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DOI: https://doi.org/10.30525/978-9934-26-603-4-14

ECONOMIC EFFICIENCY OF TELEMEDICINE FOR CHRONIC CARDIOVASCULAR DISEASES IN UKRAINE

Telemedicine is a key instrument to ensure continuity of care for patients with chronic cardiovascular diseases (CVDs) under wartime constraints and during the post-war recovery [1]. Systematic deployment of digital tools optimizes patient pathways, reduces acute events and hospitalizations, and improves the overall economic efficiency of the health system.

We assessed the macro- and meso-level economic efficiency of telemedicine services for chronic cardiovascular diseases in Ukraine, consolidated the principal indicators of implementation and use, and developed evidence-informed managerial actions to support sustainable scaling. [1; 5].

We conducted an analytic review and synthesis of available statistics on telemedicine implementation, and structured the effects into four components: SAV (direct savings), IND (indirect benefits), INF (infrastructure investments), and PROD (labor productivity gains). The aggregate benefit is represented as GEF = (SAV + IND + PROD) − INF [1; 5].

Table 1

Components of the aggregate economic efficiency of telemedicine (summary)

Component	Description
SAV	Direct savings: lower cost of remote visits; avoided hospitalizations; reduced transport costs.
IND	Indirect benefits: time savings for patients and clinicians; lower load on emergency services; productivity valorization.
INF	Infrastructure investments: equipment, software, connectivity; backup power and alternative access channels in vulnerable regions.
PROD	Labor productivity: higher RVU/FTE and broader coverage without staff expansion.

Key empirical milestones of adoption included: 328 facilities have been connected; 1,259 medical workers trained; 8,893 official teleconsultations

were conducted in 2023. In parallel, private and humanitarian initiatives provided large-scale support (Doctor Online − 71,950 free teleconsultations; TeleHelp Ukraine − over 2,500 requests) [1; 2].

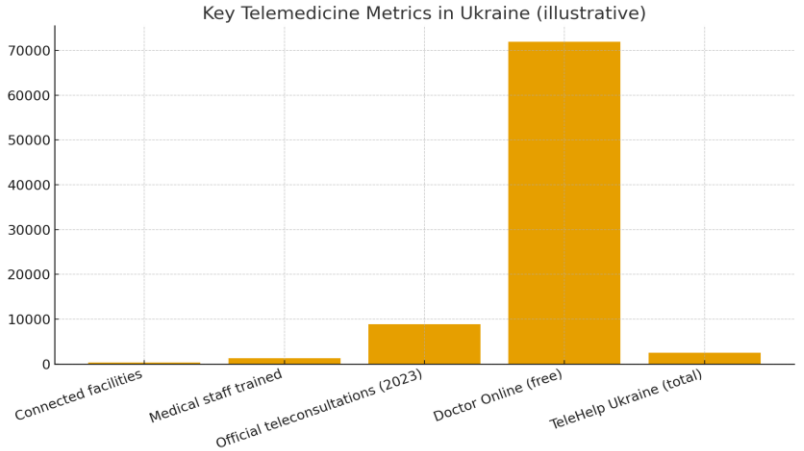

Figure 1. Key telemedicine adoption metrics in Ukraine (illustrative)

Source: [1; 2]

Table 2

Comparative costs: telemedicine vs. conventional care in CVD (illustrative)

Cost category	Conventional care (UAH)	Telemedicine (UAH)	Note
Cardiologist visit	990–1500	About 730 (online)	Per visit
ECG (without interpretation)	About 250	–	Per procedure
ECG (with interpretation)	About 390	–	Per procedure
Telemetric cardiograph (Ucard 100)	–	6,098–31,944 (one-off)	Equipment
Holter monitoring	About 1,900	1,950 (1 day); 4,530 (3 days); 5,650 (5 days)	Per procedure
Hospitalization for AMI (Acute myocardial infarction)	About 25,000 (no stent); 43,573 (with stent)	Hospitalization risk in CHF reduced by up to 70%	Per case

Source: [1]

Under baseline assumptions, the saving per ambulatory visit is about 300 UAH (lower price of remote visit and zero transport costs). The main contribution to total savings comes from avoided hospitalizations due to remote monitoring and early intervention. In RVU/FTE terms (Full-Time Equivalent is a unit of measurement of working time, and Relative Value Unit is a method of calculating compensation for healthcare workers), expected physician productivity gain is approximately 4% (approximately +124 RVU/FTE annually) [5].

In the short term, telemedicine requires investments into equipment, software, backup power and resilient connectivity; however, medium- and long-term effects (fewer hospitalizations, fewer in-person visits, time savings, higher RVU/FTE) outweigh the investment burden [3; 4; 5].

Thus, telemedicine for chronic CVDs in Ukraine demonstrates a positive balance of aggregate economic efficiency: total benefits (SAV, IND, PROD) exceed investments (INF) under adequate infrastructure resilience and organizational integration [1; 5].

We recommend that financial incentives and tariffs should be introduced to stimulate the implementation of telemedicine by primary health care institutions by increasing per capita funding and special tariffs for remote patient monitoring (RPM). Infrastructure development should provide backup power supply and alternative connection; integration with e-health should be standardized. It is necessary to implement standard telemedicine training for both health care professionals and patients; unify protocols for remote care in CHF/CHD (chronic heart failure/ischemic heart disease). For a correct economic assessment, the collection of data and indicators of telemedicine use and its results should be formalized [1; 5].

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