RESEARCH ARTICLE

Evaluating the use of video communication technology in a hospital specialist palliative care team during the COVID-19 pandemic [version 1; peer review: 1 approved, 1 approved with reservations]

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Abstract

Background: Healthcare professionals’ use of video communication technology has increased during the novel coronavirus disease (COVID-19) pandemic, due to infection control restrictions. Currently there is little published data about the experiences of specialist palliative care teams who are using technology to communicate during the COVID-19 pandemic. The aim of this evaluation was to describe the experience of a UK based hospital specialist palliative care team, who were using video communication technology to support care during the COVID-19 pandemic.

Methods: An online survey was distributed to the specialist palliative care team at a University teaching hospital in the North West of the UK. We asked participants to provide their views on the scope of use, barriers and future opportunities to use technology for communication in hospital palliative care.

Results: The survey was completed by 14 healthcare professionals. Participants indicated that the most common reasons for using the technology was to receive team updates (n= 14, 100%), participate in multidisciplinary team meetings (n=14, 100%), for education (n=12, 86%) and to facilitate cross-site working (n=9, 64%). We identified barriers to using the technology, which were summarised as: (1) user-based difficulties; (2) inadequate technological infrastructure; (3) data security, privacy and ethical concerns; and (4) concerns regarding staff wellbeing. Participants stated that technology can potentially improve care by improving communication with hospital and community teams and increasing access to education. We have used these
findings to develop recommendations to help palliative care teams to implement this technology better in clinical practice.

**Conclusion:** Video communication technology has the potential to improve specialist palliative care delivery; however, it is essential that healthcare organisations address the existing barriers to using this technology, to ensure that these systems work meaningfully to improve palliative care for those who are most vulnerable beyond the COVID-19 pandemic.

**Keywords**
Terminal care, supportive care, quality-of-life, palliative care, technology, digital health, innovation, ehealth
Plain language summary

What is already known about this topic

- Doctors and nurses are using video communication technology (e.g., Zoom and Microsoft Teams) more during the COVID-19 pandemic, so they can communicate with each other without meeting in person.
- Currently there is little information about the views of palliative care specialists who have used this technology to communicate during the pandemic.
- People with palliative care needs have more specialist care needs compared to other medical and surgical patients because of complex needs of patients with palliative care needs compared to other medical and surgical patients.

What this paper adds

- Our work provides information about the benefits and challenges of using technology in hospital palliative care.
- The most common reasons for using video communication technology was for staff members to receive team updates, take part in team meetings, for education and to help doctors and nurses in different hospitals to communicate better.
- We summarise the barriers to using the technology into four areas, these were: (1) user-based difficulties; (2) inadequate technological infrastructure; (3) data security, privacy and ethical concerns; and (4) concerns regarding staff wellbeing.

Implications for practice, theory or policy

- We have developed recommendations to help palliative care teams implement this technology better in clinical practice.
- Hospital leaders should fix the barriers that stop staff from using this technology well.
- More research is needed to see how well this technology works to help people who have palliative care needs.

Introduction

Novel coronavirus disease 2019 (COVID-19) is an urgent and spreading threat whose clinical and epidemiological characteristics are still being documented. Many healthcare organisations have implemented use of video communication technologies (e.g., Microsoft Teams and Zoom) for virtual communication to reduce interpersonal contact and the potential for viral transmission. This technology enables audio, video communication, messaging and file sharing. There is evidence that palliative care teams are also using this technology; however, there is limited data about the experience and views that healthcare professionals using this technology to provide palliative care during the COVID-19 pandemic.

People with palliative care needs generally have more specialist care needs compared to other medical and surgical patients; therefore, it is important we know the views of doctors and nurses who have used technology to provide palliative care during the pandemic, so we know how this technology can be best used.

Therefore, it is important to capture the experiences of palliative care professionals who have used technology to provide care during the pandemic, to determine how this technology can be best implemented in palliative care. Consequently, our aim for this evaluation was to describe the experience of a UK-based hospital specialist palliative care team, who were using video communication technology to support care during the COVID-19 pandemic.

Methods

Implementation of video-communication software at Liverpool University Hospitals NHS Foundation Trust (LUHFT)

In March 2020, the palliative care team at the Royal Liverpool University Hospital (RLUH) of LUHFT, implemented Microsoft Teams and Zoom to facilitate communication between staff. The palliative care team support adult inpatients through an advisory service, and provides direct specialist care to patients in a 12-bed palliative care inpatient unit. The palliative care team also participates in daily handover with community palliative care services.

Survey development

We developed a 12 item survey (Extended data) using free-to-use online software (Google Forms: https://www.google.co.uk/forms/about/). The survey consisted of multiple-choice and open-ended questions. We asked participants to provide their views on the purpose, scope of use, barriers and future opportunities to use technology for communication in palliative care practice. We distributed the survey by email to all palliative care staff at RLUH in October 2020. We used Google Forms to analyse the data.

Ethics statement

The project was a service evaluation so ethical approval was not required. No personal data was collected about participants. Consent to participate was inferred by completion of the survey.

Results

Participants

We sent the survey to all doctors, nurses and administrators in the department (n=17), of which 14 (82%) people participated. In total, seven (50%) clinical nurse specialists, 5 (36%) doctors, 1 (7%) general nurse and 1 (7%) administrator completed the survey.

Reasons for use of technologies in palliative care

Participants indicated that the most common reasons for using the technology was to receive team updates (n=14, 100%), participate in multidisciplinary team meetings (n=14, 100%), for education (n=12, 86%) and to facilitate cross-site working (n=9, 64%) (Figure 1). All participants used the tools on-site (n=14, 100%) with some using the technology to work from home (n=8, 57%) or from an alternative work location (n=2, 14%).

Barriers associated with technology use in palliative care

Twelve (86%) participants reported that team meetings were stopped due to technical barriers (Figure 2). These barriers included problems with logging in (n=12, 86%), navigating the...
software (n= 6, 43%), connectivity (n=12, 86%), poor audio-visual quality (n=8, 57%), and a lack of training of how to use the technology (n=8, 57%). We summarised the barriers into the following four themes, these were: (1) user-based difficulties; (2) inadequate technological infrastructure; (3) data security, privacy and ethical concerns; and (4) concerns regarding staff wellbeing (Table 1).

Positive uses of technology in palliative care during the pandemic
We asked staff to provide their views of how technology has been used well in palliative care during the pandemic. Participants reported how technology was used to facilitate virtual assessment of inpatients, and to support communication with relatives. Participants discussed how the technology provided opportunities for staff to work remotely, which enabled team-members to connect with their work colleagues when they were not able to be on site. Participants shared their views of how technology can improve future palliative care. They presented ideas on how education access can potentially be improved by virtual participation, and how an online repository can be created to share resources. Staff discussed how technology can potentially improve the capacity for staff to work across sites and therefore, improve workflow consistency in these areas. Staff discussed the potential to improve community palliative care, by enabling staff to conduct virtual consultations and broaden the options to share information. However, staff also highlighted the importance to consider the user-needs and organisational requirements necessary, to ensure that the use of technology in clinical practice is safe, effective and efficient.
Table 1. Barriers for use of video communication technology in hospital palliative care and proposed recommendations for practice.

| Barrier                                                                 | Recommendation                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| User-based difficulties: problems accessing content, issues navigating software and sharing resources. | Where possible, a nominated person should be identified to manage team meetings. Examples of the nominated person are the team administrator or a specified member of the clinical team who is involved in the meeting. All team members should have access to educational resources to receive training for how to use the technology for work-related purposes. This is to include core components such as, joining a meeting, inviting participants, sending messages, sharing resources and presentations and recording content. The clinical team should regularly review the methods and processes used to communicate with patients, caregivers and healthcare professionals’ (e.g. face to face, email, phone, video communication) to identify how current technological resources can be most effectively used to help communication. The clinical team should identify a process to facilitate meetings when the technology is unsuccessful so all team members are clear on what should be done in these circumstances. |
| Inadequate technological infrastructure: Problems with connectivity and video/audio quality. | Organisations and departments should determine the hardware and software infrastructure requirements that are necessary for staff members to use the technology appropriately. This may include:  
  - Updating and installation of software (e.g. ensuring devices are running on the required operating software and drivers necessary for installation have been installed).  
  - Purchasing and upgrading existing hardware (e.g. tablets, laptops, webcams, microphones etc etc).  
  - Optimising the technological infrastructure to reduce connectivity problems within the department (e.g. identifying areas with poor wireless coverage to facilitate network improvements). |
| Data security, privacy and ethical concerns                             | Departments should ensure the use of video-communication technology is consistent with relevant guidelines and regulations regarding data security and governance of the host organisation. The roles and responsibilities of staff should be clearly communicated so they are aware of their responsibilities.                                                                                                                                   |
| Concerns regarding staff wellbeing                                     | Departments should identify how video communication technology can be used to support staff wellbeing (e.g. by enabling connection with remote workers and purposeful use in coordinating well-being group activity). Departments should ensure staff are encouraged to have adequate breaks from technology and support staff to set boundaries between their personal and professional time. |
other authors have described the potential of this technology to improve communication between healthcare professionals and support the delivery of virtual consultations of patients and their families. Furthermore, a pre-COVID study reports that palliative care staff generally had favourable attitudes toward video visits and telehealth for home consultations. Outside of hospital, researchers have also identified how online resources and virtual communities have helped to support palliative care professionals and the public during the pandemic. Furthermore, these technologies further complement existing initiatives to improve palliative care delivery through technological innovation.

We identified barriers to using technology in palliative care, which have been reported by other authors. Previous studies have identified the user-centred challenges of using technology in healthcare organisations, where difficulties in the implementation of information technology systems make it difficult for staff to work efficiently. There are advantages and disadvantages of different technological platforms. For example, the features of Microsoft Teams and Zoom may not align with the clinical workflow of healthcare organisations. Furthermore, many users enjoy the simplicity of Zoom, whereas many healthcare organisation favour Microsoft Teams due to integration with other software. Our work is also consistent with previous studies which highlight the ethical challenges of using patient data with technological systems.

We also highlight the risk of widening inequalities between patients (and organisations) who have limited access to this technology.

**Limitations**
We are unable to comment about the efficacy, acceptability or effectiveness of this technology as this was outside the scope of this evaluation. Our analysis is small, from one centre and has limited transferability to other areas. Our findings are only relevant to the use of Microsoft Teams and Zoom, for the specific purposes they were used for in our hospital; therefore, our findings do not represent the other ways that technology was used in other centres during the pandemic. We acknowledge that there is a risk of recall and selection bias, as participants with strong views (both in support and against the use of technology in healthcare) may have been more likely to participate and provide feedback. Our data does not provide the perspectives of staff working in community and hospice palliative care settings or provide insight to the views of generalist staff who were delivering palliative care.

**Implications for future policy and practice**
There is potential to use technology to support palliative care communication in other settings, such as hospice and the community. Organisations who have rapidly adopted technology during the pandemic, should evaluate their practice to ensure that the use of these systems is safe, efficient and effective. Organisations should ensure that their staff have appropriate training to use this technology. Specifically, we encourage palliative care services to liaise with their information technology governance teams, to ensure that the data security implications of using this technology are addressed.

**Implications for research**
Further research is required to evaluate efficacy and effectiveness of using video communication technologies in palliative care. There is a need for both quantitative and qualitative research to provide data of the implications of using this technology, and to provide guidance of the role these technologies have in clinical practice. Further research to determine the potential of this technology to improve palliative care access to people who are difficult to reach is needed. Additionally, studies which evaluate quality outcomes, staff and user perspectives and cost-effectiveness of these approaches are also required.

**Conclusion**
Video communication technology has the potential to improve specialist palliative care delivery; however, it is essential that healthcare organisations address the existing barriers to using this technology, to ensure that these systems work meaningfully to improve palliative care for those who are most vulnerable beyond the COVID-19 pandemic.

**Data availability**

**Underlying data**
Figshare: Underlying data file: Evaluating the use of video communication technology in a hospital specialist palliative care team during the COVID-19 pandemic, [https://doi.org/10.6084/m9.figshare.13562543.v1](https://doi.org/10.6084/m9.figshare.13562543.v1).

**Extended data**
Figshare: Extended data file - questionnaire responses for: Evaluating the use of video communication technology in a hospital specialist palliative care team during the COVID-19 pandemic, [https://doi.org/10.6084/m9.figshare.13562567.v2](https://doi.org/10.6084/m9.figshare.13562567.v2).

This project contains the following extended data:

- Questionnaire

Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CC0 1.0 Public domain dedication).
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This is a review on the article with this title: “Evaluating the use of video communication technology in a hospital specialist palliative care team during the COVID-19 pandemic [version 1; peer review: 1 approved].”

Thank you for this opportunity to read it. This is an interesting article with some recommendations that can be a base for future studies. However, I am wonder, if this is a research article why the authors didn't follow the general rules in research studies. I mean there is no research proposal, no ethical code, no informed consent form. Authors wrote that: “the project was a service evaluation!”. Anyhow methodology of the study, is not very clear. I have several suggestions and questions about methodology of the study:

1. This study has been done only in one university hospital in the palliative care ward (12-bed) and with their palliative care team (n=17). Thus, may be it is better that authors rename it as “pilot study”. In my opinion this study cannot be a survey as the number of the sample is low and the authors mentioned it (n=14). In survey studies we have many participants.

2. What is the demographic characteristics of the team members? Also, authors need to add more explanations about the context of the study? For example the number of palliative care wards in that hospital? The formal member of the palliative care team in this hospital? If they have spiritual care for patients also? Who is responsible for it in the team? moreover, before Corona time how did the team members cooperate with each other? And now after the Corona?

3. Based on the limited number of the participants, I suggested to conduct an online focus group or a qualitative study such as a qualitative content analysis with unstructured interviews. Particularly in online focus group participants could share their experiences and discuss about the challenges. In qualitative approach, authors could also do unstructured interviews with probing questions and extract deep experiences of participants.
4. Authors should be careful! The reported challenges in the study looks general not very specific for palliative care ward and their personnel. What are the reasoning of authors in this area? If authors discussed about the barriers of staff in the palliative care team in hospital in connection with the community palliative care providers, it became more specific. As I read, participants reported a little in this study also.

5. Another issue is related to the questionnaire that the authors used in their online survey. Is it a researcher-made questionnaire? Is it a valid and reliable questionnaire?. How many questions are in it? And how was scoring or interpretation of the participants’ responses?

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Nursing, Cancer patients

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 15 February 2021

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© 2021 Ritchey K et al. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
Thank you for your contribution to the scientific literature on your experiences as palliative providers with telehealth technology during the pandemic.

We like that the introduction acknowledges and explores the idea that clinical video telehealth is a new frontier and that there are many unknown consequences of its use. It's also great that you try to explain why the experiences of the palliative care specialist are so important to examine, but we are left wondering if these points can be further emphasized. When you state “There is evidence that palliative care teams are also using this technology” we want to know why you want to examine this specialty? It might be helpful to state and elaborate here about how the pandemic has also brought palliative care to the forefront of the medical community. (The Lancet Editorial Staff. Palliative care and the Covid-19 pandemic. Lancet. 2020;395(10231):1168).)

In the second paragraph of the introduction, you expand on answering the question of “why discuss palliative care” by explaining that patients seen by palliative care providers are more complex and often times have more medical teams involved in their care. It might also be important to remind your readers that palliative care is also integral in providing psychosocial and bereavement support to patients, their families, and other healthcare workers, further exemplifying the importance of promoting connection through this new virtual means.

Aim is made clear: “to describe the experience of a UK based hospital specialist palliative care team, who were using video communication technology to support care during the Covid-19 pandemic.”

In terms of details of methods and analysis provided to allow replication:

- Can you explain more about the “daily handover with community palliative care services” since this might be a more unique aspect to your team than the consultative and palliative care unit roles

- Can you provide a copy of the survey? Were there any questions asking about overall satisfaction with video telehealth?

The study design is otherwise appropriate and this work has academic merit. Palliative care teams are generally small so kudos for getting 14 participants!

Results:

In your sentence describing figure 1, it would be helpful to put (MDT) after multidisciplinary team meetings so that there's a reference for “MDT” in figure 1.

Figure 1 and 2 are great and provide new and interesting information. But we are left speculating a bit where and how you were using these video telehealth encounters? For example clinician to clinician vs clinician to patient/family.

Love table 1! This is very important knowledge to share. We're curious, however, in your third
section (data security/privacy) what you mean by “departments”? You could make this statement more generalizable and state “Video-communication technology has to be consistent…”

Discussion:
We have a few ideas to add regarding limitations to acknowledge as well as providing more concrete ideas for next steps. For limitations, it's important to acknowledge the bias associated with evaluating your own team. You provide a great objective summary of the implementation of telehealth technology during the pandemic. We're also curious about your team's impressions of the clinical and humanistic consequences (whether positive or negative) of its use.

In terms of next steps, it'd be helpful to suggest surveying other consultants/stakeholders as well as exploring patient and family perceptions. You could also expand the survey to other hospitals and palliative care teams. It's great that you mention evaluating quality outcomes, user perspectives, and cost-effectiveness as examples for future investigation.

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Is the work clearly and accurately presented and does it cite the current literature? Yes

Is the study design appropriate and is the work technically sound? Yes

Are sufficient details of methods and analysis provided to allow replication by others? Partly

If applicable, is the statistical analysis and its interpretation appropriate? Not applicable

Are all the source data underlying the results available to ensure full reproducibility? Partly

Are the conclusions drawn adequately supported by the results? Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** fall prevention, geriatrics, video telehealth, palliative care, QI

We confirm that we have read this submission and believe that we have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.