

UC Davis

UC Davis Previously Published Works

Title

Robots in the taxonomy of pediatric telehealth

Permalink

<https://escholarship.org/uc/item/5xc6400d>

Journal

Journal of the International Society for Telemedicine and eHealth, 11(eS1)

Author

Ahumada-Newhart, Veronica

Publication Date

2023-08-01

Peer reviewed

**Robots in the taxonomy of pediatric telehealth**

Veronica Ahumada-Newhart, PhD

Department of Pediatrics, School of Medicine, University of California Davis, Sacramento, USA

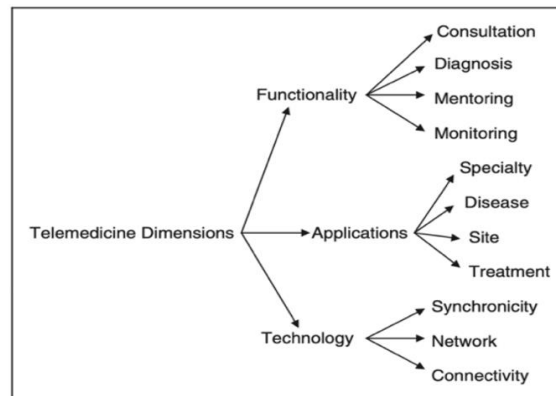
**Background:** As interactive health technologies continue to evolve and enter healthcare fields for patient use, it is urgent to define classifications of emerging digital health technologies. Telecare and telehealth applications have become increasingly popular due to their promise of increased access. As a result, the field of telehealth has grown over the past decade with an increasing number of applications, a variety of technologies, and newly introduced terminology. However, most of the existing applications are centred around adults and clinical users. Homebound pediatric patients have unique, out-of-hospital, behavioral and developmental needs that must be considered in the continuum of care. An understanding of the classification for telehealth robots in the pediatric telehealth taxonomy will bring conceptual clarity to this emerging digital health intervention.

**Objective:** Our objective is to present a taxonomy of telehealth that includes pediatric, home-based, telecare interventions that includes patient-centered technologies such as telerobots.

**Methods:** We conducted a systematic literature review and an iterative adaption process of different telehealth and telemedicine taxonomies to create a pilot pediatric telehealth taxonomy model (Figure 1).

**Results:** We found that telerobot interventions fit within existing telehealth taxonomies that include evaluation of three dimensions: functionality, application, technology. Evaluation of telerobot functionality includes the daily contexts of a child’s life during treatment and recovery. Evaluation of technology application includes the medical treatment modality where homebound children are engaged in a flipped model of telecare—where the patient is using the tele-technology from home for improved treatment and recovery experiences. Evaluation of the technology includes aspects such as synchronicity, connectivity, and effectiveness of home devices.

**Conclusions:** Taxonomy development and refinement is an iterative process. This work is a first step at classification of home-based, pediatric telehealth robots. Future work may enhance development by testing, revising, and verifying this taxonomy to include other home-based innovative digital health interventions such as social robots, chat bots, conversational agents, and others.



**Figure 1: Taxonomy of Telehealth Systems**

[Back to index](#)

**Leveraging first-person immersive narratives to accelerate lived experience and build adaptive skills at scale**

Carrie Cusker<sup>1</sup>, MS, BSN, RN

<sup>1</sup>Embodied Labs – Los Angeles, California, United States

**Background:** Workforce deployment and staff development healthcare leaders revealed that medical students and clinical staff may feel unprepared for their day-to-day roles, despite having acquired the necessary hard skills to perform on the job. The knowledge and insights from years of hands-on experience interacting with individuals and their loved ones are hard to transfer and often prevent proactive care practices. The internal and external conflicts that arise from reactive care lead to emotional burnout and compassion fatigue.

**Objective:** Demonstrate the importance of building adaptive skills by accelerating lived knowledge experience that better prepares staff for their day-to-day roles - quickly and efficiently onboard and retain staff, and avoid burnout.