 (3.8)
<i>Total</i>	176	129	146	157	133
P-value	p=0.874 ²				

Note. Bold text indicates significance at p< .01 level.

P-values are derived from Mann-Whitney U test¹ or Kruskal-Wallis H test.²

* Deprivation by LSOA (Index of Multiple Deprivation decile).

Table 3. Multivariable logistic regression for patient-reported problems to the service

Variable	Participants	Participants reporting a problem (%)	Odds ratio	95% CI (Lower-upper)	P-value
Health status					0.727
Not limited at all	482	114 (23.7%)	Ref.		
Limited a little or a lot	345	87 (25.2%)	1.072	0.725-1.585	
Age					<0.001
Younger than 50 years	195	40 (20.5%)	Ref.		
50-64 years	428	95 (22.2%)	2.295	1.314-4.009	0.003
65-79 years	256	71 (27.7%)	2.910	1.606-5.273	<0.001
80 years and over	43	15 (34.9%)	7.639	2.869-20.339	<0.001
Education					<0.001
No formal qualifications	146	26 (17.8%)	Ref.		
GCSE level or equivalent	267	46 (17.2%)	1.338	0.728-2.460	0.348
AS level, A level, degree or equivalent	319	102 (32.0%)	3.039	1.726-5.351	<0.001
Ethnicity					0.081
White ethnic groups	830	195 (23.5%)	Ref.		
Minority ethnic groups	74	23 (31.1%)	1.794	0.931-3.457	
Mode of monitoring					0.123
Analogue	435	96 (22.1%)	Ref.		
Tech-enabled	501	132 (26.3%)	1.363	0.920-2.021	

Table 4. Characteristics of patients using tech-enabled compared to analogue-only modes of monitoring

	Tech-enabled mode N (%)	Analogue-only mode N (%)	P value of difference*
Gender			0.520
Female	290 (58.9)	241 (56.8)	
Male	202 (41.1)	183 (43.2)	
<i>Total N</i>	<i>492 (100)</i>	<i>424 (100)</i>	
Age			<0.001
< 50 years	126 (25.4)	69 (16.2)	
50 – 65	244 (49.2)	184 (43.2)	
66 – 79	118 (23.8)	138 (32.4)	
>= 80 years	8 (1.6)	35 (8.2)	
<i>Total N</i>	<i>496 (100)</i>	<i>426 (100)</i>	
Ethnicity			0.046
White British, Irish, other white background	459 (93.5)	371 (89.8)	
Other background	32 (6.5)	42 (10.2)	
<i>Total N</i>	<i>491 (100)</i>	<i>413 (100)</i>	
English first language			0.352
Yes	463 (94.1)	386 (92.6)	
No	29 (5.9)	31 (7.4)	
<i>Total N</i>	<i>492 (100)</i>	<i>417 (100)</i>	
Education			<0.001
No formal qualification	55 (13.6)	91 (27.8)	
GCSE/CSE/O level	149 (36.8)	118 (36.1)	
As level, A level, degree level or higher	201 (49.6)	118 (36.1)	
<i>Total N</i>	<i>405 (100)</i>	<i>327 (100)</i>	
Employment			<0.001
Working full time/part time/self-employed	308 (61.5)	205 (47.1)	
Not in work due to poor health/disability	27 (5.4)	38 (8.7)	
Retired	123 (24.6)	153 (35.2)	
<i>Total N</i>	<i>458 (100)</i>	<i>396 (100)</i>	
Health			0.004
Limited a little or a lot	165 (37.1)	180 (47.1)	
Not limited at all	280 (62.9)	202 (52.9)	
<i>Total N</i>	<i>445 (100)</i>	<i>382 (100)</i>	
Deprivation score**			0.249
1-2 (Most deprived)	92 (22.7)	90 (24.9)	
3-4	70 (17.2)	67 (18.6)	
5-6	74 (18.2)	75 (20.8)	
7-8	85 (20.9)	76 (21.1)	
9-10 (Least deprived)	85 (20.9)	53 (14.7)	
<i>Total N</i>	<i>406 (100)</i>	<i>361 (100)</i>	

* P-values derived from Pearson's chi-square tests, bold denotes statistical significance at p<.05 level.

** Deprivation by LSOA (IMD decile).

Table 5. Logistic regression with patient mode of submitting data as the dependent variable and patient characteristics as independent variables

Variable	Odds ratio	95% CI (Lower-upper)	P-value*
Age			0.005
Younger than 50 years	Ref.		
50-64 years	0.676	0.429-1.064	0.091
65-79 years	0.563	0.326-0.972	0.039
80 years and over	0.141	0.047-0.424	<0.001
Education			0.011
No formal qualification	Ref.		
GCSE level or equivalent	1.569	0.981-2.508	0.060
AS level, A level or degree or equivalent	2.020	1.273-3.206	0.003
Health status			0.159
Limited a little or a lot	Ref.		
Not at all limited	1.276	0.909-1.792	
Ethnicity			0.043
White ethnic groups	Ref.		
Minority ethnic groups	0.537	0.294-0.982	
Employment			0.368
Employed (full-time, part-time, self-employed)	Ref.		
Other	1.197	0.809-1.773	

*Bold indicates significance at p<0.05 level

Table 6. Patient and staff survey responses based on mode of monitoring

Table 6a: Patient experiences of the service based on mode of monitoring.

	Tech-enabled mode N (%)	Analogue-only mode N (%)	P-value*
Recording readings			p=0.009
Very easy	395 (77.0)	305 (70.0)	
Easy	105 (20.5)	108 (24.8)	
Neutral	10 (1.9)	11 (2.5)	
Difficult/Very difficult	3 (0.6)	12 (2.8)	
<i>Total N</i>	<i>513 (100)</i>	<i>436 (100)</i>	
Providing readings to the service			p=0.001
Very easy	417 (78.4)	333 (69.7)	
Easy	106 (19.9)	123 (25.7)	
Neutral	7 (1.3)	14 (2.9)	
Difficult/Very difficult	2 (0.4)	8 (1.6)	
<i>Total N</i>	<i>532 (100)</i>	<i>478 (100)</i>	
Seeking further help if have concerns about health			p=0.006
Very easy	283 (65.1)	234 (55.5)	
Easy	97 (22.3)	124 (29.4)	
Neutral	36 (8.3)	39 (9.2)	
Difficult/Very difficult	19 (4.4)	25 (6.0)	
<i>Total N</i>	<i>435 (100)</i>	<i>422 (100)</i>	
Contacting a healthcare professional			p=0.158
Very easy	248 (56.4)	220 (51.9)	
Easy	125 (28.4)	126 (29.7)	
Neutral	36 (8.2)	48 (11.3)	
Difficult/Very difficult	31 (7.1)	30 (7.1)	
<i>Total N</i>	<i>440 (100)</i>	<i>424 (100)</i>	
How often spoke to a member of the COVID care at home team			p<0.001
Several times a day	57 (10.4)	112 (21.8)	
Once a day	110 (20.1)	166 (32.3)	
Several times a week	149 (27.3)	121 (23.5)	
Once a week	99 (18.1)	40 (7.8)	
Less than once a week	101 (18.5)	41 (8.0)	
Not at all	30 (5.5)	34 (6.6)	
<i>Total N</i>	<i>546 (100)</i>	<i>514 (100)</i>	
Contact with COVID care at home team			p=0.559
Excellent	348 (65.8)	323 (65.0)	
Good	148 (28.0)	129 (26.0)	
Neutral	28 (5.3)	34 (6.8)	
Poor/Very poor	5 (1.0)	11 (2.2)	
<i>Total N</i>	<i>529 (100)</i>	<i>497 (100)</i>	

*P-values are derived from Mann-Whitney U tests, bold text indicates significance at p< .05 level.

Table 6b: Staff experiences of delivering the service by mode of monitoring

	Tech-enabled and analogue site*	Analogue-only site**	P-value***
	N (%)	N (%)	
Whether staff agreed there were sufficient capacity/resources to deliver the service¹			p=0.554
Strongly agree	14 (26.9)	5 (29.4)	
Agree	25 (48.1)	6 (35.3)	
Neither agree nor disagree	8 (15.4)	1 (5.9)	
Disagree/Strongly disagree	5 (9.6)	5 (29.4)	
<i>Total N</i>	<i>52 (100)</i>	<i>17 (100)</i>	
Impact on staff workload³			Pp=0.034
Very positive	39 (19.4)	7 (10.8)	
Positive	65 (32.3)	16 (24.6)	
Neutral	59 (29.4)	26 (40.0)	
Negative/Very negative	38 (18.9)	16 (24.6)	
<i>Total N</i>	<i>201 (100)</i>	<i>65 (100)</i>	
How staff found monitoring patients²			p=0.005
Very Easy	40 (25.3)	6 (14.0)	
Easy	82 (51.9)	18 (41.9)	
Neutral	32 (20.3)	15 (34.9)	
Difficult/Very difficult	4 (2.5)	4 (9.3)	
<i>Total N</i>	<i>158 (100)</i>	<i>43 (100)</i>	
How staff found using IT systems²			p=0.078
Very Easy	34 (20.1)	8 (16.7)	
Easy	83 (49.1)	19 (39.6)	
Neutral	43 (25.4)	13 (27.1)	
Difficult/Very difficult	9 (5.3)	8 (16.7)	
<i>Total N</i>	<i>169 (100)</i>	<i>48 (100)</i>	

*Total of 66 (22.6%) staff respondents working in analogue-only services .

**Total of 226 (77.4%) staff respondents working in tech-enabled and analogue services.

***P values are derived from Mann-Whitney U tests, bold text indicates significance at p< .05 level.

¹Clinical leads/service managers only; ²delivery staff only; ³total staff (service leads and delivery staff).