Home-based diagnostic imaging services: Capturing the Stakeholders' Views G.F. Costa, M.P.M. Gobis, L.J. Lorenzi, T.M. Raymundo, H. Kort, P.C. Castro. *Gerontechnology* 25(s*)*

Purpose E-health technologies stand out as a promising solution for providing medical care, especially for older people who have a care demand, by facilitating access to healthcare. Despite this potential, the applicability of home-based diagnostic (HBD) imaging services remains unexplored from the perspective of the various stakeholders involved in their provision. This is an essential step for developing an effective and widely adopted service model (Dollard et al., 2022). Therefore, this study aims to explore stakeholders' perspectives on how technologies are currently in use or with potential applicability in the context of HBD imaging. **Method** This is a qualitative study, conducted through a collaborative workshop based on (Barakat et al., 2013). To be invited to the workshop, 12 stakeholders of HBD imaging services were contacted via email and WhatsApp. The workshop took place online in June 2025, using the Google Meet platform. To be included, all stakeholders must report some experience in HBD imaging services. During the workshop, participants were asked about their experiences and perceptions regarding HBD imaging procedures, with special attention to technologies currently in use or with potential applicability in this setting. The workshop was recorded in video and audio format, and the resulting data were analyzed through inductive thematic analysis. The study was approved by a Research Ethics Committee from the Federal University of São Carlos, under approval number 7.259.155, and all participants provided verbal consent prior to participation. **Results and Discussion** The workshop lasted two hours and included seven participants (85.7% male), including academic researchers, physicians, representatives from HBD imaging companies, technicians, and a Technical Consultant from the Brazilian Ministry of Health, specializing in health technology management and incorporation. Some of the participants held dual professional roles. The workshop included several questions about their perceptions and experiences, including how technologies should work to perform these services at home, and the responses were grouped into four categories: (1) interconnection of processes and associated technologies, including mobile diagnostic equipment, the Picture Archiving and Communication System (PACS), and cloud storage; (2) lack of initiative from healthcare professionals in the provision of services or in the proper recording and storage of patient information, reveals one of the main obstacles faced by the public health system in the process of integrating and consolidating clinical data; (3) perceived benefit by users, who prioritize convenience over the technological aspects; and (4) a deficit of studies and official information, with limited cost analyses and weak engagement from regulatory bodies. A word cloud was developed to illustrate the terms most frequently mentioned by participants regarding technologies related to HBD imaging services, as shown in Figure 1. The findings indicate that effective implementation of these services requires the integration of processes through the development of a comprehensive system and a unified patient profile that consolidates all patient data; the expansion of scientific research, including studies on cost analysis and greater availability of official information to support regulatory frameworks. The presence of qualified professionals is crucial, as they foster patient trust and strengthen patient-professional relationships. This trust not only enhances communication but also makes the examination process smoother and more comfortable for both the patient and the professional. These results align with the study by Deoni et al. (2023), which recognizes the feasibility of home-based services while noting the need for further research. Thus, the adoption of technologies in this context appears viable and promising, particularly when supported by official guidelines and trained professionals. Investment in regulation, professional training, and scientific development is essential to consolidate and expand this model of care.

References

1. Barakat, A., Woolrych, R. D., Sixsmith, A., Kearns, W. D., & Kort, H. S. (2013). eHealth technology competencies for health professionals working in home care to support older adults to age in place: outcomes of a two-day collaborative workshop. Medicine 2.0, 2(2), e10. https://doi.org/10.2196/med20.2711
2. Deoni, S. C., Burton, P., Beauchemin, J., Cano-Lorente, R., De Both, M. D., Johnson, M., ... & Huentelman, M. J. (2023). Neuroimaging and verbal memory assessment in healthy aging adults using a portable low-field MRI scanner and a web-based platform: results from a proof-of-concept population-based cross-section study. Brain Structure and Function, 228(2), 493-509. https://doi.org/10.1007/s00429-022-02595-7.
3. Dollard, J., Edwards, J., Yadav, L., Gaget, V., Tivey, D., Inacio, M., ... & Visvanathan, R. (2022). Stakeholders' perspectives of mobile x-ray services in support of healthcare-in-place in residential aged care facilities: a qualitative study. *BMC geriatrics*, *22*(1), 700. https://doi.org/10.1186/s12877-022-03162-9.

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Figure 1. *Word cloud illustrates the range of technologies applied in HBD imaging services, highlighting tools, devices, and digital solutions that support remote exams, data management, and patient care.*