An evaluation of Clera, a web application designed to support communication between clinicians, patients, and families in North Bristol NHS Trust

Final evaluation report

Working in collaboration with

North Bristol NHS Trust is one of the largest hospital trusts in the UK, employing over 13,000 staff, providing services for approximately 750,000 people, and delivering healthcare at a number of sites. North Bristol Trust piloted Clera in one of their wards.

Clera Healthcare Limited launched the Clera platform, aiming to allow healthcare teams to communicate with their patients and families. Their mission is to ensure every patient receives the communication and compassion they deserve, while reducing the pressure on ever-busier healthcare teams.

The Office for Life Sciences (OLS) is a government organisation promoting research, innovation, and the use of technology to improve health and care.

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Context

Hospital ward staff spend 14% of their time providing updates about care to families and next of kin. Despite their efforts, only 8% of families report that they are "*very happy*" with the level of updates they receive from the hospital ward staff (Ghiacy, 2024).

Clera is a web application that allows clinicians to message patients and their families. The application can involve patients in their care, improving their medical information recall. Clera can also free-up staff time from updating patients and families. The aim of the evaluation was to gain feedback from North Bristol NHS Trust (NBT), patients, and families, to inform functionality and pathway integration needs of Clera.

Key results

Following Clera implementation:

- 58% of patients and 70% of family members felt well informed by the ward
- 75% of patients and 67% of family members knew what the care plan was that day
- Clera contributed to reducing disparities in access to care updates when examining age, IMD, distance from the hospital, disability, and employment status of family members
- 92% of staff valued the effect Clera had on their work
- 86% of staff could easily integrate Clera into their existing work

Recommendations

- Ensure all staff receive comprehensive Clera training to promote consistent usage
- Streamline patient consent and detail confirmation processes to minimise administrative burdens for staff
- Enhance Clera's messaging system with features like message filtering options and integration with existing hospital systems
- Improve family communication by offering tailored updates, regular notifications even when no changes occur, and the option for follow-up calls when needed
- Seek grant funding to enhance the usability and integration of the technology and carry out a longer period of evaluation

Conclusion

In the small-scale pilot at NBT, Clera improved communication between staff, patients, and families, fostering greater transparency and trust. Minor usability challenges were noted but were outweighed by the platform's impact on efficiency and satisfaction. Further implementation and evaluation are required as the Clera features are extended, informed by recommendations from the current evaluation.

1. Introduction

1.1. Context

Hospital ward staff spend 14% of their time providing updates about care to families and next of kin. Despite their efforts, only 8% of families report that they are "*very happy*" with the level of updates they receive from hospital (Ghiacy, 2024). This level of dissatisfaction can lead to poor patient experience and potential complaints.

The Infectious Disease Unit in North Bristol NHS Trust (NBT) has reported a dual communication problem with patients whilst in hospital. Firstly, some patients have trouble with recall when they are in acute settings, forgetting much of what is communicated to them by hospital clinicians almost immediately. Evidence has demonstrated that patients recall and comprehend only half of the medical information they receive from their physicians (Schillinger et al., 2003), and recall of information is poor regardless of literacy level (McCarthy et al., 2012). Secondly, many families of patients in hospital are unhappy with the level of communication they receive about their family members (Fumis et al., 2008).

Although accompanied patients recall more than unaccompanied ones (Jansen et al., 2010), there is also an inequity in the clarity of updates received. For example, families who speak English as a second language or have trouble accessing their doctor (such as those who work full-time or live far away) having a worse service in this respect (Fumis et al., 2008; Ngui & Flores, 2006).

1.2. Clera

Jonathan Abeles and Alice Appleton are NHS doctors who became frustrated with their lack of time and ability to effectively update families whilst working on hospital wards. They spent the last three years exploring this problem and developed an innovation aiming to resolve this. Clera is a web application, created by Clera Healthcare Limited, which allows clinicians to message patients and their families. If enabled by staff, patients and families can message back. The web application can be used on phones, tablets, and desktop computers. Clera aims to:

- Inform families in a more equitable way
- Increase patient involvement in their care and help them to improve their medical information recall
- Optimise staff time by reducing the burden of updating patients and families

Clera was implemented in the Infectious Disease Unit at North Bristol NHS Trust from 10th February 2025 to 28th February 2025. Implementation involved a 15-minute training session for the resident doctors on the ward, hosted by Clera Healthcare, consisting of a demonstration and support with setting up staff accounts. The rest of the training was informal, and the knowledge of

how to use Clera was passed between clinicians. For an overview of the Clera standard operating procedure, please see ‘Appendix A: Standard operating procedure’. Figure 1 highlights the home page of Clera, which can be integrated within electronic patient records (EPRs), although in this pilot it was used as a standalone web application. When a staff member creates a user profile, they are prompted to sign in using their Microsoft credentials. They create a password, and Clera can activate two-factor authentication if requested by the trust.

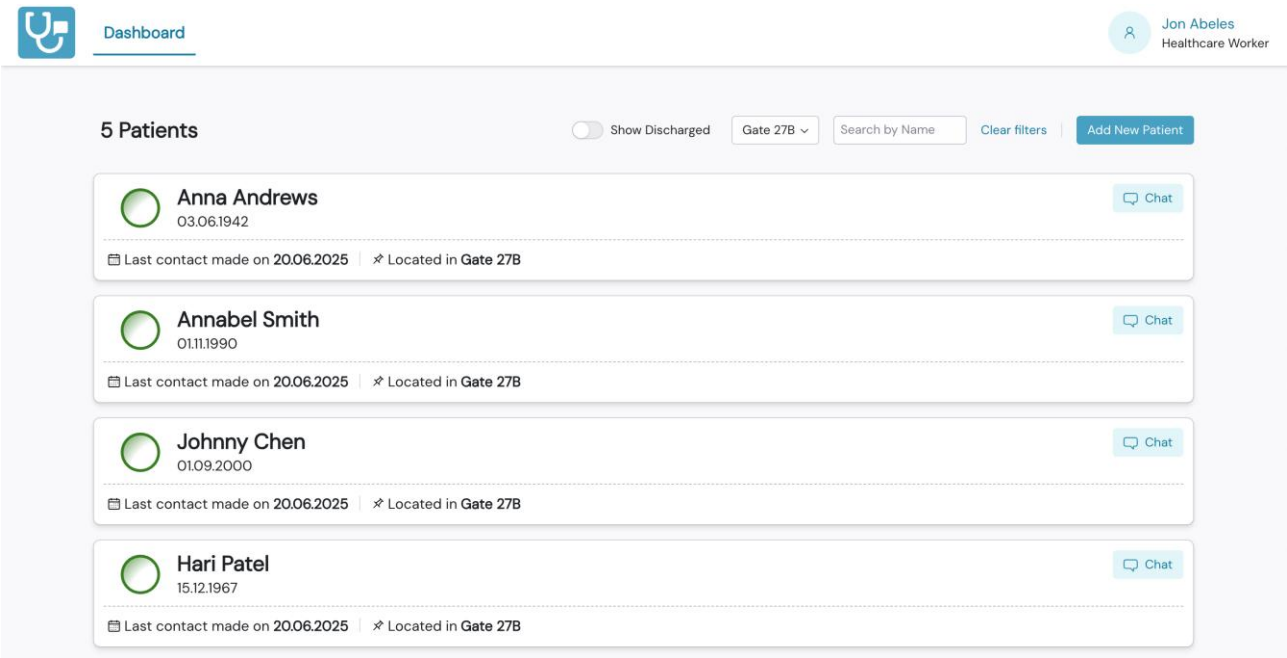

Figure 1: Homepage of the Clera Platform (clinician view). Please note that this view only includes dummy patient profiles.

When a patient is added to Clera, an automated text is sent to the included contacts, asking the contact to respond with the patient’s initials and their date of birth. If the contact responds correctly, the clinician can ‘confirm’ that the contact is correct and begin messaging the contact with updates.

1.3. Purpose of the report

This evaluation was funded by Health Innovation West of England as part of the Office of Life Sciences commission to provide real-world validation of health and care innovations. The current report provides the findings and key recommendations from the evaluation conducted by Unity Insights into the impact of Clera on patients, their families, and healthcare professionals within the Infectious Disease Unit (ward 27B) at North Bristol NHS Trust.

2. Methodology

2.1. Analysis and evaluation approach

The purpose of this evaluation was to assess the implementation, delivery, and impact of Clera through a mixed-methods design using quantitative and qualitative analytical methods. A logic model workshop was completed to identify impacts, outcomes, and metrics for measurement. The outcome of the logic model can be found in 'Appendix B: Logic model' and was used to create the evaluation questions.

Evaluation questions

The evaluation questions were as follows:

1. What is the impact of Clera on patients and families?
    a. To what extent do patients and families feel more informed about their care due to Clera?
    b. Does Clera allow for more equitable access to care updates?
    c. Do families receive more frequent contacts following the implementation of Clera?
    d. Does Clera lead to an improvement in patient recall?
2. What is the impact of Clera on staff members?
    a. Are staff satisfied with the Clera platform?
    b. How does Clera impact the time spent by staff updating patients and families?

Evaluation data

There were seven sources of evaluation data. Table 1 shows how data sources were used to answer each evaluation question.

Table 1: Sources used in the evaluation linked to evaluation questions.

Evaluation questions	Data sources						
	Clera app data (A)	Documented contacts data (B)	Patient and family satisfaction survey (C)	Patient recall survey (D)	Staff survey (E)	Staff interviews (F)	Time to care survey (G)
1.What is the impact of Clera on patients and families?	✓	✓	✓	✓			
1a. To what extent do patients and families feel more informed about their care due to Clera?			✓				

Evaluation questions	Data sources						
	Clera app data (A)	Documented contacts data (B)	Patient and family satisfaction survey (C)	Patient recall survey (D)	Staff survey (E)	Staff interviews (F)	Time to care survey (G)
1b. Does Clera allow for more equitable access to care updates?			✓				
1c. Do families receive more frequent contacts following the implementation of Clera?		✓	✓				
1d. Does Clera lead to an improvement in patient recall?				✓			

Evaluation questions	Data sources						
	Clera app data (A)	Documented contacts data (B)	Patient and family satisfaction survey (C)	Patient recall survey (D)	Staff survey (E)	Staff interviews (F)	Time to care survey (G)
2. What is the impact of Clera on staff members?			✓		✓	✓	✓
2a. Are staff satisfied with the Clera platform?			✓		✓	✓	
2b. How does Clera impact the time spent by staff updating patients and families?			✓				✓

Evaluation data collection timeline

Some data sources had baseline data collected as a comparator. The baseline and follow-up data collection periods differed for each data source. The overall timeline is shown in Figure 2 below, and the detail of the different data collection periods and the reasons for these are described in Section 2.2.

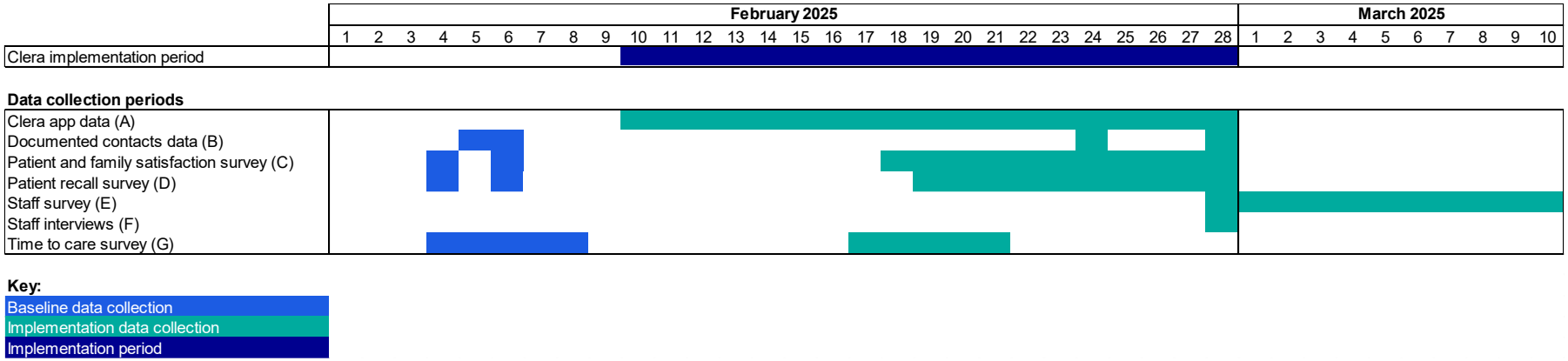

Figure 2: The timeline of data collection for the evaluation.

2.2. Data collection and analysis

App data [data source A]

Data on the number of updates sent to patients (N = 19) and family members (N = 62) and whether patients or family members connected after being contacted via Clera was collected from Clera platform during the pilot between 10th February 2025 and 28th February 2025. The number of patient subjects (e.g. the patient and their family member; N = 38) that had updates sent was also collected, alongside information surrounding the level of detail and general contents of the updates. It should be noted here that the number of patients (N = 19) was not equal to the number of patient subjects (N = 38) as there were 19 cases where updates were sent to family members, however not to patients. Reasons for this included patient choice, the patient not being asked, or the patient not being well enough.

Assumptions and limitations

- Not all ward patients had used Clera, but the current evaluation only included patients who had used Clera in the follow-up period within the follow-up analysis. As a result, the number of update entries per patient during the follow-up period was always at least one.

Documented contacts data [data source B]

The number of documented updates for each patient during their hospital stay was extracted from the patient record. If an update was not documented, it was assumed that it had not occurred. The number of documented updates in the pre-implementation period was collated through a cross-section of all patients on ward 27B on 5th February 2025 and 6th February 2025 (N = 30). Following implementation of Clera, the Clera team recorded the number of contacts per patient day on Clera. Contacts sent to multiple family members were still counted as one update when sent through Clera. This means that the number of updates through Clera is an underestimation of the true number of updates. Phone calls documented on Clera also counted to the total. Data collection for the post-implementation period occurred on 24th February 2025 and 28th February 2025 (N = 25) on ward 27B and only included patients who had used Clera.

A one-tailed two-proportion z-test was conducted to determine if an observed difference, compared to an expected number who agreed with a statement before and after Clera implementation, was statistically significant ($p < 0.05$). Fisher's exact test was conducted where expected cell counts in the contingency table were less than five to determine if an observed difference, compared to an expected number who agreed with a statement before and after Clera implementation, was statistically significant ($p < 0.05$). To assess robustness, Chi-squared test findings were completed and compared to statistical findings, where a similar finding indicated robustness.

Assumptions and limitations

- The follow-up period only included patients who had signed up to Clera, therefore likely to have received at least one update. Despite this, it is still likely that some patients in the ward had no update as they did not use Clera.

Patient and family satisfaction survey data [data source C]

Patients and family members of patients completed a survey either in person or over the phone in the baseline period (patients: $N = 27$; families: $N = 25$) on 4th February 2025 and 6th February 2025 and in the follow-up period (patients: $N = 12$; families: $N = 27$) between 18th February 2025 and 28th February 2025. All respondents in all surveys spoke fluent English (100%), except for one patient in the baseline survey who was "*not very confident*" at speaking English. Patients and families were asked if they had any further comments to share within the survey. Some respondents noted elements related towards their care, rather than the communication of updates. These responses were removed from the analysis.

Multiple choice questions were analysed through frequency distributions and statistical testing where feasible. Free-text answers were analysed through thematic and sentiment analysis to generate themes.

A one-tailed two-proportion *z*-test was conducted to determine if an observed difference, compared to an expected number who agreed with a statement before and after Clera implementation, was statistically significant ($p < 0.05$). Fisher's exact test was conducted where expected cell counts in the contingency table were less than five to determine if an observed difference, compared to an expected number who agreed with a statement before and after Clera implementation, was statistically significant ($p < 0.05$). To assess robustness, Chi-squared test findings were completed and compared to statistical findings, where a similar finding indicated robustness.

Assumptions and limitations

- There was a smaller sample size within the patient post-implementation survey data, meaning that findings may not be representative of the wider patient population.
- It was not always clear whether free-text responses were related only to communication, rather than the care patients received.

Patient recall survey data [data source D]

A survey was completed by asking patients in ward 27B whether they were able to remember the care plan they were provided the day before. Staff also determined whether the patient was medically fit or had a cognitive impairment and whether the care plan provided to them was complex. This was completed on 4th February 2025 and 6th February 2025 in the baseline period ($N = 30$) and between 19th February 2025 and 28th February 2025 in the follow-up period ($N = 8$). Multiple choice questions were analysed through frequency distributions and statistical testing where feasible. Free-text answers were analysed through thematic and sentiment analysis to generate themes.

Assumptions and limitations

- There was no patient with a cognitive impairment in the follow-up period, resulting in an inability to compare this data with the baseline period. This was because staff did not offer Clera to patients who had a cognitive impairment.[1]
- In the follow-up period, a large proportion of the patients had been discharged, therefore they were called at home, making recall not possible to measure.
- The small sample size in the follow-up period warrants a more careful comparison between baseline and follow-up.
- The wording of survey questions could be interpreted differently, such as the complexity of the care plan.
- Comparing the patient's electronic record to the information remembered by a patient in their care plan may be misleading as not all information in the patient's record is meant to be communicated to the patient.

Staff survey data [data source E]

Statements from the normalisation measure development questionnaire (NoMAD), alongside free text questions, were used to measure staff perceptions of how Clera was integrated into practice. Out of the 23-item questionnaire, seven were used and two were adapted for the staff survey to ensure the questions were suitable for staff who used Clera at NBT. The NoMAD questionnaire is split into four dimensions:

- **Coherence:** The sense-making work people do to understand how an innovation differs from usual practice and whether staff have a shared understanding its purpose.
    - "*Staff in the ward 27B have a shared understanding of the purpose of Clera*"
    - "*I can see the potential value of Clera for my work*"
- **Cognitive participation:** The relational work that people do to sustain shared routine practice, including whether they are open to working with others, and their intention to support its use.
    - "*Management adequately support Clera's delivery*"
- **Collective action:** The operational work that people do to enact the innovation, including whether people have the appropriate skills and there are sufficient resources and training.
    - "*I can easily integrate Clera's delivery into my existing work*" based on the feedback from the early survey respondents, the data collector adapted the statement to make it more relevant to the current pilot. The adapted text was: "*If Clera was*

[1] Clera can be used for patients with cognitive impairments, but updates would be sent to the families and not the patients themselves.

integrated into the hospital system with automatic consent, I would easily be able to integrate it into my existing work". Responses to both statements were analysed separately.

    - "*Sufficient training was provided to enable staff to implement Clera*"

- **Reflexive monitoring:** The appraisal work that people do to assess whether the innovation is effective, useful and worthwhile, and their ability to modify their role.
    - "*I value the effects Clera's delivery has had on my work*"

A post-implementation staff satisfaction survey was completed by staff members in ward 27B to understand staff perceptions of using Clera. Overall, there were 12 respondents to the survey, completed between 28th February 2025 and 10th March 2025. Multiple choice questions were analysed through frequency distributions and statistical testing where feasible. Free-text answers were analysed through thematic and sentiment analysis to generate themes.

Staff interview data [data source F]

Resident doctors (from various grades) working on 28th February 2025 were invited to take part in staff interviews, resulting in five interviews being conducted. This was completed with paper interview forms and notes completed by the interviewer. Two respondents to the staff survey also answered the following questions from the interview: "*what changes or improvements could be beneficial to the Clera platform? Why?*". Interview transcriptions were then shared with the evaluation team.

Time to care survey data [data source G]

The time to care staff survey data collected information from doctors surrounding how many family members, carers, and patients the staff member updated each day and how much time they spent completing updates per day. The time spent on updates was divided by the number of updates to identify the number of minutes per contact for each staff member completing the survey. The time to care survey was completed in the baseline period between 4th February 2025 and 8th February 2025 ($N = 11$) and was also completed in the follow-up period between 17th February 2025 and the 21st February 2025 ($N = 11$). An estimated four staff members were expected to fill in the form every day, which varied by staff levels and staff sickness.

Multiple choice questions were analysed through frequency distributions and statistical testing where feasible. Free-text answers were analysed through thematic and sentiment analysis to generate themes. An independent samples *t*-test was conducted to understand whether there was a statistically significant difference between the means of the baseline and follow-up survey respondents ($p < 0.05$).

Assumptions and limitations

- Staff were spending little to no time updating family members in the baseline period. This means that the impact on whether Clera yields efficiency savings is unable to be examined as staff were not providing updates initially.

3. Results

This section presents the results split by the evaluation questions highlighted in Section 2.1.

3.1. What is the impact of Clera on patients and families? (Q1)

This evaluation question was answered by analysis of data source A (Clera app data) and data source C (patient and family satisfaction survey data). Other data sources were also used to answer the sub-questions of Q1, such as data source B (documented contacts data) and data source D (patient recall survey).

Clera app data identified that 90 updates were sent over 18 days, with approximately five updates (rounded down; 5.5) being sent per day. Of the patients who were contacted to be offered Clera, most connected and responded (89%; Figure 3). Of those who responded, 76% responded the first time. No patients declined the request to be contacted. In comparison to families, a greater proportion of patients connected, however a lower proportion of patients responded the first time.

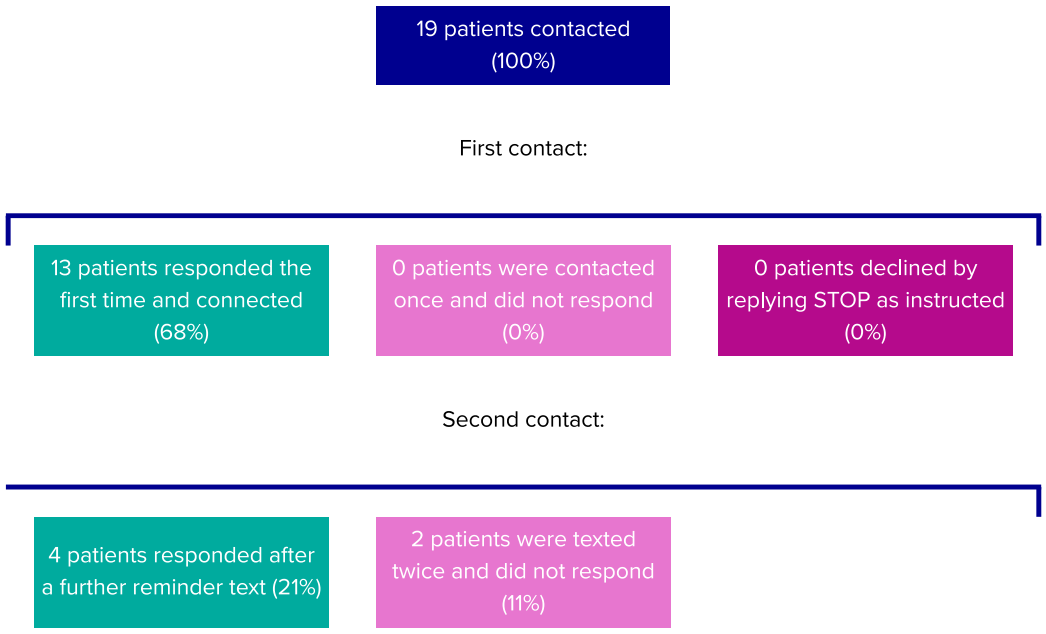

Figure 3: The breakdown of patients who were contacted and whether they responded the first or second contact.

Of the family members who were contacted and offered Clera, most connected and responded (77%; Figure 4). Of those who responded, 88% responded the first time. Only one family member

declined the request to be contacted. In the patient and family survey free text responses, three family members noted that they thought the initial contact text was spam, suggesting why some family members did not respond.

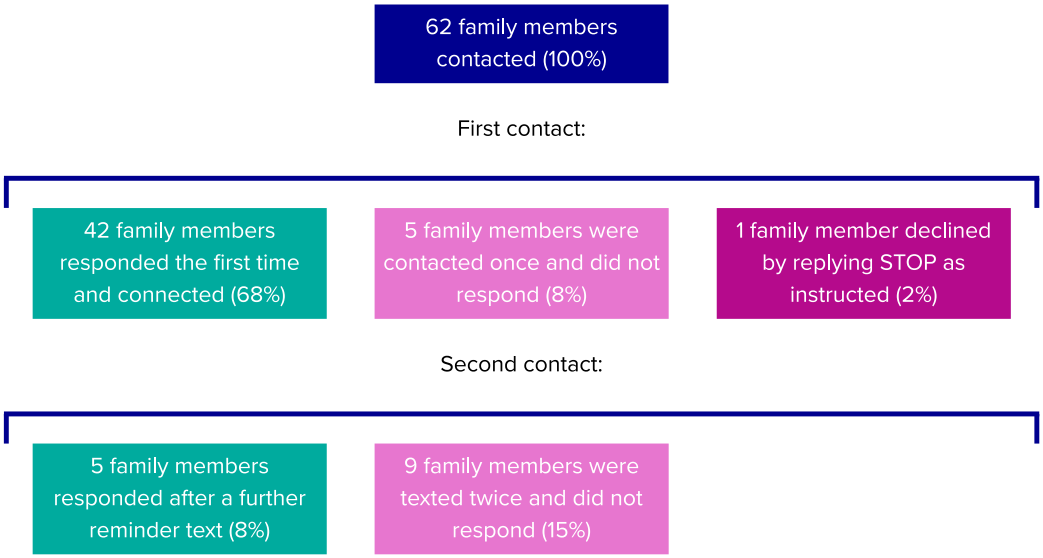

Figure 4: The breakdown of family members who were contacted and whether they responded the first or second contact.

Most patient subjects had between 1 and 3 updates sent (*n* = 31; Figure 5), with a median of two updates. Comparing this to the documented contacts data, where 20 patients had between 1 and 5 contacts during their stay on the ward (Figure 21), this dataset yields a higher number of patient subjects with between 1 and 5 contacts (*n* = 37). Updates were generally detailed, most of them a full paragraph or more, including clinical plans, progress that day, arranging in-person meetings, scan results, discharge plans, mood that day, personal care and eating, referrals, input from other specialties, and summaries of conversations.

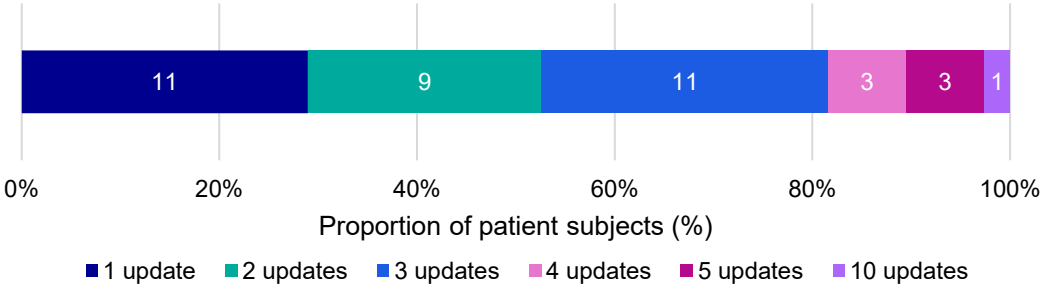

Figure 5: The number of patient subjects (could involve the patient and/or their family member) with an update sent.

3.2. To what extent do patients and families feel more informed about their care due to Clera? (Q1a)

This evaluation question was answered by analysis of data source C (a patient satisfaction survey that was carried out in the Clera implementation period, compared to a satisfaction survey carried out before Clera was implemented).

More patients and family felt well informed by the ward after Clera implementation, with a much lower proportion of respondents disagreeing with the statement, "*I feel well informed by the ward*" (Figure 6).

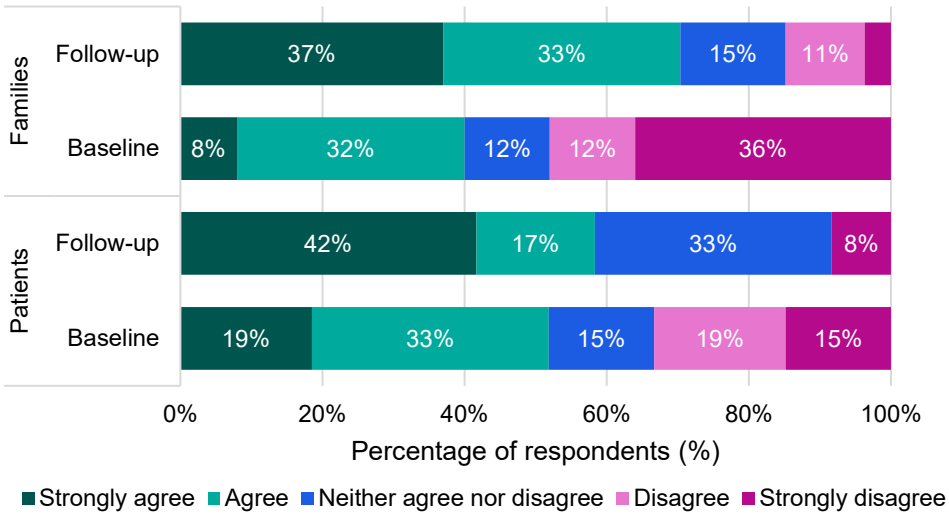

Figure 6: Patient and family satisfaction survey responses to the statement, "*I feel well informed by the ward*" in the baseline and follow-up periods.

A one-tailed two-proportion *z*-test was conducted to examine whether the proportion of patient respondents who agreed with the statement, "*I feel well informed by the ward*" increased following Clera implementation. In the baseline survey, 14 out of 27 respondents (52%) agreed with the statement. In the follow-up survey, 7 out of 12 respondents (58%) agreed. The increase in agreement was not statistically significant ($z = 1.43$, $p > 0.05$), which was similar to chi-square statistical findings. This did not confirm that there was no difference between the findings, but suggests insufficient evidence to conclude a meaningful difference, or that any observed difference was not purely due to chance. Another one-tailed two-proportion *z*-test was conducted for the family survey. In the baseline survey, 10 out of 25 respondents (40%) agreed with the statement. In the follow-up survey, 19 out of 27 respondents (70%) agreed. The increase in agreement was statistically significant ($z = -2.20$, $p < 0.05$), likely due to the effect size.

A greater proportion of patients and family members knew what their care plan was following Clera implementation compared to the baseline period (Figure 7). A Fisher's exact test was conducted to examine whether the proportion of patients who agreed with the statement, "*I know what the plan for my care today is*", increased following Clera implementation. In the baseline group, 15 out of 27 patients (56%) agreed, compared to 9 out of 12 patients (75%) in the follow-up group. Although the increase in the number of patients agreeing with the statement was substantial, the difference was not statistically significant ($p > 0.05$), which was similar to chi-square statistical findings, indicating robustness.

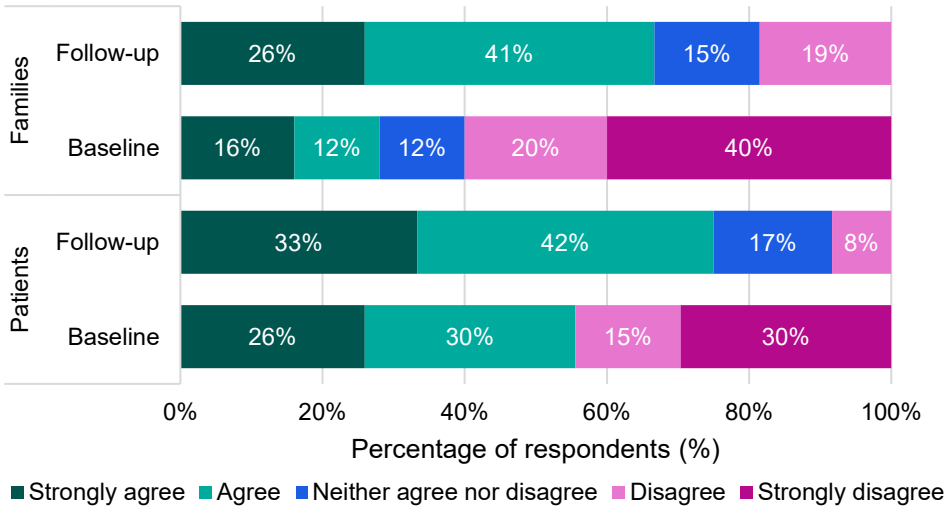

Figure 7: Patient and family satisfaction survey responses to the statement, "*I know what the plan for my care today is*" in the baseline and follow-up periods.

A one-tailed two-proportion *z*-test was conducted to determine whether the proportion of families who agreed with the statement, "*I know what the plan for my care today is*", increased following Clera implementation. In the baseline group, 7 out of 25 respondents (28%) agreed, compared to 18 out of 27 respondents (67%) in the follow-up group. The increase in the number of respondents agreeing with the statement was statistically significant ($z = -2.79$, $p < 0.05$).

A greater proportion of patients and family felt it was easy to get information from the ward following Clera implementation compared to the baseline period (Figure 8).

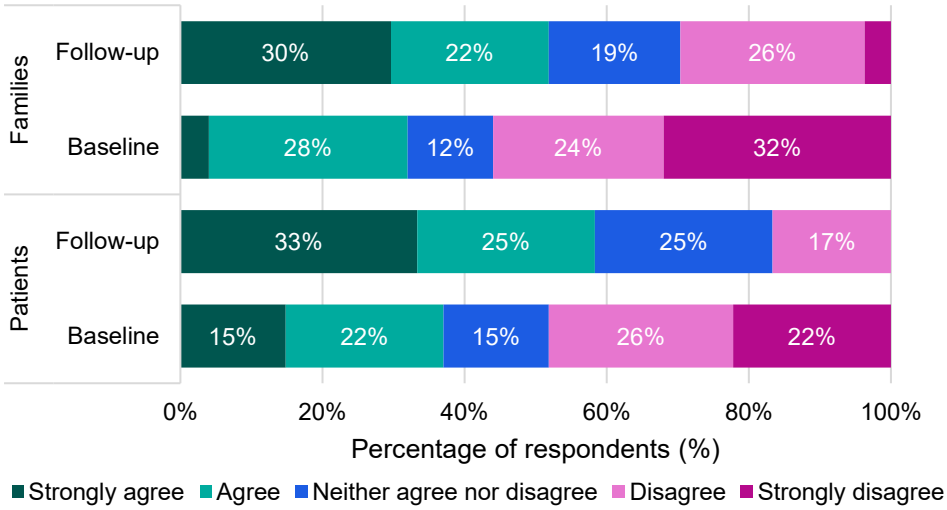

Figure 8: Patient and family satisfaction survey responses to the statement, "*It has been easy to get information from the ward*" in the baseline and follow-up periods.

A one-tailed two-proportion *z*-test was conducted to determine whether the proportion of patients who agreed with the statement, "*It has been easy to get information from the ward*", increased following Clera implementation. In the baseline group, 10 out of 27 patients (37%) agreed, compared to 7 out of 12 patients (58%) in the follow-up group. Although the increase in the number of patients agreeing with the statement was substantial, the difference was not statistically significant ($z = -1.24$, $p > 0.05$), which was similar to chi-square statistical findings, indicating robustness.

The same *z*-test was conducted for families. In the baseline group, 8 out of 25 respondents (32%) agreed, compared to 14 out of 27 respondents (52%) in the follow-up group. Although the increase in the number of respondents agreeing with the statement was substantial, the difference was not statistically significant ($z = -1.45$, $p > 0.05$), which was similar to chi-square statistical findings, indicating robustness.

A greater proportion of patients and family were able to ask questions about care and obtain understandable answers following Clera implementation compared to the baseline period (Figure 9).

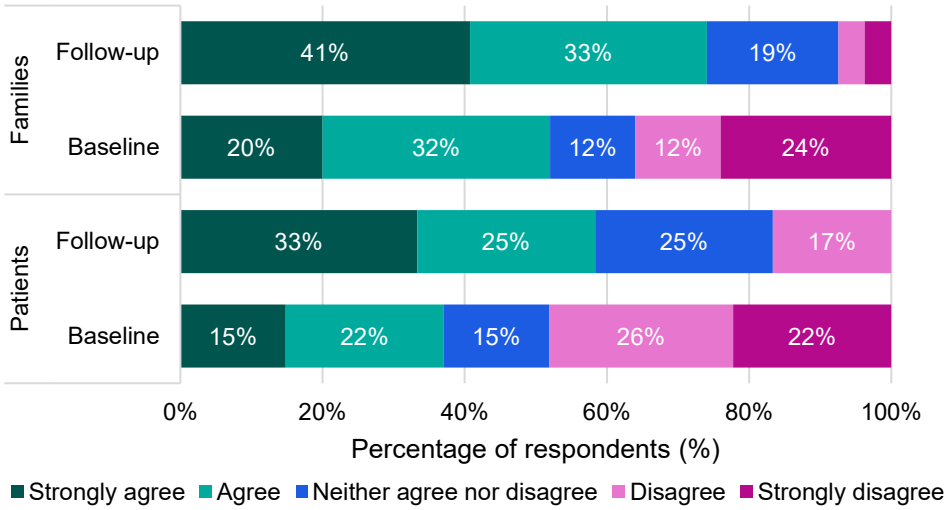

Figure 9: Patient and family satisfaction survey responses to the statement, "*I have been able to ask questions about my care and get answers I understand*" in the baseline and follow-up periods.

A Fisher's exact test was conducted to examine whether the proportion of patients who agreed with the statement, "*I have been able to ask questions about my care and get answers I understand*", increased following Clera implementation. In the baseline group, 15 out of 27 patients (56%) agreed, compared to 9 out of 12 patients (75%) in the follow-up group. Although the increase in the number of patients agreeing with the statement was substantial, the difference was not statistically significant ($p > 0.05$), which was similar to chi-square statistical findings, indicating robustness.

A one-tailed two-proportion *z*-test was conducted to determine whether the proportion of families who agreed with the statement, "*I have been able to ask questions about my care and get answers I understand*", increased following Clera implementation. In the baseline group, 13 out of 25 respondents (52%) agreed, compared to 20 out of 27 respondents (74%) in the follow-up group. The increase in the number of respondents agreeing with the statement was statistically significant ($z = -1.65$, $p < 0.05$).

In the baseline patient survey, when asked, *"Do you have any other comments you would like to share with us today?"*, there were more negative sentiments (69%; $n = 11$) mentioned rather than positive sentiments (31%; $n = 5$). This was the opposite in the follow-up patient survey, however, where there were more positive sentiments (61%; $n = 14$) than negative sentiments (35%; $n = 8$) or neutral sentiments (4%; $n = 1$).

In the baseline patient survey, some patients noted good care plan updates ($n = 3$), however more patients noted a lack of staff communication to patients ($n = 6$), which was the most common theme in the baseline. One patient noted, "*was meant to have an op 2 days ago - only told today that isnt [sic] happening*", with a different patient noting a similar experience, "*They move you without telling you. They took me for a scan without telling me I was going to have one*". The lack

of communication also was noted between staff members (*n* = 2) in some cases, where there was, "*Poor communication with other teams*" and, "*Lack of comms between drs and nurses, poor handovers - info not passed to nurses*". In contrast, patients in the follow-up period noted they feel more informed (*n* = 1) and that updates were, "*reasonably helpful*" (*n* = 1). They felt the written updates allowed time for them to process information (*n* = 2): "*If its [sic] in writing, it allows me to process it. Things i [sic] get told i [sic] often forget*".

In the follow-up patient survey, patients noted that Clera was useful for family members (*n* = 3); "*Text helped, and my wife got it, which informed her*". They noted that the platform was a worthwhile change (*n* = 2), where one patient highlighted, "*Thought it was ideal as it made me aware of what was going on. Sometimes you don't get every piece of the info. Worth happening as you want to know what's going on*". Some patients noted other positive sentiments, such as receiving prompt updates (*n* = 1), Clera being more useful for patients who cannot communicate with their families (*n* = 1), and Clera's ease of use (*n* = 1).

"Signing up was very easy. Next day I had a nice detailed experience of the plan. After that we haven't heard anything more. Too much information and I forget. I would have loved more messages but I only had one. The first message when it came through helped a lot. We would like more information. I am still working. (patient name) gets emotional and upset and it's making her forget stuff."

- *Family member follow-up survey respondent*

Patients who noted negative sentiments in the follow-up survey highlighted the need for more detailed information within their updates (*n* = 4), with two patients noting that information provided can become outdated very quickly if the care plan changes frequently. One patient highlighted, "*Maybe the texting doesn't work for me because my plan is changing so frequently. Sometimes its [sic] out of date almost immediately. The text says things that are completely different to what they said in the ward round. But it does help a little, and its [sic] a good idea*".

In the follow-up satisfaction survey, families noted more positive sentiments than negative sentiments, with 22 respondents noting that the text messages from Clera enhanced the care update experience: "*It's absolutely great. The most informed I've ever neem [sic] with mum being in hospital. It's so difficult to get through. I can spend 30 minutes trying to get through which isn't acceptable. To be kept updated I think it's great*". Four family members also noted greater reassurance with care: "*Since the text messages started [sic] feels more reassured about what is going on. Was getting NOTHING before, but I think the text messages is a really good thing and*

makes me much more reassured". For one family member, Clera was instrumental to supporting them in their father's last days:

"In my dads last days these were my only comfort. I relied on these messages. Before that I had no idea what was going on - I couldn't call the ward, I couldn't get through… For someone like me who finds it difficult to contact and works full time it was gamechanging [sic] and put my mind at rest. I wasn't at home worrying… I wasn't getting the info I needed from the nurses... To recieve [sic] that text put me at ease… It gave me everything in the last days of dad's life and I want to thank you so much for including me in it, it made a world of difference in his last days."

- *Family follow-up survey respondent*

Despite this, family members noted there was still room for improvement; four respondents highlighted the need for a greater frequency of care updates and two respondents would have preferred more in-depth updates. For one family member, the lack of update at baseline led to concerns around the patient: "*Didn't hear for two weeks then was able to know about his care. I was really worrying not knowing how he was getting on*". One respondent also noted that the same text message came through six times. One family member noted, "*Its [sic] really good to have the update, but it was inaccurate - informed me she'd had an injection when she hadnt [sic] - that was confusing*", whilst another noted "*I requested a phone call, they never called back*".

Family members also suggested the following improvements to Clera:

- It would be helpful to receive an update with '*no change*' if there were no care updates
- Ability to respond to texts
- Ability to request a follow-up call

3.3. Does Clera allow for more equitable access to care updates? (Q1b)

This evaluation question was answered by analysis of data source C (a patient satisfaction survey that was carried out in the Clera implementation period, compared to a satisfaction survey carried out before Clera was implemented).

Average number of contacts per day by demographic factor [Q1c]

Age

Age remained consistent across survey respondents overall, with slight variations across groups (Figure 10).

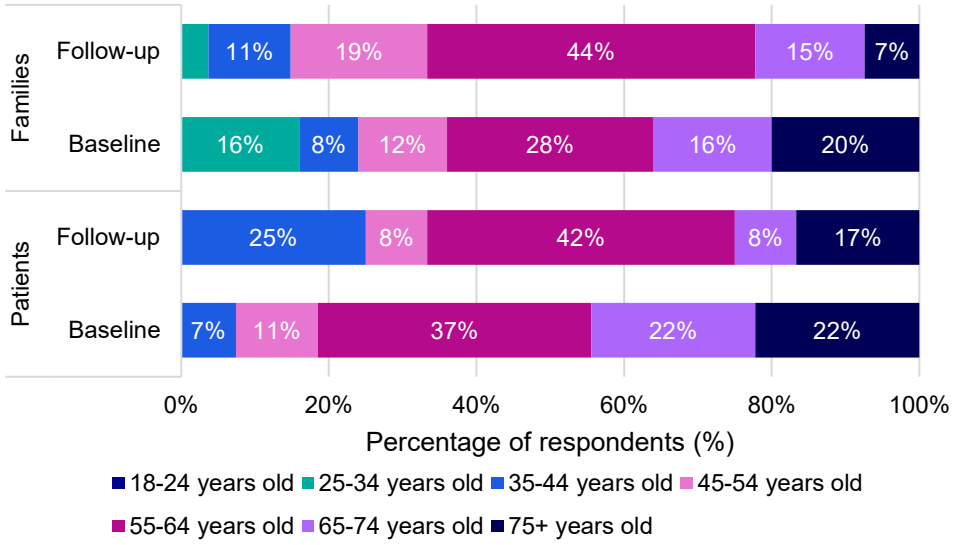

Figure 10: The proportion of patients and families who completed the baseline and follow-up surveys by age group.

Figure 11 highlights the average number of contacts by age group was higher following Clera implementation compared to the baseline for all age groups. There was a large increase in the average number of contacts for those aged 45 to 54 years old and those over 75 years old. The average number of updates remained similar for family members aged 25 to 34 years old before and after Clera implementation.

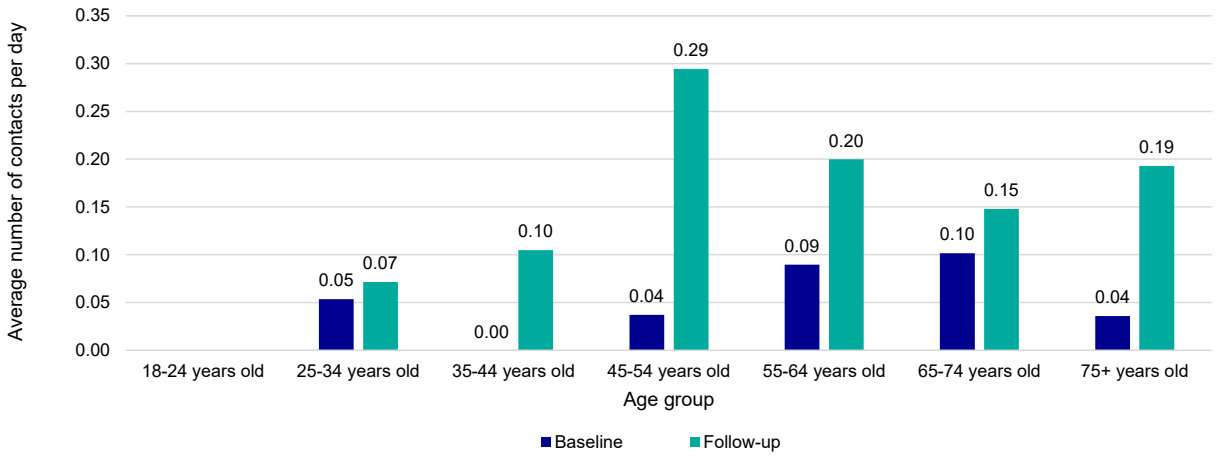

Figure 11: The average number of contacts per day by age.

Ethnicity

Ethnicity remained consistent across survey respondents overall, with slight variations across groups (Figure 12). The majority of respondents were White in the baseline and follow-up samples, therefore comparisons between number of contacts by ethnicity were not made.

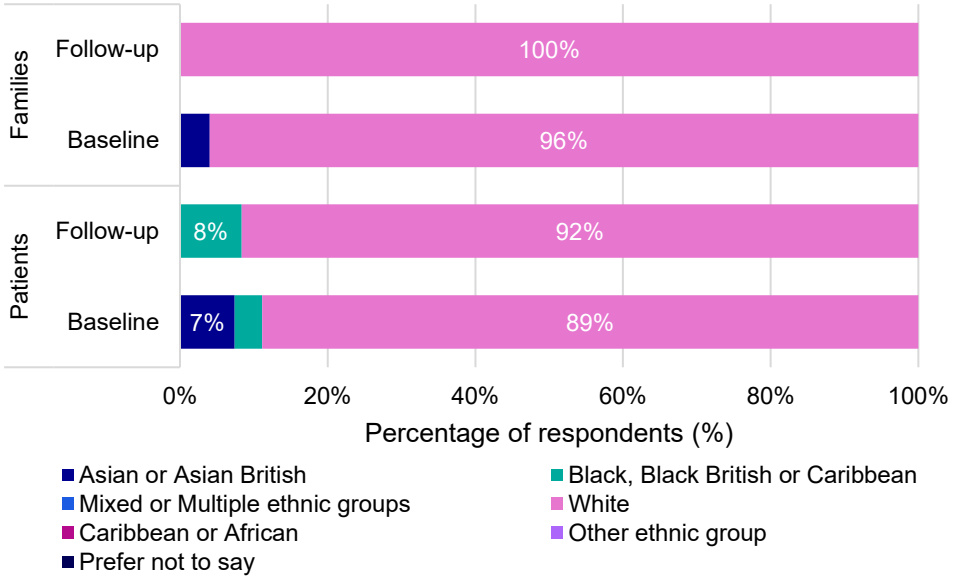

Figure 12: The proportion of patients and families who completed the baseline and follow-up surveys by ethnic group.

IMD decile

A greater proportion of families were in lower deprivation levels (1 to 4) in the baseline (29%) compared to the follow-up survey (15%), however the follow-up sample had a lower median deprivation level (5 to 6) compared to the baseline (7 to 8; Figure 13).

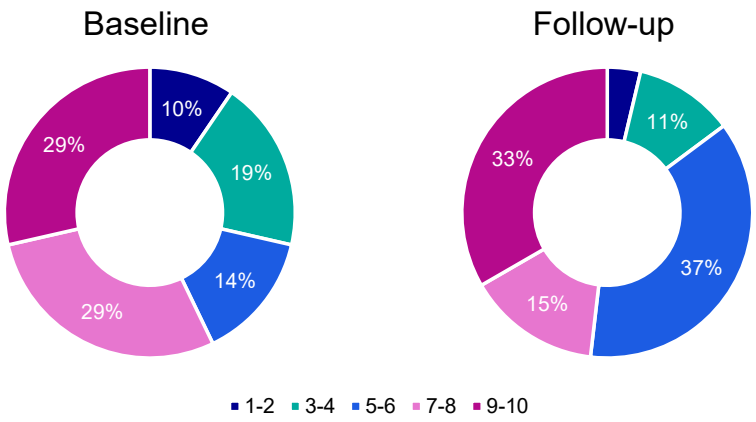

Figure 13: The proportion of families who completed the survey by IMD decile in the baseline and follow-up surveys.

Figure 14 highlights that, following Clera implementation, families from IMD deciles 1 to 6 received more contacts per day compared to before Clera was implemented. These IMD deciles show greater levels of deprivation compared to IMD deciles 7 to 10.

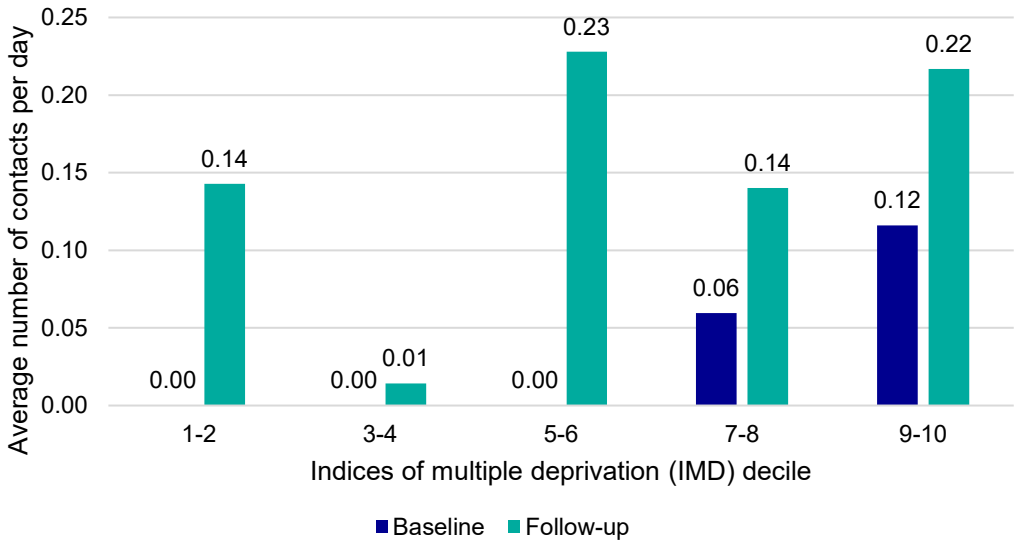

Figure 14: The average number of contacts per day by IMD decile.

Distance from hospital

A majority of family members in both samples were less than an hour away from the hospital (baseline: 60%; follow-up: 70%; Figure 15). There was a greater proportion of family members who had to travel more than 90 minutes in the baseline sample (24%) compared to the follow-up sample (11%).

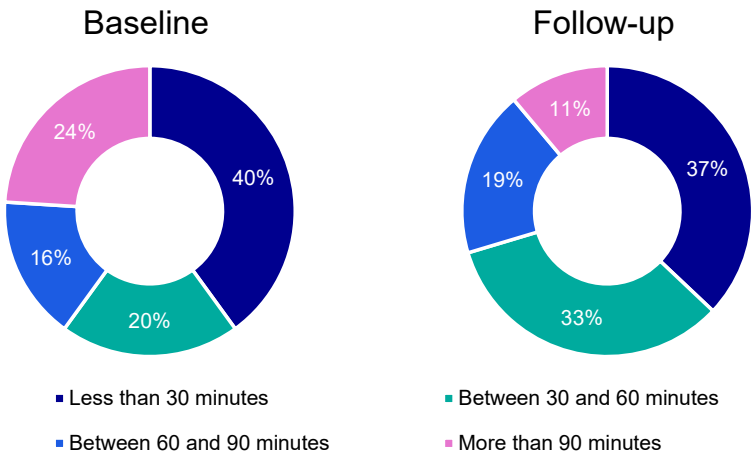

Figure 15: The proportion of families who completed the survey by distance travelled from home to the hospital in the baseline and follow-up surveys.

Figure 16 highlights that, following Clera implementation, all family members received more contacts per day regardless of distance travelled to hospital compared to before Clera was implemented. The greatest difference between the number of contacts before versus after Clera was implemented was for those living more between 30 and 60 minutes away (0.03 to 0.21 contacts per day), closely followed by those living more than 90 minutes away (0.01 to 0.16 contacts per day).

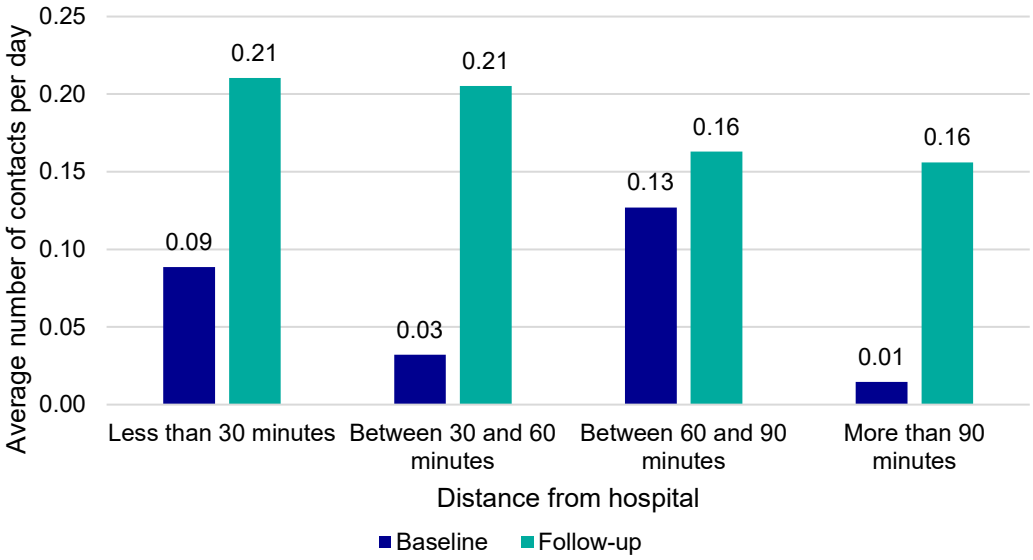

Figure 16: The average number of contacts per day by distance from the hospital.

Disability

Most families in both surveys did not have a disability (baseline: 68%; follow-up: 89%; Figure 17).

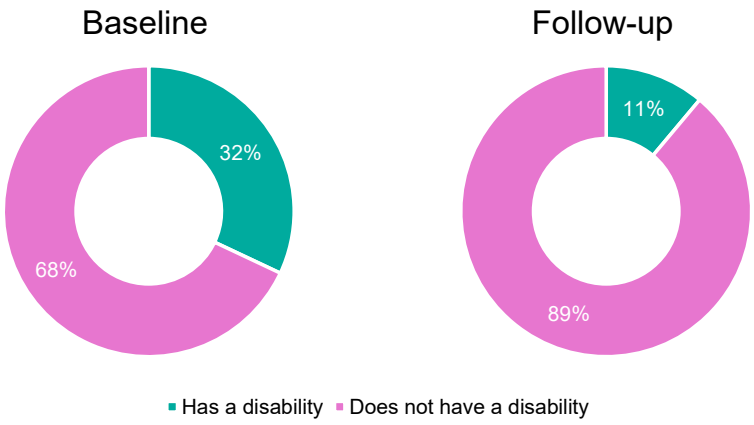

Figure 17: The proportion of families who completed the survey by whether they had a disability in the baseline and follow-up surveys.

Figure 18 highlights that, following Clera implementation, all family members received more contacts per day regardless of whether they had a disability compared to before Clera was implemented.

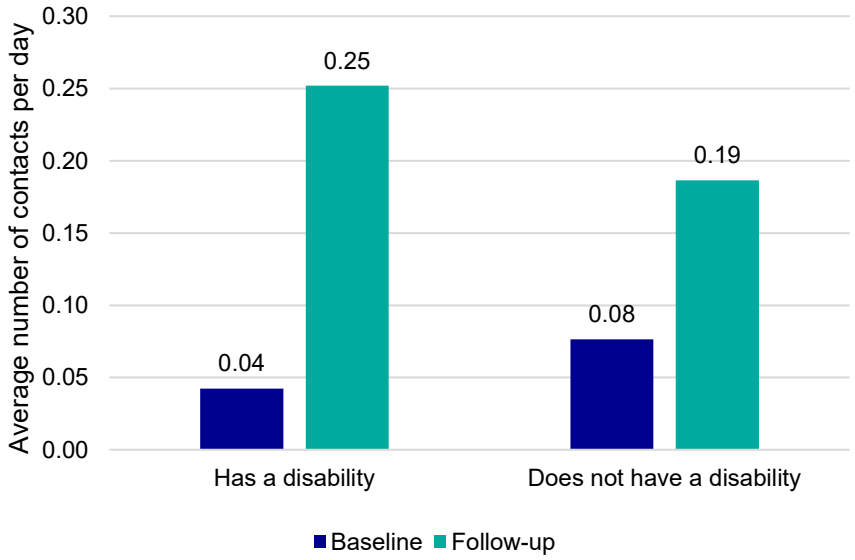

Figure 18: The average number of contacts per day by disability.

Working status

Most families in the baseline (68%) and follow-up (74%) surveys were in employment (full or part time) or were a full-time carer (Figure 19).

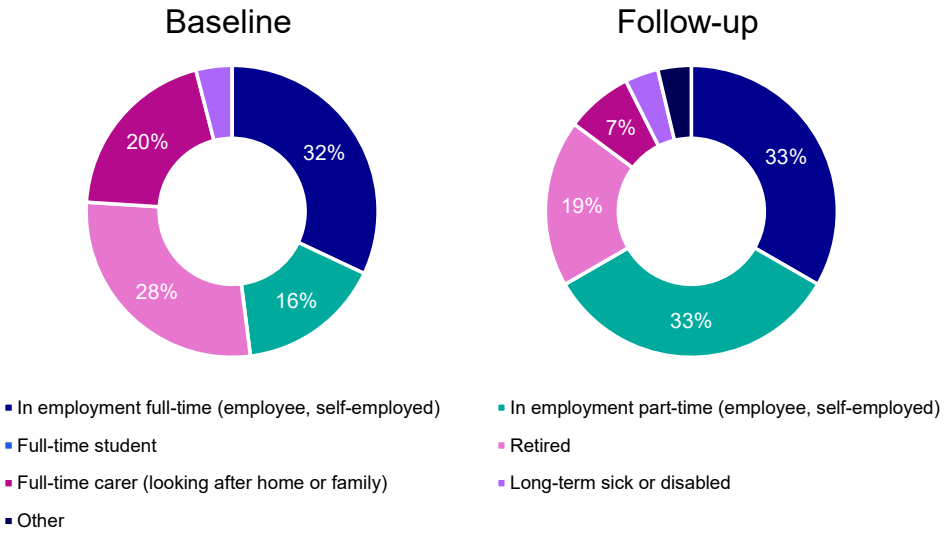

Figure 19: The proportion of families who completed the survey by current working status in the baseline and follow-up surveys.

Figure 20 highlights that the average number of contacts per day were greater in all employment statuses (apart from long-term sick or disabled, likely due to sample size) following Clera implementation when compared to before Clera was implemented.

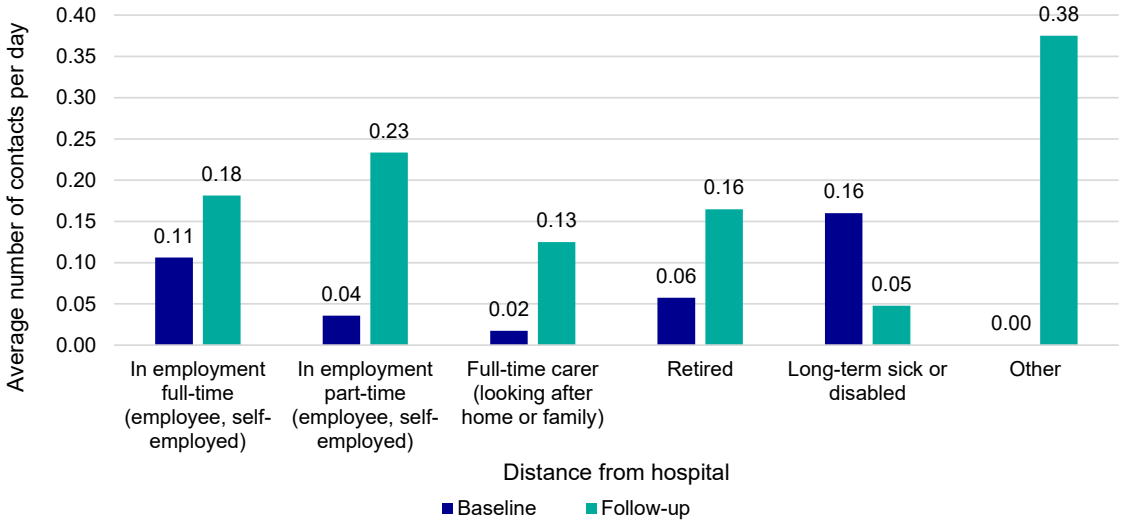

Figure 20: The average number of contacts per day by working status.

3.4. Do families receive more frequent contacts following the implementation of Clera? (Q1c)

This evaluation question was answered by analysis of data source B (documented contacts data where the Clera implementation period was compared to an audit of the record before Clera was implemented), with insight from data source C (patient and family satisfaction survey data).

Over 60% of patients (*n* = 19) at baseline had not had a single update during their admission, reflecting the problem that Clera was developed to solve. All patients were contacted following Clera implementation (*n* = 24) compared to just over one third in the baseline (*n* = 11), with one patient having more than 10 contacts (Figure 21). It is important to note here that only patients who had used Clera, in other words received an update, were included in the follow-up period. Not all patients in the ward had used Clera; some were not eligible, for example if they were under a different medical specialty. As not all patients on ward 27B were included in the sample, statistical testing was not performed to avoid selection bias.

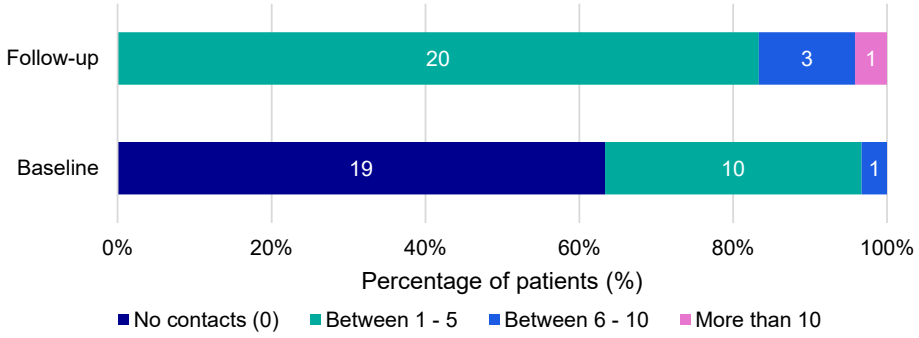

Figure 21: The proportion of patients by number of contacts in the baseline and follow-up periods.

Families in the baseline family satisfaction survey highlighted there were either no staff to contact for updates or found contacting staff difficult (*n* = 10): "*When I phone it rings out and I can't get through. No one knows anything. No feedback at all even in person. Staff never get back to me. It has been a nightmare*" and a lack of communication (*n* = 2). One respondent highlighted the patient had been updating them with their care progress rather than staff members, with another noting that communication was greater when the severity of the patient's condition was greater. One family member in the baseline period noted a positive communication experience, "*All happy with communication received*".

For patients who had been on the ward for more than two weeks, only the last 14 days of documented contacts were recorded; these patients were categorised as, "*long admission*" patients. In contrast, for those who had been on the ward for less than two weeks, all documented contacts were recorded; these patients were classified as, "*short admission*" patients. Slightly more long admission patients had no contacts in the baseline period (75%) compared to short admission patients (62%; Figure 22). Long admission patients had more total contacts on average in the follow-up period (average: 6) compared to short admission patients (average: 3). This was likely due to the longer hospital stay requiring more provision of updates.

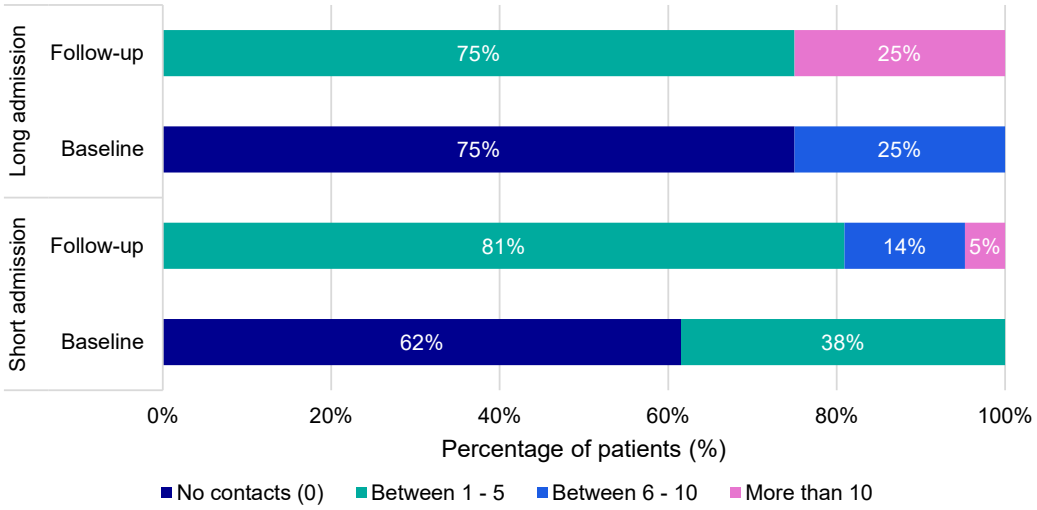

Figure 22: The proportion of patients by number of contacts and whether the admission length was short or long in the baseline and follow-up periods.

3.5. Does Clera lead to an improvement in patient recall? (Q1d)

This evaluation question was answered by analysis of data source D (the patient recall survey). The baseline is the initial survey completed before Clera was implemented and the comparator is the follow-up survey completed after Clera was implemented.

A greater proportion of patients were able to remember either the whole plan or part of their plan in the baseline, regardless of complexity (Figure 23). Due to the limitations in the collection of this data source, such as a small sample size, no statistical testing was performed.

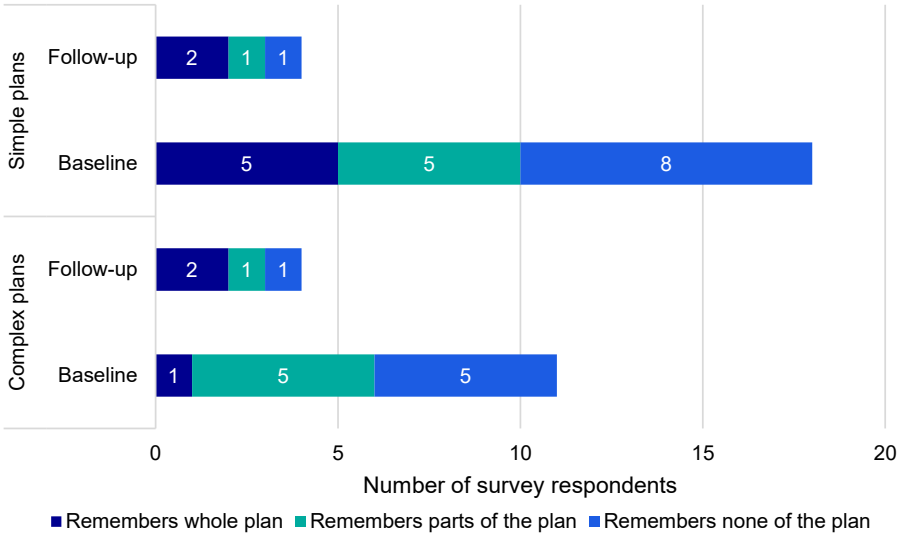

Figure 23: Patient recall staff survey responses to the question, "*Please evaluate the patient's recall compared to the previous day's ward round/recent plans based on their answer to the question, "Do you remember what the plan was from the ward round yesterday?"*", in the baseline and follow-up periods by complexity of the patient care plan.

There was greater variation in whether medically fit and medically unfit patients remembered their plan when comparing follow-up and baseline samples (Figure 24). Due to the limitations in the collection of this data source, such as a small sample size, no statistical testing was performed.

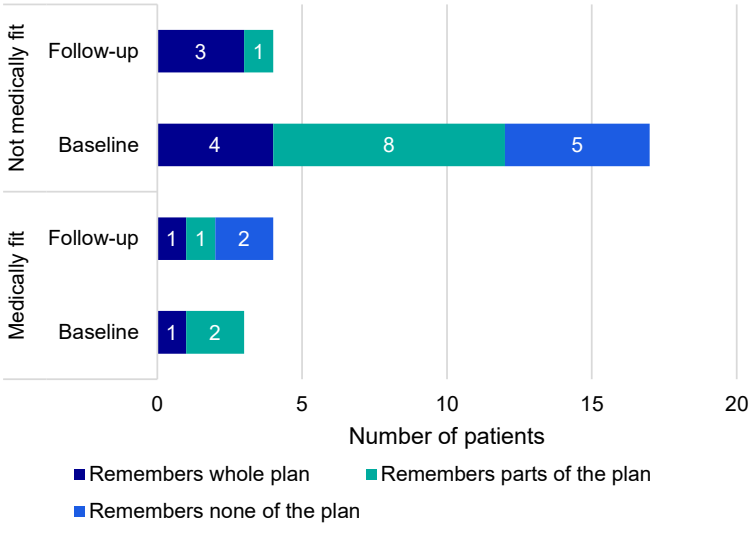

Figure 24: Patient recall staff survey responses to the question, "*Please evaluate the patient's recall compared to the previous day's ward round/recent plans based on their answer to the question "Do you remember what the plan was from the ward round yesterday?"*", in the baseline and follow-up periods by whether patients were deemed medically fit.

3.6. Are staff satisfied with the Clera platform? (Q2a)

This evaluation question was answered by analysis of data source C (the patient and family satisfaction survey, comparing the baseline survey results to the follow-up survey results), data source E (the staff survey), and data source F (staff interviews).

Staff were generally positive around the impact of Clera, where staff appeared to value its current (92%) and potential use in their work (92%) and would be able to easily integrate Clera into their work if integrated into the hospital EPR (100%; Figure 25). The greatest proportions of neutral responses were for '*management adequately support Clera's delivery*' (58%) and '*sufficient training was provided to enable staff to implement Clera*' (42%), indicating that there is potential room for improvement within training and management supporting delivery. The remaining staff responded neutrally to the statements; no staff disagreed.

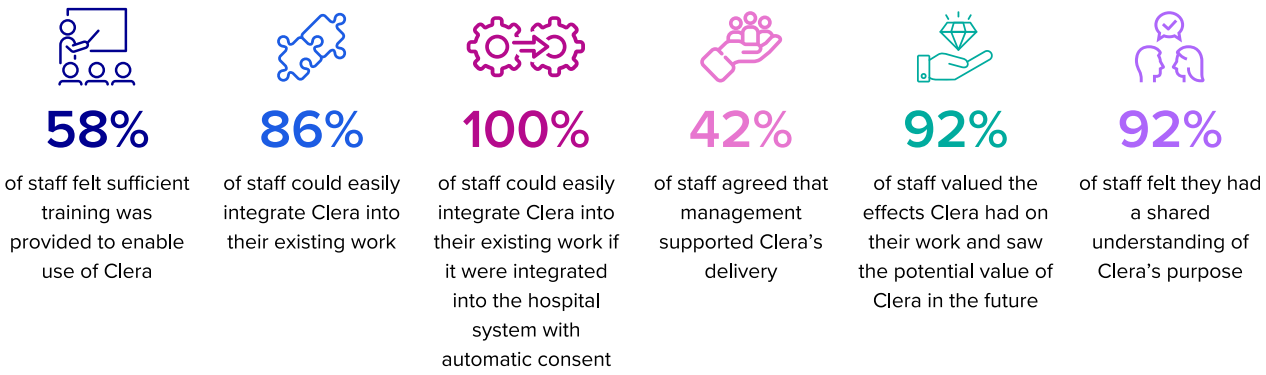

Figure 25: Staff survey responses surrounding perceptions related to the impact of Clera.

Most survey respondents noted that integration into Careflow, the EPR provider (50%), and into the workload (17%) would be beneficial to the Clera platform. One survey respondent suggested that integration into the EPR could, "*significantly*" improve Clera. Another survey respondent suggested that Clera should, "*directly link from patients home screen, and for consent/form collection by nursing staff or ward admin staff instead would be very useful*". Integration into computer systems was also highlighted.

Survey respondents also suggested that automating consenting should be built into Clera, offering time efficiencies. One staff member noted that, "*the consent and manual bits were a barrier for me due to work pressures and high turnover of patient [sic]*". Further, being able to see when contacts had consented was suggested to be useful. One staff member highlighted it would be useful to use Clera on the ward round as this would be less time consuming.

One survey respondent recalled, "*a couple of occasions where they called as well as having a clera update on the same day*". Here, they suggested, "*maybe some form of ability to request phone calls to discuss further would allow better management of communication workload*".

In the staff interviews, the following key themes were identified: general perceptions, usability and integration, impact on patients and families, and training and improvements.

General perceptions

When doctors were asked about their overall thoughts on Clera, six out of seven interviewees noted a positive impact, with two out of seven not using Clera much. Staff highlighted that, "*Clera has an easy enough interface to use*" (*n* = 2), was, "*minimally time consuming*" (*n* = 1) and that it, "*will only get better and more effective the more it's used by clinicians who can then learn how it's best used*" (*n* = 1). One doctor did not find Clera easy to use due to interoperability issues: "*the envisaged use case of going round and doing it as part of the ward round could work IF the IT was set up for it. I can imagine it would work much better at different hospitals where they have digital notes, and you can do the ward round with a computer on wheels*".

One doctor highlighted it was useful for patients to have a way to remember what was discussed on ward rounds, however, two other doctors noted that not all patients and families found Clera useful (*n* = 2); "*families sometimes commented they didn't always find it that helpful or preferred in person convos [sic]*", particularly if they did not use a telephone. Two doctors reported increased communication with patients and families as patients asked more questions. Doctors highlighted that Clera was useful for providing general updates (*n* = 2), with more serious updates requiring a telephone call. Updates were completed in the afternoon by two doctors, where staff found they had more time to type out messages.

Two doctors noted efficiency savings, where Clera was easier than calling and is efficient when providing short updates as part of the ward routine. Three doctors noted inefficiencies, due to not having a computer on wheels and during the consenting and onboarding process. Another doctor highlighted that they, "*ended up puling [sic] all the family updates to complete at one time, which feels like a large task*".

Usability and integration

Four out of seven interviewees stated that Clera was easy to use, with one doctor noting Clera was, "*very straight forward and efficient*". Despite this, three interviewees highlighted inefficiencies at various points of the pathway. For example, "*when there were 3 family members and you had to wait for them to confirm*", the consenting process, and not having enough computers on the ward to use Clera. Two staff highlighted issues such as a message wiping after attempting to send the message and an inability to check whether secondary contacts have confirmed; "*if only one person has been confirmed but the other hasn't, you can't message anyone as this would go to the secondary contact*".

Impact on patients and families

One doctor noted that Clera had increased communication as they were updating patients and families more, with the app being more beneficial for families rather than patients. The interviewee noted that some patients did not understand the initial text and did not know they needed to

respond to the message. Another doctor noted a drawback to Clera, was that they had to check that patients and families understood the update provided.

Training and improvements

When asked whether staff received enough support or training to effectively use Clera, one staff member highlighted that Clera was, "*more or less intuitive*". Another staff member noted their training was, "*fine*", however some staff did not receive the training. They noted that some of the doctors were using Clera based on the email that was provided and were managing to use the app without problems.

Two staff members would definitely recommend Clera to another colleague or ward. One doctor highlighted that Clera would be, "*quite an effective tool in the future*" and another highlighted that, "*it would be particularly good on call shifts/ out of hours when you don't necessarily have time for updates in person/ are being dragged from place to place*".

Table 2 notes improvements to Clera, suggested by doctors.

Table 2: Improvements suggested by doctors in staff interviews.

Improvements suggested by doctors	Additional information
Improve the consenting and confirming patient details process: for example, through streamlining the process, making the process automatic, or removing the process altogether	-
Improve the information available for parents and families about Clera	To avoid assumptions that Clera communications are spam text messages
Allow nurses and ward clerks to send messages	And allow other members of the MDT to send messages
Include the number of characters that are remaining when writing messages	To avoid going over the limit, which prevents a message from sending
Allow the ability to filter patients, for example by Consultant or whether they were discharged	-
Integrate Clera into Careflow	So patient details (such as their NHS number or date of birth) do not need to be entered manually
Integrate Clera across all wards	To improve continuity

Improvements suggested by doctors	Additional information
Use of e-notes	
Improve the clarity of whether the message received was a confirmation text (to verify contact identify) or a response to a question sent by clinicians	This could be completed by using a different icon in the home screen
Put the list of patients in ward order, rather than using the traffic light system	The traffic light system currently orders contacts by time since last update
Provide a second automated reminder text for patients and families who have not responded within 48 hours	-

3.7. How does Clera impact the time spent by staff updating patients and families? (Q2b)

This evaluation question was answered by analysis of data source G (the time to care survey). The baseline is the initial survey completed before Clera was implemented and the comparator is the follow-up survey completed after Clera was implemented. Data source C (patient and family satisfaction survey) was also used but not covered in this section.

In the baseline respondent sample, most staff reported that they had not updated any family members, carers, or patients each day (73%; Figure 26). Of those who did, staff updated either one (9%) or two (18%) family members, carers, or patients. In the follow-up survey, 91% of staff updated family members, carers, or patients, which was much higher than in the baseline. Of those who provided updates, staff updated between one (9%) and four (27%) family members, carers, or patients, with the majority updating two per day (45%).

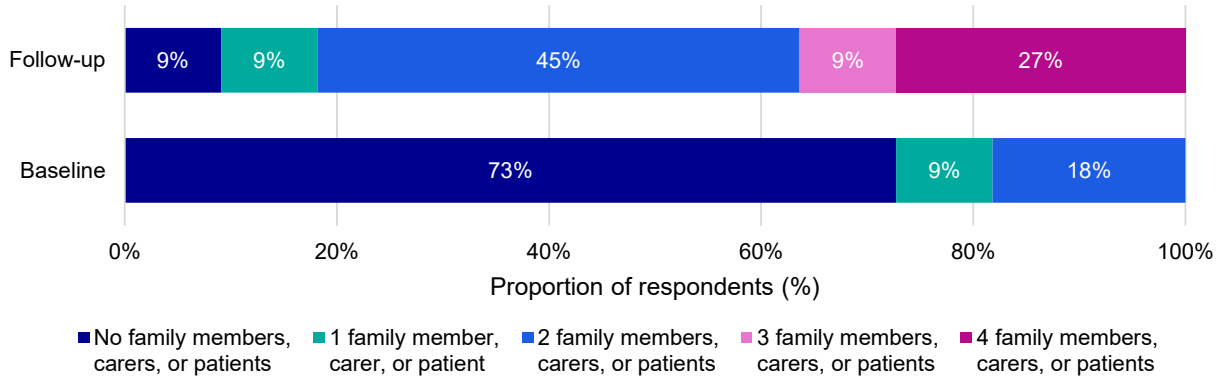

Figure 26: Staff time to care survey responses to the question, "*How many family members/carers and patients did you update today (via phone/Clera?*", in the baseline and follow-up periods.

An independent samples *t*-test was conducted to compare the means of the baseline and follow-up survey respondents. The analysis revealed a statistically significant difference; $t(20) = 4.15$, $p = .0005$. The mean difference was -1.91 (95% CI [-2.87, -0.95]). The baseline survey respondents had a mean 0.45 updates to family members, carers, or parents (SD = 0.82, $n = 11$), whereas the follow-up survey respondents had a higher mean of 2.36 updates to family members, carers, or parents (SD = 1.29, $n = 11$). This means that there was a statistically significant increase in the number of updates provided to family members, carers, or patients following Clera implementation.

When providing updates, staff spent half as much time providing updates per contact following Clera implementation (5.1 minutes) compared to the baseline (10.0 minutes). Staff spent more time updating people via phone or text per day following Clera implementation compared to baseline; 91% spent over 5 minutes providing updates following implementation, compared to 27% in the baseline (Figure 27). This could be explained by the increase in the number of updates reported following Clera implementation.

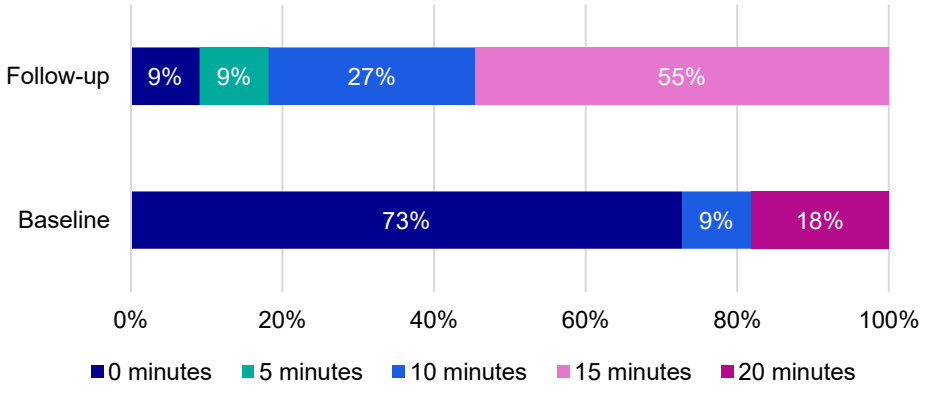

Figure 27: Staff time to care survey responses to the question, "*How much time did you spend today updating people via phone or text (minutes per day)?*", in the baseline and follow-up periods.

4. Discussion

4.1. What is the impact of Clera on patients and families?

Contacting patients and families

Of the 19 patients and 62 family members contacted, 89% of patients and 75% of family members connected to Clera and therefore received updates. This suggests that patients and family members viewed Clera as a potentially valuable application before they had begun to use the application.

Although most patients and family members connected, suggesting potential initial interest in engaging with Clera, the reasons why 11% of patients and 23% of family members did not respond was not captured. This may have been due to a range of reasons, such as the recipient incorrectly considering the text message to be spam, not checking their text message notifications, or not considering Clera as useful. Additionally, some individuals may have chosen not to engage due to personal reasons, for example, not wanting to receive care updates at that time or preferring a verbal update.

TextAnywhere (2021) provided figures on text engagement across the UK population, which suggested that just over 75% of text message recipients in the UK read every text message they receive. This suggests that it is likely that the 11% of patients and 23% families may not have opened the text message. Other ways to make patients and family members aware of Clera and how to receive updates could be established, for example emails or automated telephone calls.

Updating patients and families

Overall, five updates were sent per day through the Clera platform following implementation and patients had a median of two updates overall during their time on ward 27B (Figure 5). Updates were noted to be detailed; most contained at least a full paragraph and included clinical plans, progress that day, arranging in-person meetings, scan results, discharge plans, and more.

In the baseline period, 73% of staff did not update patients or family members (Figure 26) and 0.45 updates were provided on average per day. Following Clera implementation, 91% of staff updated patients or family members and 2.36 updates were provided on average. It is encouraging to note that the increase in average updates following Clera implementation was statistically significant, suggesting this was unlikely to be due to chance. This suggests that Clera resulted in a greater frequency of updates for patients and family members. Effective, regular communication between healthcare staff and patients is associated with improved satisfaction, understanding of conditions, treatment adherence, and clinical outcomes among patients and families (Ng et al., 2024).

Quality and impact of updates

Before Clera was implemented, patients highlighted a lack of staff communication with them (n = 6) and between staff members (n = 2). Following Clera implementation, patients reported that they

felt more informed; there was a 12% increase in patients that felt well informed by the ward (Figure 6). Free-text analysis noted that patients felt more informed as they had time to process information (*n* = 2); "*If its [sic] in writing, it allows me to process it*".

Families in the baseline period found it difficult to contact staff and receive updates (*n* = 10), with one family member noting this to be a "*nightmare*". One family member reported being updated by the patient rather than by the staff member. Following Clera implementation, there was a statistically significant 75% increase in family members that felt well informed by the ward (Figure 6). This increase from 40% to 70% was greater than that of patients (52% to 59%), suggesting families felt more informed by the ward than patients after Clera implementation. One patient highlighted Clera was, "*more for [their] relatives really*". One family member noted a particularly meaningful impact from Clera implementation, highlighting, "*To recieve [sic] that text put me at ease… It gave me everything in the last days of dad's life and I want to thank you so much for including me in it, it made a world of difference in his last days*". This shows the worth that some family members consider Clera to have, demonstrating how Clera can be instrumental and transformative in patient care.

The increase in families feeling more informed about the patient's care compared to the baseline may reflect a positive contrast effect. This cognitive bias occurs when perceptions are influenced by prior experiences. In this context, families who previously received no updates may have found the introduction of Clera particularly impactful. Coming from a baseline of limited communication, the increased frequency of updates provided through the app likely stood out, enhancing their overall perception of the service. This highlights how targeted innovations, like Clera, can significantly improve family experience by directly addressing unmet needs.

Patients and families responded more positively following Clera implementation when asked to respond to statements around themes such as understanding care plans (Figure 7), ease of obtaining information from the ward (Figure 8), and being able to ask questions (Figure 9). Despite this, family members noted there was still room for improvement when using Clera. Some reported the need for more care updates (*n* = 4), and some would have preferred more in-depth updates (*n* = 2). It is likely that Clera users have different expectations around how many updates they receive and their length of the updates. Finding ways to cater for all user preferences is suggested, for example perhaps asking users what level of depth they would prefer updates to be when they are invited to use Clera.

Access to care updates by demographics

The implementation of Clera has demonstrated its potential to foster more equitable access to care updates across diverse groups. Evidence indicates a marked increase in the average number of contacts for all age groups, with particularly significant improvements for individuals aged 45 to 54 years (Figure 11). Families from IMD deciles 1 to 6 benefited notably, receiving more frequent updates per day following Clera's introduction (Figure 14). Moreover, the system ensured consistent increases in contact frequency regardless of distance from the hospital or whether family members had disabilities (Figure 18). Employment status also saw broader inclusivity, as contact rates rose across all groups, except for an exception in the long-term sick or disabled

category, likely due to sample size (Figure 20). Although these findings should be considered as early-stage evidence due to the size of the pilot, they suggest that there is no evidence of Clera negatively impacting equity of access and experience, as the evaluation shows that care updates were made more readily available across varied demographic and socioeconomic contexts.

4.2. What is the impact of Clera on staff members?

Understanding of Clera

A shared understanding is crucial for aligning staff efforts and ensuring cohesive implementation of any new system. Almost all staff felt they had a shared understanding of Clera's purpose (92%; Figure 25). This widespread understanding emerged despite inconsistencies in training access, suggesting that communication about Clera's purpose was effectively reinforced through other channels, such as team discussions. In this context, broad comprehension of Clera's purpose likely helped staff navigate the implementation with greater confidence and coherence, contributing to a smoother integration across ward 27B. This highlights the importance of clearly articulating the purpose behind the system change, not only to support staff engagement, but to enhance the likelihood of sustained success, even when formal training cannot reach everyone equally.

Integrating Clera into staff workload

Overall, 86% of staff felt they could easily integrate Clera into their existing work (Figure 25). Free text responses noted that this could be improved further by integrating Clera into Careflow and into their workload. Staff members likely responded positively to the survey statement due to Clera's intuitiveness and efficiency, as noted in interview responses. Some staff members highlighted room for improvement in integration due to not having a computer on wheels, waiting for multiple family members to confirm during the consenting process, and having to rewrite messages due to IT errors. Improving integration further would likely lead to greater satisfaction levels.

Training to use Clera

During the pilot, 58% of staff felt that sufficient training was provided to enable use of Clera (Figure 25). Although positive, this proportion was lower compared to other satisfaction ratings provided by staff. Interviewees highlighted that staff found Clera, "*more or less intuitive*" and that training was, "*fine*", however one staff member noted that some staff did not receive the training. Despite this, some doctors were using Clera based on the email that was provided and had no problems using the app. The lower proportion of staff members, compared to other satisfaction ratings, could be due to not all staff receiving the training. Ensuring comprehensive training access for all staff could maximise its utilisation and increase satisfaction levels further.

Delivery of Clera

Less than half of staff (42%) agreed that hospital management staff supported Clera's delivery (Figure 25). Despite this, free-text responses and interviews did not uncover reasons why fewer

staff agreed with the statement. This could be due to a multitude of reasons, such as change resistance, where management may be hesitant to fully embrace new ways of working due to perceived risks or uncertainty (Perunovic et al., 2017). Additionally, competing priorities or limited capacity may prevent management from visibly supporting Clera, even if they are broadly in favour. A lack of clear communication or visible endorsement from leadership can also contribute to staff perceptions, particularly if support is expressed behind closed doors rather than through active participation or advocacy (Perunovic et al., 2017). As staff reported not having time to complete updates on the ward round, encouragement from consultants (by providing them with the time to complete updates) could facilitate the delivery of Clera. Future surveys could be completed to uncover the specific reasons why fewer staff members considered management to be supportive of Clera's delivery.

Staff perceptions of using Clera

In the baseline period, 73% of staff did not spend any time updating patients and family members per day (Figure 26). Of those who did, staff updated either one or two patients or family members per day. Following Clera implementation, 91% of staff did spend time updating patients and family members, ranging from one to four patients or family members per day. This was a statistically significant increase in the number of updates provided to patients and family members following Clera implementation. Staff spent more time updating people via phone or text per day following Clera implementation compared to baseline; 91% spent over 5 minutes providing updates following implementation, compared to 27% in the baseline (Figure 27), despite each update taking half the time to send (Figure 27). This indicates that staff are using Clera to provide more updates to patients and family members, reflecting Clera's ability to enhance communication between staff, patients, and families, fostering transparency and trust. For healthcare professionals, communication tools such as Clera can contribute to fewer communication-related errors (Swift, 2017) and increased satisfaction (Katsaliaki, 2022). By making updates a routine part of care, Clera may have improved not only informational transparency but the emotional and operational climate of the ward, benefitting both patients and staff.

Almost all staff valued the effects Clera had on their work and saw the potential value of Clera in the future (92%; Figure 25). Interview responses noted that staff reported increased communication with patients and families as they were able to ask more questions (n = 2). Clera was useful for providing general updates (n = 2), however more serious updates required a telephone call. Two doctors reported Clera to yield efficiency savings, particularly when providing short updates as part of the ward routine. The positive perception of Clera among staff underscores its effectiveness as both a communication and efficiency tool.

Staff proposed a number of slight improvements to improve Clera. These included preventing messages disappearing after attempting to send the message, clearer guidance to patients that they needed to respond to the initial text message, and ensuring that enough computers were available on the ward. Despite this, staff appear satisfied with the Clera platform overall due to its efficiency and value of updating patients and families. Addressing these minor issues could further refine Clera and align the app more closely with staff needs. Resolving problems such as usability

concerns ensures long-term viability and adaptability of Clera, paving the way for the app's successful application in a multitude of healthcare settings.

5. Recommendations

It was recognised at the start of this evaluation that Clera is still undergoing development and refinement and this evaluation is a valuable opportunity to gather patient, family and staff feedback to support the co-design of the product to best match the needs of all users. Therefore, the following recommendations can be made to inform Clera Healthcare in their product development and to enhance the staff experience with Clera, several improvements are recommended. Seeking grant funding to enhance the usability and integration of the technology and carry out a longer period of evaluation would help further the existing evidence base of Clera as a suitable tool in the NHS.

Staff experience recommendations

1. First, ensuring all staff have received mandatory Clera training is essential for consistent and confident use. This can be delivered through in-person sessions, supported by on-demand digital resources and regular refresher opportunities
2. Streamlining the patient consent and contact detail confirmation process, through automation or simplification, would significantly reduce administrative burden
    a) Improvements to the messaging system are also key. These include:
        i. Enabling other members of the MTD to send messages
        ii. Introducing a character counter during message composition
        iii. Clarifying on the home screen whether received texts are confirmations or general messages
        iv. Sending a second reminder text to non-responders after 48 hours
3. Finally, usability enhancements such as:
    a) Allowing filtering of patients (for example, by consultant)
    b) Listing patients in ward order rather than using the traffic light system
    c) Fully integrating Clera with Careflow and across all hospital wards would support more efficient workflows and better alignment with existing systems

Patient and family experience recommendations

To improve the patient and family experience with the Clera app, several recommendations are also proposed.

1. First, awareness and understanding of Clera can be strengthened by offering clearer information about the app's purpose and how families will receive updates. This could be delivered through updated leaflets, staff explanations at admission, digital resources via QR codes, and alternative channels such as emails or automated telephone calls
2. To better meet the varied needs of users, Clera should also offer families the option to choose their preferred level of detail in updates when they are first invited to use the service, ensuring communication is appropriately tailored
3. Improve communication functionality, such as having the option to request a follow-up call if users require further clarification or support
4. Additionally, to help manage expectations and provide reassurance, families could receive regular messages even when there are no changes to report, for example, a brief automated update indicating, "*no change*" in care

These enhancements would support more meaningful and accessible communication between families and care teams.

6. Conclusion

During the pilot at NBT, Clera has demonstrated the potential to provide significant improvements in communication between healthcare staff, patients, and families, fostering greater transparency and trust. Staff have embraced Clera as an effective tool for delivering updates efficiently, while families appreciate its role in enhancing their understanding and involvement in patient care.

Although minor usability challenges were reported, these are outweighed by the platform's overall impact on satisfaction and early signs of improved efficiency. Addressing these challenges through planning product development and incorporating recommended enhancements will ensure Clera's long-term viability and adaptability, solidifying its position as a valuable asset in diverse healthcare settings. Exploring the viability of integrating Clera with the most commonly used hospital information systems, for example CareFlow, would significantly improve interoperability and facilitate wider uptake.

To build on the promising early-stage findings of the current evaluation, further assessment is required to confirm Clera's impact when implemented over a longer period and at greater scale. Health Innovation West of England's innovator support team will continue to work with the

company to support their innovation journey and once ready and the benefits shown on a wider scale, explore options for wider adoption and spread.

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8. Appendices

8.1. Appendix A: Standard operating procedure - Clera Patient and family communications platform - PILOT

Division: *Trust-Wide (more than one division) or division*

Specific staff groups to whom this policy directly applies	Likely frequency of use	Other staff who may need to be familiar with policy
Infectious Disease ward and clinical team	Frequent during pilot phase during Feb and March 2025	Evaluation team at Health Innovation West of England

Main Author(s):	Alice Appleton – Clera Healthcare Jonathan Abeles – Clera Healthcare / NBT Ameeka Thompson, Infection Disease Registrar, NBT Tim Keen – Associate Director of Strategy, NBT
Consultation:	Infectious Diseases / 27B clinical leadership
Approval Authority (Committee/ Group/ Lead Clinician):	Ed Moran – Infectious Disease specialty lead, NBT
Executive Lead (Trust-Wide only):	N/A
Date of Approval:	7 February 2025
Next Review Due:	3 March 2025
Version:	1.0
KEYWORDS:	Clera Patient Communications Family

Summary of changes since the previous version	Moved previous draft from Clera to NBT format. Amended SOP for comments from Mel De Witt to address patient safety requirements.

{The single front page (above) can be used as a cover sheet for system-wide documents}

Please use the Policy for the Development and Management of Trust Procedural Documents (CO1) - LINK (nbt.nhs.uk) **and complete the author checklist for Trust-Wide documents)**

1. Purpose	To standardise the use of the Clera platform for doctors to provide 48-hourly updates to patients and families, ensuring clarity, professionalism, and compliance with privacy regulations.
2. Key Messages	This SOP is to support the piloting of the Clera application in Infectious Diseases ward. This SOP remains draft and only applies to the pilot. The pilot is being evaluated to inform the development of Clera application.
3. Relevant Policies & Guidance	• Information Governance policies and guidance – GDPR requirements
4. Operational Areas Included	This SOP applies to all healthcare professionals using Clera for non-sensitive updates, including clinical plans, discharge plans, and day-to-day progress. During the pilot, Clera is only being used in Infectious Diseases (ward 27B)
5. Operational Areas Excluded	Clera is currently only being piloted on 27B – Infectious Diseases. All other areas are excluded.
6. Who should read this	Clinicians working on 27B who
7. Roles responsible for carrying out this procedure	• Clinical Staff: gain patient consent, send accurate updates every 48 hours to consenting patients or families on 27B, print off the contact stream PDF on discharge. • Pilot Organisers: Monitor compliance and review platform usage. • Clera Team: Maintain platform security, update patient lists at the end of each day (to emulate an integrated system)

8. Procedure:

1. **Preparation**

- Log in securely with Microsoft credentials.
- Add patients (name/DOB) to Clera. Obtain written consent using the provided paper consent form (alongside the Patient Information Leaflet) to use the service, and obtain contact details from the patient of the family/friends they wish to include on the platform who will also be invited to use the system and thereby receive updates on the patient's care.
- If you assess a patient to lack capacity you may act in their best interest (sign the consent form to acknowledge this) and add those with Lasting Powers of Attorney (LPA). The default is to add all persons with Lasting Power of Attorney if there are multiple, unless good reason not to. If a patient lacks capacity and has no LPA then you may act in their best interests to add their identified next of kin or another family member with the consent of the next of kin (NOK).
- Please store the consent form in the patient's notes.

2. **Add the nominated contacts (Family/Friend/NOK/LPA) details to Clera**
   - Add the phone number, name and relationship to the patient.
   - This triggers an automatic message to ask nominated contacts to respond with the first initial and year of birth of the patient.
   - Once they have responded, you may click 'confirm' to verify that you are speaking with the correct person.
   - Once you have consent and have verified the patient, you may begin conversation.

3. **Message Content**
   - **Include**: Clinical updates, discharge plans, general progress.
   - **Exclude**: Diagnoses, significant changes, identifiable information, breaking bad news, or urgent updates.

4. **Writing Guidelines**
   - Use clear, professional, and empathetic language. Avoid jargon.
   - Review messages for accuracy and tone. Seek supervisor approval if needed.

5. **Follow-Up**
   - You may ask questions to patients/nominated contacts by electing to 'allow response'. If you do this, you must ensure you are available to action responses (if you have requested them) and escalate concerns to supervisors.
   - If the response to any questions indicates a change of medical management plan is indicated, then further information should be sought before any change is made. No change should be made solely on information received on the app.
   - Please ensure you discuss any support plans you have made with nominated contacts through Clera with the patient before enacting the change.

6. **Discharge/Transfer**

Download the contact stream to PDF and print contact records. Please store within the medical notes. It is the responsibility of the discharging clinician to download and print Clera notes.

Security and Compliance

- Follow confidentiality regulations (e.g., GDPR).
- Report breaches immediately to Jonathan.abeles1@nhs.net (Clera Healthcare Ltd) and file a Datix report.

Training
All staff must complete Clera training or view the training video distributed via email.

Monitoring and Auditing
Regular audits will ensure compliance, with corrective actions for non-compliance.

Review and Updates
SOP revisions will reflect policy, technology, or regulatory changes.

9. References (if applicable):

Contact
For questions related to Clera platform, email either:

- a.appleton1@nhs.net
- Jonathan.abeles1@nhs.net

10. Patient consent form

Patient Details:

- Full Name: _____
- NHS Number (if applicable): _____
- Date of Birth: _____

Family Member Receiving Updates:

- Full Name: _____
- Relationship to Patient: _____
- Phone Number: _____

Consent Statement: I confirm that I understand the purpose of this SMS update service and consent to North Bristol NHS Trust sending SMS updates about my care to the above-named family member. I understand:

- These messages will contain only minimal necessary information about my care.
- SMS is not a fully secure communication method.
- My consent is voluntary, and I can withdraw it at any time by contacting info@clera.uk. You can also email info@clera.uk to remove consent.

Patient Signature: _____ **Date:** _____

For Patients Who Lack Capacity: If the patient lacks capacity to provide consent and does not have a Lasting Power of Attorney (LPA) for health and welfare, updates may still be shared if deemed in the patient's best interests under the Mental Capacity Act 2005.

Healthcare Professional Authorisation:

- Decision made in best interests by: _____ (Clinician Name)
- Role: _____
- Date: _____

8.2. Appendix B: Logic model

<table>
<tr><td colspan="4">Problem: Hospital ward staff spend 14% of their time communicating with patients and families. Despite their efforts, only 8% of families report that they are “very happy” with the level of updates they receive from hospital (Ghiacy, 2024). This level of dissatisfaction can lead to patient complaints. The infectious disease unit in North Bristol NHS Trust has experienced a dual communication problem with patients in hospital. Firstly, patients themselves have trouble with recall when they are in acute settings, typically forgetting much of what is communicated to them by hospital clinicians almost immediately. Evidence has demonstrated that patients recall and comprehend only half of the medical information they receive from their physicians (Schillinger et al., 2003), and recall of information is poor regardless of literacy level (McCarthy et al., 2012). Secondly, the families of patients in hospital tend to be unhappy with the level of communication they receive about their relatives (Fumis et al., 2008). Although accompanied patients recall more than unaccompanied ones (Jansen et al., 2010), there is also an inequity in the clarity of updates received. For example, families who speak English as a second language or have inaccessibility to their doctor (such as those who work full-time or live far away) having a worse service in this respect (Fumis et al., 2008; Ngui & Flores, 2006).</td></tr>
<tr><td colspan="4">Goal: This project will pilot an online communication platform (Clera) in the infectious disease unit in NBT to improve communication with patients and families. Specifically, Clera will enable SMS communication with both patients and multiple family members via an accessible online platform. Patients and families will be updated with details of their care plan for the duration of their stay. Clear expected benefits are:
1. Involving patients in their care more and helping to improve their medical information recall
2. Inform families in a more equitable way
3. Free up staff time from updating patients and families</td></tr>
<tr><td>Activities
Planning the pilot</td><td>Outputs
Planning the pilot</td><td>Outcomes (measured in pilot)
Patients and Families</td><td>Impacts (not measured in pilot)</td></tr>
</table>

• Local system configuration
• *Governance (patient safety, IG, EHIA)*
• *RACI chart*
• Programme management tools (Gantt, risk logs, reporting etc, implementation plan (full launch or soft launch)
• *Training document / SOPs:*
  • *System use*
  • *Inclusion criteria*
  • Documentation in Clera
  • *Process*
  • *Consent*
  • *Data collection*
	• System configured
	• Necessary governance in place
	• Accountable / responsible staff agreed roles
	• Gantt, implementation plan and other PM tools in place
	• SOPs and training documents ready
		1. Patients and families feel more informed.
		2. There is more equitable access to updates
		3. Families receive more frequent contact
		4. Improved patient recall
		Staff and Systems
		5. Reduction in staff time spent updating patients
		6. Improved staff satisfaction
			• Improved patient involvement in their care
			• Improved patient decision making
			• Reduction in complaints

Launching the pilot • Training (using the SOP) • Baseline data collection	**Launching the pilot** • All staff trained • Baseline data collected		

Implementing the pilot • Ongoing implementation of the pilot in accordance with the SOP • Monitoring against the implementation plan • Data collection (for evaluation)	**Implementing the pilot** • Clera is used in accordance with the SOP. • Evaluation data collected in accordance with the plan		
Evaluating the pilot • *Planning:* Logic model, evaluation plan, Survey Design and piloting, DPIA and DSAs • *Impact Evaluation:* Data transfer, Data analysis, reporting. • *Process Evaluation: Topic guides, interviews, analysis, reporting*	**Evaluating the pilot** • Evaluation plan produced • Evaluation report produced (impact and process evaluation)		


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