

DISCONTINUITIES IN THE PATIENT PATHWAY: CHALLENGES AND SOLUTIONS FOR THE INTEGRATED MANAGEMENT OF HEALTH SERVICES

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INTRODUCTION

Continuity of care represents an essential element of healthcare quality and is defined as the extent to which healthcare services are experienced by patients as coherent and connected over time, in accordance with their healthcare needs [1]. In modern healthcare systems, characterized by a high degree of specialization, ensuring efficient transitions between levels of care—particularly between outpatient and hospital services—constitutes a major management challenge. According to recent European data (2019–2022, with updates published in 2023 reports), Romania continues to report rates above the European Union average for avoidable hospitalizations associated with chronic conditions, including heart failure, diabetes mellitus, and chronic respiratory diseases [5].

Lack of continuity and coordination of care is associated with suboptimal clinical outcomes, increased risks to patient safety, and inefficient use of resources, including avoidable admissions and dysfunctions in the patient pathway, as described in the scientific literature and international health system reports [1,2]. The literature shows that higher levels of continuity of care are associated with reduced mortality and hospitalization rates, as well as lower healthcare system costs [6]. The high rates of avoidable hospitalizations reported in Romania reflect limitations in the system's capacity to ensure continuity of care at the outpatient level. In this context, analyzing continuity of care becomes relevant not only from a clinical perspective but also from the perspective of healthcare management.

OBJECTIVE

The objective of this article is to analyze the discontinuities existing between outpatient and hospital ser-

INTRODUCTION Continuity of care represents an essential component of healthcare quality, being associated with improved clinical outcomes, reduced avoidable use of hospital services, and more efficient use of resources. In Romania, the fragmentation of healthcare services between outpatient and hospital care continues to contribute to discontinuities in the patient pathway.

OBJECTIVE To analyze the discontinuities between outpatient and hospital services and to identify management solutions for improving continuity of care.

METHODOLOGY The study uses a narrative review of the literature published between 2010 and 2024. Scientific studies indexed in PubMed and Google Scholar, as well as recent reports published by the World Health Organization, OECD, and the European Commission, were analyzed. The analysis focused on indicators such as avoidable hospitalizations, 30-day readmissions, informational continuity, and resource utilization.

RESULTS International literature and recent European reports indicate that Romania continues to record values above the European Union average regarding avoidable hospitalizations associated with chronic diseases. International studies report 30-day readmission rates ranging approximately between 10% and 20%, a significant proportion of which are considered potentially avoidable. OECD PaRIS 2024 data highlight a low level of interoperability of health information systems in Romania compared with the OECD average, while duplication of investigations is described in the literature as a frequent consequence of fragmented care. At the same time, recent investments in the digitalization of the healthcare system through the National Recovery and Resilience Plan create favorable conditions for improving continuity of care.

CONCLUSIONS Discontinuities between outpatient and hospital care affect healthcare system efficiency and quality of care. Improving coordination between levels of care, developing outpatient services, and strengthening interoperability of health information systems represent essential strategic directions for optimizing the patient pathway.

Keywords: continuity of care; integrated healthcare services; avoidable hospitalizations; readmissions; healthcare management; care coordination

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METHODOLOGY

The paper uses a narrative review of the scientific literature published between 2010 and 2024. Scientific articles identified in PubMed and Google Scholar databases were included, together with reports and documents published by the World Health Organization, the Organisation for Economic Co-operation and Development, and the European Commission [1,2,5].

The main search terms included "continuity of care," "care coordination," "avoidable hospitalizations," "readmissions," "integrated care," "health information systems," and "patient pathway."

The following indicators frequently used for evaluating continuity of care were analyzed:

- avoidable hospitalizations;
- 30-day readmissions;
- informational continuity;
- duplication of investigations.

The inclusion criteria targeted studies and reports analyzing the relationship between care coordination, service integration, and health outcomes. The analysis was performed through comparative synthesis and narrative interpretation within the context of the Romanian healthcare system [1,2,5].

For indicators without directly comparable numerical values across sources, graphical representations were schematically developed by the authors based on relative positioning and trends described in the international literature and OECD and European Commission reports.

RESULTS

Within the present analysis, OECD and European Commission reports were used as sources of aggregated indicators and comparative analyses of healthcare systems, rather than as clinical or observational studies conducted within specific healthcare settings.

1. Avoidable Hospitalizations

Hospitalizations for conditions manageable in outpatient settings represent a relevant indicator of continuity of care. Indicators reported within OECD/European Union analyses show that hospitalizations for chronic conditions sensitive to ambulatory care, such as heart failure and diabetes mellitus, remain an important marker of healthcare system performance [2].

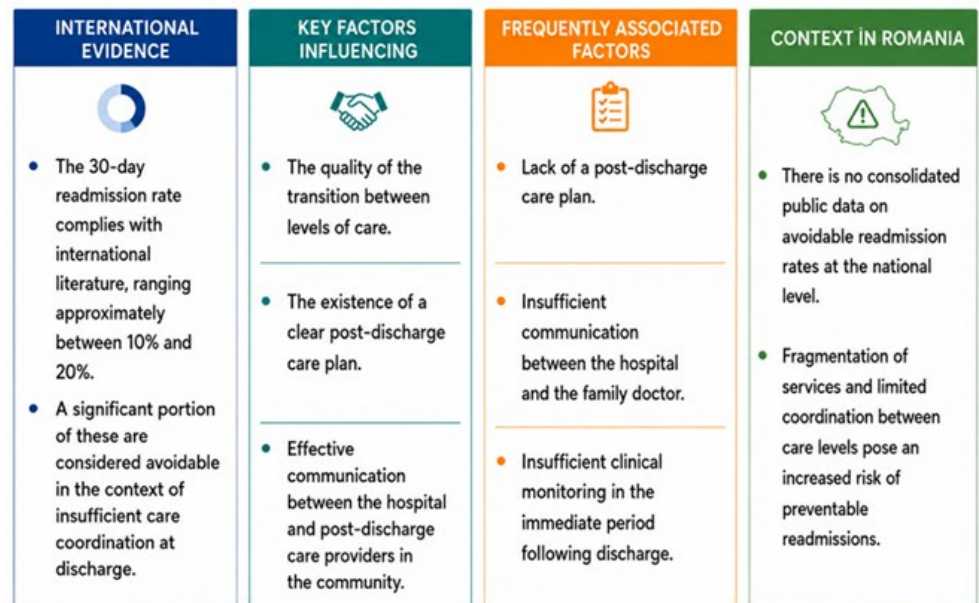
According to European Commission data, Romania records values above the European Union average regarding hospitalizations associated with diabetes mellitus, suggesting limitations in the monitoring and management of chronic patients at the outpatient level [5].

2. Thirty-Day Readmissions

Thirty-day readmission rates are widely used as indicators of post-discharge continuity of care and the quality of patient management after discharge. International literature reports 30-day readmission rates ranging approximately between 10% and 20%, with a substantial proportion considered potentially avoidable in the context of insufficient care coordination [3,4]. Readmissions are influenced by the quality of transitions between levels of care, the existence of a clear post-discharge care plan, and the effectiveness of communication between hospitals and community healthcare providers [3,4,6].

In healthcare systems where readmissions are systematically monitored, they are used as performance indicators and as signals of potential dysfunctions in care coordination. Factors frequently associated with readmissions include the absence of a post-discharge care plan, insufficient communication between hospitals and family physicians, and

Figure 1. Thirty-day readmissions as an indicator of post-discharge continuity of care (conceptual scheme developed by the authors based on international literature) [3,4,6]



Source: [3] Chao YH et al., 2022; [4] Khatri R et al., 2023; [6] Pereira Gray DJ et al., 2018.

inadequate clinical monitoring in the immediate post-discharge period [4].

In Romania, although there are no consolidated national public data regarding avoidable readmission rates, characteristics of the healthcare system—including fragmentation of services, limited coordination between levels of care, and insufficient development of community services—suggest an increased risk of readmissions associated with discontinuity of care. The lack of standardized post-discharge follow-up mechanisms and limited integration between outpatient and hospital care contribute to the recurrence of acute episodes and repeated use of hospital services. (Figure 1)

Reducing readmissions represents a major opportunity for improving system performance, being associated both with increased quality of care and optimization of resource utilization [3].

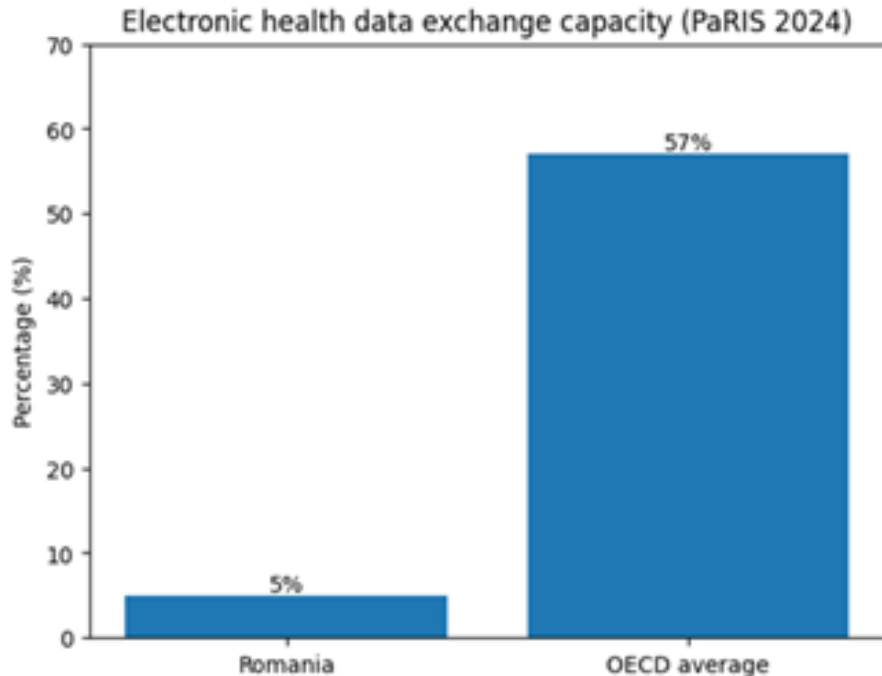
3. Informational Continuity

Informational continuity represents a fundamental element of care coordination, depending on the healthcare system's capacity to ensure rapid and complete access to patients' medical information. In highly digitalized healthcare systems, electronic exchange of medical data between providers is significantly more developed, facilitating informational continuity across levels of care.

OECD reports highlight major differences between countries regarding the maturity of digital infrastructure [2]. International comparative analyses show that several European countries, such as Denmark, Estonia, and the Netherlands, have developed integrated digital infrastructures and advanced medical data exchange mechanisms.

In these contexts, informational continuity contributes to reducing medical errors, avoiding duplication of

Figure 2. Capacity for electronic exchange of medical data (percentage of chronic patients treated in primary care practices capable of electronically transmitting medical information between providers, Romania vs OECD average, PaRIS 2024). Scheme developed by the authors based on OECD PaRIS 2024 data



investigations, and improving coordination of clinical decisions. In Romania, according to recent OECD PaRIS (2024) data, only 5% of patients with chronic diseases receive care in medical practices capable of electronically transmitting patient record information between providers, compared with the OECD average of 57%, highlighting a major gap in healthcare digitalization and care coordination (Figure 2).

This situation is consistent with European Commission evaluations indicating a low level of interoperability of healthcare information systems in Romania [5]. Limitations in informational continuity translate in practice into difficulties accessing complete patient medical histories, incomplete transfer of information between outpatient and hospital services, and dependence on paper-based documents or fragmented reporting systems.

From a managerial perspective, developing interoperability of information systems and strengthening informational continuity represent essential conditions for implementing integrated care models and optimizing the patient pathway within the healthcare system.

4. Duplication of Investigations

Duplication of medical investigations represents a direct consequence of informational discontinuity and insufficient coordination between levels of care. International literature describes unnecessary repetition of paraclinical investigations as a frequent effect of fragmented patient pathways and lack of interoperability of information systems [4].

International analyses show that lack of access to complete patient medical history may favor repetition of labor-

atory tests, imaging investigations, and other diagnostic evaluations, particularly in healthcare systems with limited coordination between providers [4].

In the Romanian context, although quantitative data are limited, the low level of interoperability of information systems suggests an increased risk of duplication of investigations, especially during transitions between outpatient and hospital care [5]. Lack of real-time access to previous results and absence of standardized information transfer protocols contribute to unnecessary repetition of investigations.

From an economic perspective, duplication of investigations generates additional costs and may delay diagnosis and treatment initiation, affecting overall healthcare system efficiency [4].

5. Impact on Costs

The impact of continuity of care on healthcare system costs is well documented in international literature. Studies show that low continuity of care is associated with greater use of healthcare services and higher healthcare costs compared with situations in which care is better coordinated and integrated [3].

These findings derive from analyses comparing healthcare utilization according to the degree of continuity of care, measured through indicators such as frequency of contact with the same provider, coordination between levels of care, and access to complete medical information. Increased costs are explained by avoidable admissions, frequent readmissions, duplication of investigations, and inefficient use of healthcare services [3,4].

In Romania, although there are no precise national estimates regarding the economic impact of discontinuity of care, healthcare system characteristics—including orientation toward hospital-based care, insufficient use of outpatient services, and limited coordination between providers—suggest the existence of significant additional costs associated with fragmented care, with implications for the medium- and long-term financial sustainability of the healthcare system [5] (Figure 3).

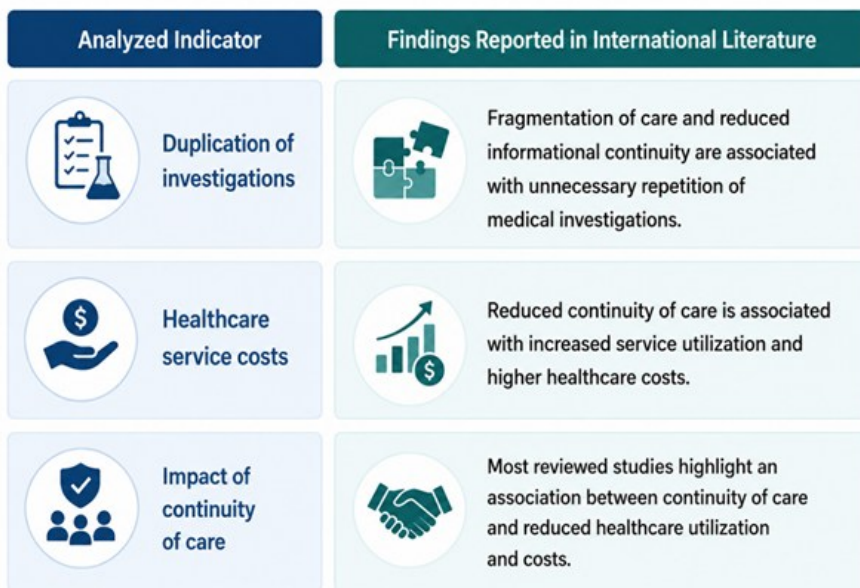
From a managerial perspective, improving continuity of care represents not only an intervention aimed at increasing service quality but also an effective strategy for optimizing resource utilization and controlling costs.

The indicators presented reflect different dimensions of the impact of reduced continuity of care (proportion of duplicated investigations, increased costs, and proportion of studies reporting this association) and are therefore not directly comparable.

DISCUSSION

Continuity of care represents an essential determinant of healthcare system performance, being

Figure 3. Relationship between continuity of care, healthcare utilization, and costs – synthetic scheme developed by the authors based on international literature [3,4]



closely associated with service integration and coordination between levels of healthcare delivery [1,4]. The literature analysis highlights that discontinuities between outpatient and hospital care influence both patients' clinical outcomes and the efficiency of resource utilization.

The high levels of avoidable hospitalizations for chronic conditions reported in Romania suggest persistent limitations in monitoring and managing patients at the outpatient level [5]. These findings are consistent with international literature emphasizing the central role of primary healthcare and continuity of care in preventing avoidable hospital admissions and reducing complications associated with chronic diseases [2]. In the absence of effective coordination between providers, patients may access healthcare services in a fragmented manner, with increased use of hospital services and insufficient community monitoring.

Thirty-day readmissions represent another relevant indicator of continuity of care, being influenced by the quality of transitions between hospital and community care. The literature emphasizes that the absence of a clear post-discharge care plan, insufficient communication between providers, and limited clinical monitoring after discharge contribute to increased risk of readmission [3,4]. In this context, developing standardized coordination mechanisms and strengthening the role of family medicine may contribute to reducing repeated use of hospital services.

Informational continuity represents an essential component of integrated care. OECD PaRIS data highlight a low level of interoperability of healthcare information systems in Romania compared with the OECD average, limiting efficient information exchange between providers and affecting care coordination [2,5]. Lack of rapid access to complete patient medical history may contribute to medical errors, delays in clinical decision-making, and unnecessary duplication of investigations.

At the same time, recent investments in healthcare digitalization through the National Recovery and Resilience Plan create favorable conditions for improving informational continuity and developing integrated care models [7]. However, the experience of other healthcare systems suggests that implementation of digital solutions alone is insufficient in the absence of standardized organizational processes and effective coordination mechanisms between levels of care [2]. Therefore, the impact of digitalization depends not only on technological infrastructure but also on its integration into clinical and managerial practice.

The analysis also highlights the economic implications of discontinuities in the patient pathway. Fragmentation of care is associated with inefficient service utilization, avoidable hospitalizations, frequent

readmissions, and duplication of investigations, all contributing to increased healthcare system costs [3,4]. International literature shows that integrated care models and effective coordination between providers may contribute to optimizing resource utilization and improving health outcomes.

From a managerial perspective, the findings support the need for systemic interventions aimed at service integration and strengthening continuity of care. Development of outpatient services, implementation of case management, use of standardized clinical pathways, and strengthening family medicine represent important directions for reducing fragmentation of services. At the same time, development of digital competencies and adaptation of organizational processes remain essential conditions for maximizing the benefits of digitalization investments.

In the context of increasing pressures on healthcare system sustainability, continuity of care should be addressed as a strategic priority. A patient-centered model supported by effective coordination and functional information infrastructures has the potential to reduce discontinuities, improve service quality, and increase efficiency in resource utilization.

CONCLUSIONS

Continuity of care between outpatient and hospital services represents an essential element for ensuring the quality and efficiency of healthcare services. The literature analysis highlights that discontinuities in the patient pathway are associated with avoidable hospitalizations, frequent readmissions, inefficient resource utilization, and additional healthcare system costs.

Recent European data suggest that Romania continues to face major challenges regarding care coordination and interoperability of healthcare information systems. →

In this context, development of outpatient services, strengthening family medicine, and improving informational continuity represent priority directions for optimizing the patient pathway.

Investments in healthcare digitalization through the National Recovery and Resilience Plan create important opportunities for reducing fragmentation of services. However, their impact depends on coherent implementation of digital solutions, actual interoperability of information systems, and their integration into clinical and managerial practice.

The adoption of integrated care models and strengthening coordination mechanisms between levels of care have the potential to improve service quality, optimize resource utilization, and increase the long-term sustainability of the healthcare system.

STUDY LIMITATIONS

The present study is based on a narrative review of the literature, which involves certain limitations related to source selection and heterogeneity of the analyzed data. In the absence of primary data or quantitative analysis, the results should be interpreted with caution.

Additionally, methodological differences between included studies and variations across healthcare systems may influence comparability of results. The lack of detailed Romania-specific data for certain indicators limits the possibility of more in-depth national-level analyses.

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