**Telehealth requires improved evidence to achieve its full potential in palliative care**

Amara Callistus Nwosu

Lancaster Medical School, Lancaster University, Lancaster, United Kingdom. Lancaster, LA1 4YG, United Kingdom.

Marie Curie Hospice Liverpool, Liverpool, United Kingdom.

Liverpool University Hospitals NHS Foundation Trust, Liverpool, United Kingdom.

**Email: a.nwosu@lancaster.ac.uk**

**Phone: 44 (0)151 801 1490**

**Word count: 600**

**Telehealth requires improved evidence to achieve its full potential in palliative care**

**Telehealth has unrealised potential in palliative care**

Palliative care telehealth (describing the use of technology for healthcare access) and telemedicine (describing use of technology for care delivery) is increasingly being used in to deliver palliative care. [1, 2] Palliative care telehealth is increasing, due to advancements in technological hardware, software and infrastructure (e.g., upgrades to battery technology, sensors, portable computing and wireless internet coverage); [3, 4] however, evidence of its efficacy and effectiveness is limited.[5] The COVID-19 pandemic caused many palliative care services rapidly implement telehealth services to reduce face-to-face human contact to limit virus transmission.[1] Examples of palliative care telehealth services implemented during COVID-19 include clinical monitoring, patient assessment, psychological support, spiritual care and day therapy services.[6, 7, 8, 9, 10, 11, 12, 13, 14] The World Health Organisation has recently announced that COVID-19 is no longer a global health emergency,[15] however, its impact in increasing palliative care telehealth will likely remain, partly due to increasing global need for palliative care, meaning technological innovation is needed to provide care.[16]

**Potential opportunities for palliative care telehealth**

Palliative care telehealth offers potential to improve access, choice for patients.[5] For example, telehealth could facilitate more efficient time management for the multidisciplinary team. Improved management of resources could streamline (and reduce) the number of face-to-face clinical appointments for patients. Telehealth could improve access to palliative care services for people in areas without access specialist palliative care services (e.g., remote areas communities), and support the identification of people requiring specialist evaluation and treatment (e.g., emergency oncological treatment for presumed metastatic cord compression). From a service level, telehealth could help organisations to support staff coordination, education and pastoral care. Finally, novel data technologies provide new possibilities to innovate care through its incorporation with telehealth,[17] for example artificial intelligence (e.g., natural language processing of free text notes), audio (e.g., speech pattern analysis) and visual (e.g., facial gestures analysis), which could potentially provide the clinician with data that adds value to the consultation.

**Potential challenges for palliative care telehealth**

Many palliative care telehealth interventions lack detailed evaluation in real-world settings, meaning their usefulness (and transferability) is uncertain. [5, 18]. Governments commonly cite cost reduction, improved self-management of illness and homecare delivery as reasons to adopt telehealth systems.[19] However, this premise is potentially troublesome when considering palliative care needs, as telehealth may lead to *increased* intensity of face-to-face support as physical function worsens. In this situation, telehealth may (appropriately) identify those who require more in-person support, following which telehealth may no longer be possible due as the individual may no longer be able to use telehealth systems due to their declining health. Without long-term economic analysis, there is risk that some telehealth programmes (implemented rapidly during COVID-19) were not costed appropriately, meaning details of long-term running costs (e.g., infrastructure and personnel) are unknown. Telehealth systems may increase the risk of bias towards some users if (as noted in algorithmic studies) if technology is developed with data unrepresentative of certain communities (e.g., cultural and language minorities).[20] A failure to adequately design telehealth systems for the changing needs of people with palliative care needs may cause them to be deemed expensive, ineffective, and inefficient.

**Future actions need in telehealth palliative care research**

Evidence to identify the how telehealth services should be used (including appropriate models of care and economic considerations) are needed for this technology to achieve its full potential in palliative care. Interdisciplinary research partnerships (for example, including designers, economists and ethicists) should be conducted, to adequately research the areas needed to determine how telehealth can be used, safely and effectively, to improve palliative care for patients and caregivers.

**References**

1. Wherton J, Shaw S, Papoutsi C, Seuren L, Greenhalgh T. Guidance on the introduction and use of video consultations during COVID-19: important lessons from qualitative research. BMJ Leader. 2020:leader-2020-000262.

2. Etkind SN, Bone AE, Lovell N, Cripps RL, Harding R, Higginson IJ, et al. The Role and Response of Palliative Care and Hospice Services in Epidemics and Pandemics: A Rapid Review to Inform Practice During the COVID-19 Pandemic. Journal of pain and symptom management. 2020;60(1):e31-e40.

3. Nwosu AC, McGlinchey T, Sanders J, Stanley S, Palfrey J, Lubbers P, et al. Identification of digital health priorities for palliative care research: modified delphi study. JMIR aging. 2022;5(1):e32075.

4. Department of Health Social Care. The future of healthcare: our vision for digital, data and technology in health and care. <https://www.gov.uk/government/publications/the-future-of-healthcare-our-vision-for-digital-data-and-technology-in-health-and-care/the-future-of-healthcare-our-vision-for-digital-data-and-technology-in-health-and-care>: DHSC London; 2018.

5. Hancock S, Preston N, Jones H, Gadoud A. Telehealth in palliative care is being described but not evaluated: a systematic review. BMC Palliative Care. 2019;18(1):114.

6. Lally K, Kematick BS, Gorman D, Tulsky J. Rapid Conversion of a Palliative Care Outpatient Clinic to Telehealth. JCO Oncol Pract. 2021;17(1):e62-e7.

7. Grewal US, Terauchi S, Beg MS. Telehealth and Palliative Care for Patients With Cancer: Implications of the COVID-19 Pandemic. JMIR Cancer. 2020;6(2):e20288.

8. Ritchey KC, Foy A, McArdel E, Gruenewald DA. Reinventing palliative care delivery in the era of covid-19: how telemedicine can support end of life care. American Journal of Hospice and Palliative Medicine®. 2020;37(11):992-7.

9. Bettini EA. COVID-19 Pandemic Restrictions and the Use of Technology for Pediatric Palliative Care in the Acute Care Setting. J Hosp Palliat Nurs. 2020;22(6):432-4.

10. Mackey RM, Yeow ME, Christensen AR, Ingram C, Carey EC, Lapid MI. Reconnecting: Strategies for Supporting Isolated Older Adults during COVID-19 through Tele-palliative Care. Clinical gerontologist. 2020:1-8.

11. Flores S, Abrukin L, Jiang L, Titone L, Firew T, Lee J, et al. Novel Use of Telepalliative Care in a New York City Emergency Department During the COVID-19 Pandemic. The Journal of emergency medicine. 2020;59(5):714-6.

12. Lu Y, Xie D, Zhang X, Dong S, Zhang H, Yu B, et al. Management of intractable pain in patients with implanted spinal cord stimulation devices during the COVID-19 pandemic using a remote and wireless programming system. Frontiers in neuroscience. 2020;14.

13. Chua IS, Jackson V, Kamdar M. Webside Manner during the COVID-19 Pandemic: Maintaining Human Connection during Virtual Visits. J Palliat Med. 2020;23(11):1507-9.

14. Lal A, Bell G, Curseen K, Kavalieratos D. Teaching Telepalliative Care: An Elective Rotation for Medical Students during the COVID-19 Pandemic. Journal of Palliative Medicine. 2020.

15. Wise J. Covid-19: WHO declares end of global health emergency. British Medical Journal Publishing Group; 2023.

16. Sleeman KE, De Brito M, Etkind S, Nkhoma K, Guo P, Higginson IJ, et al. The escalating global burden of serious health-related suffering: projections to 2060 by world regions, age groups, and health conditions. The Lancet Global Health. 2019;7(7):e883-e92.

17. Durieux BN, Tarbi EC, Lindvall C. Opportunities for computational tools in palliative care: Supporting patient needs and lowering burden. SAGE Publications Sage UK: London, England; 2022. p. 1168-70.

18. Finucane A, O'Donnell H, Lugton J, Swenson C, Pagliari C. Digital Health Interventions in Palliative Care: A Systematic Meta-Review and Evidence Synthesis. medRxiv. 2020:2020.09.16.20195834.

19. Topol E. Preparing the Healthcare Workforce to Deliver the Digital Future the Topol Review: An Independent Report on Behalf of the Secretary of State for Health and Social Care. NHS Health Education: London, UK. 2019.

20. Nwosu AC, Collins B, Mason S. Big Data analysis to improve care for people living with serious illness: The potential to use new emerging technology in palliative care. Palliative Medicine. 2018;32(1):164-6.