TITLE

Family perspectives on facilitators and barriers to the set up and conduct of virtual visiting in intensive care during the COVID-19 pandemic: a qualitative interview study

ABSTRACT

Objective

To gain perspectives from family members about barriers and facilitators to virtual visit set up and conduct across intensive care unit settings in the United Kingdom to inform understanding of best practices.

Methods

We conducted a qualitative descriptive study recruiting a purposive sample of family members of adult intensive care unit patients experiencing virtual visiting during Jan to May 2021 of the COVID-19 pandemic. We used semi-structured qualitative interviews and a standard Thematic Analysis approach.

Results

We recruited 41 family-member participants from 16 hospitals in the United Kingdom. Facilitators to successful virtual visit set-up were preparation of the family, negotiating a preferred time, and easy-to-use technology. Facilitators to successful conduct were intensive care unit team member presence; enabling family involvement in care; inclusivity, accessibility, and flexibility; and having a sense of control. Barriers that created distress or conflict included restrictive virtual visiting practices; raising expectations then failing to meet them; lack of virtual visit pre-planning; and failing to prepare the patient. Barriers to visit conduct were incorrect camera positioning, insufficient technical and staff resources, issues with three-way connectivity, and lack of call closure. Recommendations included emotional self-preparation, increased technology availability, and preparing conversation topics.

Conclusion

These data may guide virtual visiting practices during the ongoing pandemic but also to continue virtual visiting outside of pandemic conditions. This will benefit family members suffering from ill health, living at a distance, unable to afford travel, and those with work and care commitments, thereby reducing inequities of access and promoting family-centered care.

KEY WORDS

COVID-19; communication; family; family-centred care; intensive care; virtual visiting

INTRODUCTION

The COVID-19 pandemic has forced the rapid introduction of policies that restrict in-person intensive care unit visiting globally (Fiest et al., 2021, Rose et al., 2020, Wakam et al., 2020). A growing evidence base elucidates the negative effects of restrictive visiting policies on family psychological wellbeing. Anxiety and depression prevalence in family members unable to visit the intensive care unit (ICU) in-person during the pandemic have been documented as high as 83% and 73% respectively (Cattelan et al., 2021), far exceeding those previously documented among pre-pandemic, in-person family visitors (Rosa et al., 2019). Post-traumatic stress disorder is also common and higher in family members of patients with COVID-19 compared to other ICU patients (Azoulay et al., 2022, Zante et al., 2021). Bereaved family members who were unable to visit report strong feelings of disbelief that may lead to complicated grief (Kentish-Barnes et al., 2021). These high levels of family member psychological distress are unsurprising. Uncertainty and lack of information, both compounded by the enforced separation of visiting restrictions (Kentish-Barnes et al., 2021), are widely recognised contributors to family stress and anxiety (Wong et al., 2019). Perceived inadequacy of communication while living with uncertainty can heighten emotional vulnerability and perceived loss of control (Wong et al., 2018).

To lessen the psychological impact of visiting restrictions, intensive care units employed a range of alternate communication strategies. These include structured and ad hoc telephone clinical updates delivered by the intensive care unit team, (Webb et al., 2020) or by newly created family liaison teams, (Keen et al., 2021, Lopez-Soto et al., 2021) and the use of video technology to enable virtual visiting (Rose et al., 2020). We have previously reported on the benefits of virtual visiting described by *clinicians* facilitating these visits including: restoring the family unit; facilitating family involvement in patient care; and enabling sensemaking through visualisation of their relative, the intensive care unit environment, and the intensive care unit team (Xyrichis et al., 2021). However, emerging evidence on *family* perspectives of these alternate communication strategies is conflicting. One study describing a combination of telephone-based family liaison team communication and virtual visits reported good overall satisfaction with communication (Lopez-Soto et al., 2021). Other studies report families struggling to understand information, make sense of the situation, feel informed about care, and to build a relationship with the intensive care unit team (Chen et al., 2021, Kentish-Barnes et al., 2021).

Given the rapid introduction of these alternate communication and visiting strategies, which limited opportunity for user consultation, it is imperative to learn from family members as to preferred strategies for virtual visits. Our objective was to gain perspectives from family members on barriers and facilitators to the set up and conduct of virtual visits across intensive care unit settings in the United Kingdom to inform best practice and derive recommendations to improve virtual visiting. We

also explored how family members experienced other forms of communication to understand how virtual visiting was included.

METHODS

Design

We used semi-structured interviews and a qualitative descriptive approach (Bradshaw et al., 2017).

Setting, recruitment, and participants

We recruited a purposive sample of family members of adult intensive care unit patients who experienced at least one virtual visit in an adult intensive care unit in the United Kingdom during Jan to May 2021 of the COVID-19 pandemic. Participants were invited to take part in an interview using a recruitment notice sent via the bespoke intensive care unit virtual visiting adaptation of the e-platform aTouchAway™, developed and distributed by Life Lines across the UK. Life Lines is a philanthropic COVID-19 rapid response project that delivered over 1,400 4G-enabled Android tablets to intensive care units in 180 National Health Service hospitals (https://www.kingshealthpartners.org/our-work/lifelines). Participants interested in participating provided their contact details to the research team via the aTouchAway app. These participants were then contacted via email to set up an interview date and time. We continued to recruit participants until the interview team perceived we had achieved sufficient information power for our relatively narrowly focused study aim and the specificity of our study participants (Malterud et al., 2016).

Study inclusion criteria comprised: (1) aged 18 and over; (2) able to read and speak English; (3) registered with aTouchAway for intensive care unit virtual visiting; and (4) consent to participate. There were no exclusion criteria. We continued to recruit participants until the research team perceived no new emerging themes and from a purposively sampling perspective, we had maximized diversity in terms of representation from different National Health Service hospitals (including representation from within and outside of London as well as academic versus community (District General) hospitals) and relationship to the admitted patient.

Virtual visiting intervention

The Life Lines virtual visiting solution enables secure cloud-based, one-way initiation of bi-directional video and audio calling, initiated from an intensive care unit -based tablet. Intensive care unit or family liaison team members invite a family connection via the tablet using the email address the family member uses to set up their aTouchAway account on their personal device. aTouchAway also has a three-way calling function whereby a family member can invite another person to join a call initiated by the intensive care unit, if this second family member has created their own aTouchAway account.

Data collection

Telephone interviews were conducted by three researchers (⬛⬛⬛⬛⬛⬛) experienced in conducting semi-structured interviews and qualitative analyses, two with a clinical intensive care unit background (⬛⬛⬛⬛), one male (⬛⬛), and all with no established relationship with participants. Interviewers used a semi-structured interview guide developed iteratively by the study team (See Supplementary Material) considering data from our UK-wide survey and interviews completed with family liaison team members and intensive care unit clinicians. Following completion of initial interviews, the interviewing team confirmed the interview guide was generating data to address our study objectives. Interviews were anticipated to be between 30- 60 minutes in duration, voice recorded digitally and transcribed verbatim by a professional transcription company.

Data analysis

We analyzed interview transcripts inductively, using a standard Thematic Analysis approach (Braun et al., 2006, 2021). We used NVivo 12 software (QSR International) to manage data. Transcripts were initially reviewed in-depth by three investigators (⬛⬛⬛⬛⬛⬛) to promote data familiarisation. Analysis commenced and continued throughout the interviews to aid in establishing sufficient information power and when to discontinue interviews as no new themes were identified. One researcher (⬛⬛) then line-by-line coded all transcripts generating an initial codebook. A second researcher (⬛⬛⬛⬛) coded 30% of the transcripts using both open and focussed coding. We drew from the evidence-base on family-centered care in intensive care unit (Cypress et al., 2017, Davidson et al., 2017, Vandall-Walker et al., 2011). Specifically we sought and grouped codes under broad themes relating to facilitators of and barriers to the set-up and conduct of virtual visiting that promoted or hindered family-centred care (See Supplementary Material for codebook). We held a series of data analysis meetings to refine the codebook; identify, define and refine themes; and to ensure rigour (namely dependability and credibility). Themes were then discussed, revised, and verified by the wider research team.

Ethics approval

Approval was obtained via the National Health Service Health Research Authority 20/SW/0147. Informed verbal consent was audio-recorded separately prior to interview.

RESULTS

We recruited 41 family member participants who experienced intensive care unit virtual visiting in one of 16 National Health Service hospitals including acute tertiary centres and district general hospitals across the United Kingdom with intensive care unit services ranging from a single intensive care unit to multiple intensive care units including a dedicated extracorporeal membrane oxygenation

service. All participants that consented participated in an interview. Interview length ranged from 17 to 51 minutes (mean (standard deviation) 32 (10) minutes). Of these, 37 (90%) were female, 14 (34%) were spouses and 13 (32%) were adult children of an intensive care unit patient. All participants experienced at least one virtual visit with most experiencing multiple visits over several weeks. COVID pneumonitis was the intensive care unit admission diagnosis for 31 (76%) patients (Table 1). Eight (20%) of the 41 patients died in the intensive care unit. Sixteen (39%) participants were interviewed while their relative was still in-hospital, the remaining were interviewed after their relative had been discharged or died in the intensive care unit.

We structured our results around the overall theme of virtual visiting being 'the next best thing' to in-person visiting. Participants shared factors that influenced their perception and experience of virtual visiting, which we grouped under facilitators and barriers to the set up and conduct of virtual visits. We also identified recommendations for supporting family wellbeing and improving virtual visits.

Overall theme: virtual visiting is the next best thing

All participants indicated the initial method of communication with the intensive care unit was via telephone, never via video call. These initial telephone calls were predominantly initiated by the intensive care unit or family liaison team but in a few cases participants outlined they had to call the intensive care unit to obtain initial information on the status of their relative. The telephone remained the primary method of communication for formal clinical updates throughout the intensive care unit stay, which participants viewed as an acceptable way to communicate this type of information

"For the handover with the staff, it was adequate for it to be on the phone. I don't need them to be virtually; obviously the contact with my husband was importantly virtually." (Participant 4-wife)

Once telephone communication was established, virtual visiting was then used to enable family members to see and communicate with their relative in intensive care. Participants acknowledged that virtual visits were not the same as in-person visits but considered them the next best thing, as being able to visualise and be virtually present with their relative brought additional comfort beyond that obtained from telephone clinical updates.

"It was second best. To have been able to be there and just to hold his hand or something would have been brilliant. But because we couldn't, then this was the next best thing. It helped us manage and we really were so appreciative." (Participant 35-mother)

Many participants articulated that being able to see and confirm their relative was indeed alive brought great relief.

"And obviously were very thrilled because at least then we could see him. Yeah, um, obviously, it wasn't possible to speak with him because he was intubated and so on but at least then you know, he

was real, and he was there and still alive." (Participant 5-sister-in-law)

Setting up a virtual visit

Facilitators

Sub-theme: Preparing the family to see their loved one

Participants expressed appreciation for the intensive care unit or family liaison team members who took the time to inform them of how their relative would look before the camera was turned to view their relative. Some family members described being shown intensive care unit 'machines' and being given explanations of how these worked.

"And he set the scene before….Because obviously, I don't know what he's gonna look like and the consultant came on and he again was brilliant. He explained how he would look, you know, he's got a hole in his throat, he's got a pipe in his throat, he's very swollen because of the steroids, he's not gonna look pretty." (Participant 29-ex-wife)

Subtheme: Negotiating a time

Participants appreciated when the ICU or family liaison team negotiated a preferred time for a virtual visit as this enabled them not only to mentally prepare for the visit and assemble other family members if required, but also let them get on with other daily activities.

"So there was a little bit more communication with the family liaison team about when would be a good time to call. We're gonna call you at this time. So everybody was prepared for it. I sort of, um, rushed over,… to the flat to see her on the video just to get to her flat just so I could see her." (Participant 11-sister)

Subtheme: Easy to use technology

Nearly all participants stated they found the aTouchAway app easy to use and set up on their own devices.

"Yes, very, very simple, very, very simple, very, very straightforward. You wouldn't, don't have to be a technophobe (sic) or anything at all. If you can, if you can follow the instructions on a microwave or a washing machine or sky remote, or if you can hear what people are saying, you'll be fine. It's so easy. Don't be worried. Don't be put off. There's nothing to be frightened of. It's very simple. It's very friendly, very user friendly." (Participant 13-sister)

A few participants noted that the set up was not easy for those less confident with technology however, these participants were able to enlist the help of another family member if they had difficulty.

"I'm not very good at all the technology. My daughter, she set it all up. She done it very quick. Um, I think it-- I personally think it's very good." (Participant 2-wife)

Barriers

Participants described perceived barriers to the set-up of a virtual visit that were not family-centred and created stress or conflict for families (Table 2). These included restrictive virtual visiting; raising expectations then failing to meet them; lack of visit pre-planning; and failing to prepare the patient for a visit. Some hospitals restricted virtual calls to one member of the immediate next of kin only, which prevented others from being set up to virtual visit and created conflict among the family (Table 2, Quote 1). For those family members who were not the nominated next of kin this created substantial distress. These participants perceived a lack of control as it was up to the nominated next of kin to facilitate inclusion in a virtual visit, either via being invited to be present during a virtual visit or via the call forwarding feature of the aTouchAway e-platform. This also placed responsibility on the nominated next of kin to arrange access for other family members wanting to have virtual visits (Table 2, Quote 2).

Some participants reported that there were no agreed times for visits, and they had to be 'on-call' throughout the day. In some cases, participants described that inability to prepare and agree on a preferred time for a virtual visit caused them additional stress and raised privacy concerns e.g., having to take an incoming video call in a public place (Table 2, Quote 4). Some participants expressed concern that their relative in intensive care didn't seem adequately prepared by the intensive care unit team for a virtual visit (Table 2, Quote 5). This included preparation of patient who were no longer sedated for seeing themselves on camera, as well as seeing their family.

Virtual visiting conduct

Facilitators

Subtheme: Intensive care unit team member presence

As formal clinical updates were done by telephone, virtual visits were frequently facilitated by a family liaison team member who was not directly involved in clinical care. Participants valued the opportunity to interact with an intensive care unit team member during a virtual visit who could provide brief updates and support their relative with communication, particularly when intubated.

"And then the nurse would always be sort of there and she would, um, because after a day or so [the patient] could start writing on the board…. she could help lip read a little bit, so she sort of helped and as they have every time I've had one, there's always been a nurse there to try and sort of decipher what he's trying to say." (Participant 18-partner)

Subtheme: Enabling family involvement in care

Some participants described being invited to speak to their relative as a way to help bring them out of sedation or to encourage participation in activities such as eating, speaking, and rehabilitation. This

provided these participants with a sense of purpose as they could contribute to their relative's recovery.

"So she hasn't been talking with the balloon cuff down from the tracheotomy. But, but then when we speak to her on the video platform, my mum and dad do. She tries to talk, you know, wants to talk… So it is rehab, isn't it? It's a form of rehab." (Participant 11-sister)

Subtheme: Inclusivity

Most participants described the ability to include multiple family members in the same household as a positive family-centred aspect of virtual visiting, particularly for large extended families.

"A lot of the time I have to sort of take the iPad to the sisters and, um and that's how they get to see her. And when she hears their voices, it's a big response from mum." (Participant 15-daughter)

Participants also appreciated the flexibility virtual visiting offered for inclusion of children and teenagers on a visit, particularly in terms of choice to participate and ability to leave the visit at any time by simply going off camera.

*"O*ne day the boys have seen him and found it a bit upsetting. Then they, um, a video played over the call. Whereas our daughter did want to keep coming on the videos. ..They said that they found it upsetting. But then they do choose to come in on another call a few days later… they sort of came in and out. And, you know, there wasn't any pressure." (Participant 4-wife)*

Subtheme: Accessibility and Flexibility

Another advantage of virtual visiting identified by participants was the accessibility and flexibility in which was it offered. This meant that being able to visit, albeit virtually, was possible while continuing to meet other day-to-day commitments such as work and childcare.

"So you might be working from home and not be able to get to the hospital. So in the lunch break you could sit and have a call with that person." (Participant 31-daughter)

Subtheme: Sense of control

Participants also appreciated when they were given control over the duration of a visit and when to end the call.

"They said that they (the staff) weren't actively listening but obviously they're there. But then, yeah, I can end the call at any time. And if there was a pause or they hear me saying goodbye, they will then turn the phone around and say 'are you okay for it to end?' and that's what would happen." (Participant 6-wife)

Barriers

Perceived barriers to virtual visit conduct included poor camera positioning, patient inability to hold the tablet due to generalised weakness, insufficient resources (tablets, tablet stands, or staff), and lack

of call closure (Table 3). Some participants expressed frustration about a less than optimal camera view when the tablet was held by a staff member or if the tablet was propped so that a staff member didn't have to remain in attendance during the entire visit (Table 3, Quote 1). One participant described a tablet falling on their relative's face when they were too weak to hold the tablet (Table 3, Quote 2).

Figure 1 presents facilitators and barriers for both set up and conduct of a virtual visit.

Participant recommendations to facilitate a successful virtual visit
In addition to the above facilitators and barriers to successful virtual visit set up and conduct, some participants described strategies they had learnt that had helped them through a virtual visit or made recommendations for improvements. These included emotional self-preparation for a visit, increased availability of virtual visiting technology, and preparing a list of conversation topics, both as a memory aide but also to overcome the challenges of a one-way conversation when patients were sedated or unconscious (Table 4).

DISCUSSION
In this qualitative study including 41 family member participants of intensive care unit patients experiencing virtual visiting in 16 different hospitals in the United Kingdom, we found that important facilitators to the successful set-up of a virtual visit were preparation of the family for the call, negotiating a preferred time, and easy to use technology. Facilitators to successful virtual visit conduct included intensive care unit team member presence; enabling family involvement in care; inclusivity, accessibility, and flexibility; and having a sense of control. Barriers to virtual visit set-up that created stress or conflict included restrictive virtual visiting practices, raising expectations then failing to meet them, lack of visit pre-planning; and failing to adequately prepare the patient for the visit. Barriers to visit conduct were poor camera positioning and holding of the tablet, insufficient resources, issues with three-way connectivity, and lack of call closure. Recommendations to improve the experience of virtual visiting included emotional self-preparation increased technology availability, and preparing conversation topics. These findings can be used to inform visiting policy and practices not only in the remaining pandemic-induced in-person visiting restrictions but also when using virtual visiting as an adjunct to in-person visiting for family members unable to physically be present in intensive care. While participants acknowledged virtual visiting was second best to in-person visiting due to the inability to offer comfort through physical touch and presence, it was seen as superior to telephone communication for providing reassurance via the visualisation of their relative and the ICU environment.

Participants considered virtual visiting practices that promoted inclusivity, accessibility, and flexibility for families as important family-centred facilitators of a good visiting experience. Restrictions to who had access to a virtual visit created additional burden and conflict for some suggesting a more liberal visiting policy should be prioritised. Virtual visiting enabled inclusivity of access, as multiple family members were able to virtually visit at the same time from the same or different households including those in different parts of the world. This differs from intensive care unit in-person visiting that generally limits visitors numbers at the bedside (Hunter et al., 2010). Being able to visit from one's own home also offered flexibility in scheduling visits around work and childcare commitments, as well as avoiding the stressors of in-person visiting (Schneeberger et al., 2020). Outside of pandemic conditions, in-person visiting is not always feasible due to geographical constraints; work/caregiving commitments; and frailty, ill health, or incapacity (de Havenon et al., 2015). Moreover, intensive care unit in-person visiting may cause substantial life/work disruption, substantial costs, and income loss (van Beusekom et al., 2016). Therefore, intensive care units may wish to consider continuing to offer virtual visiting outside of pandemic conditions to addresses carer burden, equity of access, economic inequities and erosion of social capital.

Virtual visiting also enabled inclusion of children. Although policies that prohibit children from intensive care unit in-person visiting have relaxed over the last decade there are often still restrictions with very young children in particular. Both parents and intensive care unit clinicians frequently have concerns about causing additional stress, introducing infection, and having the resources to manage the logistical and psychological aspects of a child visiting the intensive care unit (Lamiani et al., 2021). Virtual visiting means a child can visit in the comfort of familiar surroundings with their usual distractions available, while easily being able to leave or join a visit by moving off or on screen.

Key experiential learnings for facilitating family member emotional wellbeing were the need for physical and mental preparation for a visit both personally and from the intensive care unit or family liaison team. Other recommendations to support wellbeing were planning ways to be supported during the visit and to enable recovery from the visit. Intensive care unit visiting can be stressful for families (Schneeberger et al., 2020). Preparation for what will be seen during a visit, particularly a first visit, is an important family-centred practice that should be standard of care for both virtual and in-person visiting (Mistraletti et al., 2020).

Most perceived barriers to the successful set up and conduct of an intensive care unit virtual visit reported by participants are potentially modifiable with additional resources including tablet holders or stands and training in terms of best virtual visiting practices. Scheduling a mutually agreed and convenient time for both the intensive care unit team and the family is important both to enable family to prepare but also to minimise the risk of a visit not happening. Preparation of the patient to view

themselves on camera when awake is a unique consideration of virtual visiting that is not needed for in-person visits. Providing a patient with a mirror prior to a visit with appropriate emotional support may reduce the impact of seeing themselves on camera for the first time; this option of self-view can also be 'hidden' from participants who do not wish to see themselves. The need for closure at the conclusion of a video call is another important element of virtual visiting that needs consideration and differs from in-person visiting, during which family members usually having greater ability to come and go.

Our study has limitations. As with any qualitative study, there is the potential for researcher bias in data interpretation. To minimise such bias, we used a team approach to analysis comprising intensive care unit and non- intensive care unit researchers with only one researcher ████ having direct clinical experience of virtual visits. Another limitation is that, although innovative in terms of enabling recruitment of family members via the aTouchaway platform, we explored experiences with one type of virtual visiting platform only, and with English speaking participants. We also are unable to comment on the experiences of family members who never received a virtual visit. A key strength of our study is a large sample, across multiple intensive care unit settings in the United kingdom enhancing the transferability of findings. We sought diversity in participant sex, relationship to patient, and admitting hospital. Nevertheless males are underrepresented in our sample.

CONCLUSION

Virtual visiting, although not a replacement for in-person visiting, has the potential to offer comfort and relief to families if best practices for set-up and conduct are followed. Participants identified family-centred facilitators to a good virtual visit were inclusivity, accessibility, and flexibility as well as good preparation of the family and patient. Support of family and patient wellbeing before, during and after a virtual visit was also recommended. Understanding of virtual visiting practices that create family stress or conflict such restrictive virtual visiting practices, lack of pre-planning or call closure provide future quality improvement opportunities in intensive care unit visiting. Virtual visiting also offered some unique benefits over and above in-person visiting relating to accessibility to family members in different locations and enabling children to virtually visit the intensive care unit. Our data may be used to guide virtual visiting practices when visiting restrictions are in place but also to continue intensive care unit virtual visiting when restrictions are lifted thereby promoting equity of access and family-centered care.

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Table 1 Demographic characteristics

Characteristics	n (%)
Female sex	37 (90)
Relationship to intensive care unit patient	
Spouse/partner	14 (34)
Child	13 (32)
Sibling	6 (15)
Parent	3 (7)
Other[a]	5 (12)
Patient ICU admitting diagnosis of COVID pneumonitis	31 (76)
Required extracorporeal membrane oxygenation	3 (7)
Transferred between hospitals	14 (34)

a   Other comprised granddaughter X2; niece X2; sister-in-law X1.

Table 2 Subthemes related to barriers to the set up of a virtual visit that created stress or conflict for families

Barriers	Illustrative quote
Restrictive virtual visiting	*bit of miscommunication at one point where his brother was given access to information and I wasn't so that wasn't the hospitals fault. I mean, that was also very fraught as well. Dealing with family members that you're not particularly close to. But then you have to rely on them for information (Participant 6-wife)*
Burden of responsibility for other family to visit	*They couldn't see him unless they were physically with me. And then they couldn't be in ITU so just one family member has access to, almost like the privileges…. I couldn't concentrate on my work and then explaining it on to the rest of the family as well. It was quite difficult (Participant 26-son)*
Raising expectations then failing to meet them	*I had a call to say they were running late, this was about 5pm in the afternoon, and they would get to me probably around 6:30-7pm to do a second one. But 6:30, 7 came, 7:30, 8, 8:30, 9 came. And at that point, I thought it's not going to happen today. But it was disappointing (ID 19-wife)*
Lack of pre-planning	*If it happens randomly um, you might not be in the right place. Yesterday I took one in Tesco's. Right in the middle of Tesco's. I just had to and and just had to ignore everyone. I think people were pretty-- Um, but this is what was going on, just, you know, respectful and stayed away anyway. But also, I've had one like go off at work. I've been with a customer and, you know, just said to them look I just briefly explain what's happening.(Participant 16-father)*
Failing to prepare the patient	*You got XXX who can't speak, who is traumatised with everything with a tablet being shoved in front of her. Um, and I think it was one of the first times when she started to come alert. But she realised, didn't have two front teeth. Didn't have teeth went missing. So she's a beautiful woman. Beautiful. Looking at herself on a video with no teeth. It was, it was horrific. I can't even get the image out of my head. She kept opening her mouth and closing her mouth, opening her mouth. (Participant 11-sister)*

Table 3 Subthemes related to barriers to the conduct of a virtual visit that created stress or conflict for families

Barriers	Illustrative quote
Poor camera positioning	*It was held by someone. Whoever was facilitating the call, it was held by them. Sometimes the angle wasn't very good. I'd say eight out of ten times the angle wasn't very good and it could be difficult to see and I'd ask them to re-angle. (Participant 28-daughter)*
Patient holding the tablet	*I've got the tablet falling down, getting put back up again, falling down, getting put back up again. The tablet is going up to the ceiling….. oh at one point, I think she'd, she'd just started to get some, some use of one of her hands, like just some slight gripping of her hand. So I think one point, they even gave it to her the hold. And I think it sort of fell on her head, her face. (Participant 11-sister)*
Insufficient resources - tablets, tablet stands, staff	*It was just the situation at the time meant they very often couldn't get there or there wasn't enough equipment or there wasn't enough staff to do it, set up. (Participant 1-wife)*
Lack of call closure	*And then, and then you know, when the call is finished and done, there's no chance of them thanking the staff or coming -returning back to them going, oh, thanks so much for helping, because at the beginning you're very involved with them and the masks are there and they're staring at the screen and getting the tech right and all of that stuff. Um, but at the end, it just sort of, it just drops and then you're gone. (Participant 14-neice)*

Table 4 Subthemes related to recommendations for virtual visits

Recommendations to support their family member wellbeing	
Arrange support during a visit	If you were very emotional, I think it would be good to do it with someone else. Just so you have somebody maybe to bounce off (Participant 5-sister-in-law)
Prepare yourself & other family members	I did send the picture because I took I snap of how my sister in ICU was looking. Um, because I wanted to send it to my other sister so she wouldn't be so shocked. (Participant 12-sister) I think psychologically, it was up to me to either make it work or don't do it all and that wasn't an option for me. (Participant 6-wife)
Make it easy to see	So what I used to do was sort of project it from the phone onto my TV, so I could see it bigger (Participant 1-wife)
Prepare topics/items to discuss	I need to start writing things down…. I was better prepared this time around. If I'm getting this call, I need to speak coherently and let him know exactly what is going on and make the most of it. (Participant 6-wife)
Prepare how to end a visit	So what I'm now started doing is at the end. I was big going on, right? Daddy's going now say, you know, good bye, darling. And then the nurses obviously gonna hear as well. Um, so she knows then knows it's a prompt for her to say okay. And then I'll, then she turns to the camera back around, and I say goodbye, to her and wave and that's it. (Participant 16-father)
Organise an activity to help decompress after a virtual visit	I kind of set myself up and then after I'll say OK, afterwards, you will go and watch This is Us on Netflix and decompress. You know, I always set myself up to do it afterwards so my brain could come down because I don't think-- I didn't realise, you know, sometimes your shoulders are by your ears, and it's not till afterwards, you know (Participant 6-wife)
Recommendations to intensive care units to improve virtual visiting	
Improve availability of virtual visiting technology	Probably a pad at every bed, like there's a phone at every bed. But the whole thing, just much more streamlined (Participant 14-neice)
Enable family to call in	You could have an iPad next to her bed and then we could call in so nobody has to have to the bother of holding the iPad (Participant 15-daughter)
Set scheduled virtual visit times	But like, a scheduling system. Um, because the thing is, when um, the nurse call does we could literally be waiting all day, um, for that call. ID 21-grandaughter)
Consider cultural influences on visiting preferences	I think culturally that's also important to know ….And not that they don't want to see him, but it upsets him too much and it scares them… And if it's not for everyone, maybe is a point (Participant 5-sister-in-law)
Virtually involve family in care planning meetings	When they have the MDT meetings stuff and talk about them. That'd be useful to attend virtually. (Participant 4-wife)