

What should be used for in-home telerehabilitation: Generic videoconferencing systems or specialized platforms? A review of our 10 years' experience

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Background: In-home telerehabilitation is defined as the action of providing physical rehabilitation from a clinical site to a patient's home using video, audio and data channels over an internet connection. These interventions present a challenge from a technical point of view. Technical requirements and clinical constraints guide the choice of the correct system to use in such an application. In recent years, many solutions have been used and deployed by research and clinical teams.

Purpose: To present the pros and cons of generic videoconferencing and specialized telehealth systems.

Methods: Using in-depth analysis of currently available platforms and hands-on experience of the research team (over 250 participants with more than 40 clinicians, including students, over the course of 9 clinical projects),

solutions was compared to guide users towards the best solution for their needs.

Results: Generic videoconferencing platforms are readily and easily available, well known, usually have a low software and hardware cost and provide sufficient videoconferencing for telerehabilitation. However, they usually lack features such as external sensor support, remote camera control, multiple cameras and session history. They might also have important security and confidentiality concerns since the data may transit and be stored on uncontrolled or unsecured servers. Specialized systems address security issues by hosting the server in a local network or by providing security certifications on servers hosted by the provider. Such solutions also allow for sensor support (usually in a limited way) and a user interface specifically designed for clinical applications.

Conclusion: Considering that each population has its own clinical needs, it is important to carefully choose the correct solution and consider every aspect of the clinical approach before choosing a solution. Specific features such as security aspects and sensors usage might have a great impact on the outcomes of the project.

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