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Telemedicine Efficiency in Hospital-Based Settings: A Literature Review with Implications for Albania

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Abstract

Hospital-based telemedicine expanded rapidly during the COVID-19 pandemic, demonstrating notable benefits—particularly in small and rural hospitals. However, evidence on its efficiency and cost-effectiveness remains limited. A literature review was conducted through a structured PubMed search strategy to identify relevant studies. The findings indicate that hospital-based telemedicine can be efficient but such outcomes depend on its careful adaptation to the disease area, medical specialty, and type of hospital setting. In Albania, hospital-based telemedicine should be further adapted and expanded, with decision-makers focusing on sustainable models aligned with institutional capacities and clinical priorities.

Keywords

Telemedicine**,** Hospital-based care**,** Efficiency**,** Cost-effectiveness**,** Albania

Introduction

Even though considerable research efforts have been made to assess the effectiveness and efficiency of telemedicine use in hospital settings, a comprehensive answer to this gap is still lacking. Nonetheless, a systematic review has shown that, especially in small or rural hospitals, telemedicine offers significant benefits in terms of effectiveness, user acceptance, and upfront costs (1). It was precisely the COVID-19 pandemic that further highlighted the role of telemedicine—particularly hospital-based telemedicine—in delivering both health and cost benefits, especially in emergency situations such as that (2–5). Following this, the use of telemedicine witnessed a substantial increase during the COVID-19 pandemic (6,7). Despite the increased access and utilization of telemedicine services, a program can only be considered efficient if comprehensive cost-effectiveness analyses are carried out—especially for specific diseases or specialties, where such evaluations are essential yet challenging. The hospital-based telemedicine program in Albania improved access even before the COVID-19 pandemic, being used across various medical specialties and helping to avoid numerous unnecessary transfers from regional to tertiary hospitals (8–11). However, in order to reach the stage of program sustainability (12)—a phase that presents its own challenges in Albania—it is crucial for decision-makers to be convinced not only of the feasibility of telemedicine services, but also of their efficiency and cost-effectiveness. In this line, the aim of this literature review is to offer a focused overview of the existing evidence on hospital-based telemedicine, particularly regarding its efficiency and cost-effectiveness, in order to facilitate a better understanding of its potential for sustainable integration into the Albanian healthcare context.

Methods

Study design

This was a narrative review study aiming to synthesize the best available evidence demonstrating the efficiency or effectiveness of telemedicine in hospital-based settings, in order to derive optimal recommendations for its implementation in Albania.

Search Srategy

A literature search was conducted in Pubmed using the following Boolean strategy: ("telemedicine"[MeSH Terms]) AND ("efficiency"[Title/Abstract] OR "cost-effectiveness"[Title/Abstract] OR "implementation"[Title/Abstract] OR "impact"[Title/Abstract]) AND ("hospital-based care"[Title/Abstract] OR "hospital setting"[Title/Abstract] OR "inpatient care"[Title/Abstract]). The search was limited to articles published in English between 2004-2025. Titles and abstracts were screened by using Rayyan.ai to assist in organizing and reviewing the literature efficiently.

Ethical considerations

Although initial ethical approval had been obtained from the Ministry of Health and Social Protection for conducting a primary quantitative study, this work was ultimately conducted as a narrative literature review. Ethical standards were upheld through proper citation and acknowledgment of all original sources.

Results and Discussion

The searches initially identified 73 studies. However, after title/abstract screening, 21 studies were ultimately included to fulfill the objectives of the review.

This review sought to shed light on the evolving landscape of hospital-based telemedicine, revealing both its demonstrated benefits and the gaps that remain in terms of efficiency and cost-effectiveness. Recent real-world implementations, particularly during the COVID-19 pandemic, have demonstrated the adaptability of telemedicine in hospital settings, while its integration is still challenged by technological, spatial, and organizational factors. (13). **It is therefore crucial that hospital-based telemedicine programs—particularly those targeting specific diseases and medical specialties—are critically evaluated for their efficiency and effectiveness in comparison to standard care.** For example, one multicentre study demonstrated that a hospital-based telemedicine strategy for managing sleep apnoea was as clinically effective as standard care, while proving more cost-effective due to reduced indirect costs (14). Another study showed that a stepped-care model using telemedicine for depression was both effective and cost-efficient across care levels (15). Several trials across chronic disease management (e.g. cardiovascular and oncological) underscore the value of hospital-based telemedicine in matching the effectiveness of standard care while providing additional cost benefits (16–19). In this regard, adapting the telemedicine delivery model to the specific nature of each hospital is essential. Another study, for instance, showed that a telehealth-based antimicrobial stewardship program reduced antibiotic use and generated significant cost savings in community hospitals (20). Changes in the healthcare environment urge hospital leaders to think digitally; evidence highlights telemedicine's role in improving outcomes, reducing costs, enhancing access, and supporting equity (21)—making pilot programs increasingly feasible across hospital types. Various implementations show that the sustainability of telemedicine programs relies on contextual adaptation, continuous data-driven refinement, and alignment with institutional capacities (22–24). Ultimately, time and travel savings—clearly demonstrated in real-world hospital settings—represent essential drivers of telemedicine efficiency and support its long-term sustainability across diverse models of care (25).

In the Albanian context, telemedicine holds significant potential to reduce disparities between regional and tertiary hospitals. With a national program already in place (26), decision-makers should now focus on expanding and tailoring hospital-based telemedicine models according to institutional capacities and clinical priorities. This process requires continuous monitoring of efficiency and cost-effectiveness, supported by local data. Strengthening evidence-informed decision-making will be essential to ensure the program's sustainability and equitable impact across the health system.

This study has certain limitations. Firstly, although a structured search strategy was employed, the review was narrative rather than systematic, which may have introduced selection bias. Secondly, the literature search was limited to a single database (PubMed) and restricted to publications in English, potentially omitting relevant studies published in other languages or indexed in other databases.

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