

**CONTEMPORARY MEDICINE AND THE CHALLENGES OF CHRONIC DISEASES IN THE GLOBAL EPIDEMIOLOGICAL TRANSITION** <https://doi.org/10.63330/aurumpub.034-014>**Forsyth Vasconcelos e Silva<sup>1</sup>, Laura Giovanna Miranda Noceti<sup>2</sup>, João Vitor Nunes Ramos<sup>3</sup>, Géssika Melissa Guerra Lima<sup>4</sup> and Herion Alves da Silva Machado<sup>5</sup>****Abstract**

Contemporary medicine faces increasing challenges due to the expansion of chronic noncommunicable diseases within the context of the global epidemiological transition. Conditions such as cardiovascular diseases, diabetes mellitus, cancer, and chronic respiratory diseases have become predominant over infectious diseases, particularly in low- and middle-income countries, as originally described by Omran and further discussed by scholars such as Marmot and Beaglehole. The objective of this chapter is to analyze the main challenges posed by chronic diseases to contemporary medicine, considering epidemiological, social, and health system-related aspects. The methodology consisted of a narrative review of national and international scientific literature, including publications from the World Health Organization, global epidemiological studies, and articles indexed in databases such as PubMed and SciELO. The results indicate that increased life expectancy, rapid urbanization, lifestyle changes, and social inequalities significantly contribute to the global burden of chronic diseases, demanding healthcare models focused on prevention, continuity of care, and interdisciplinary approaches. It is concluded that

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contemporary medicine must advance toward integrated strategies for health promotion, strengthening primary healthcare, and implementing intersectoral public policies to effectively address the challenges of chronic diseases in the global epidemiological transition.

**Keywords:** Chronic diseases, Contemporary medicine, Epidemiological transition, Global health, Primary health care.

## INTRODUCTION

Contemporary medicine is undergoing profound transformations resulting from changes in the epidemiological profile of the world population. In recent decades, a relative reduction in mortality from infectious diseases has been observed alongside a marked increase in chronic noncommunicable diseases (NCDs), such as cardiovascular diseases, diabetes mellitus, neoplasms, and chronic respiratory diseases. This phenomenon, known as the epidemiological transition, redefines the priorities of health systems and imposes new challenges on medical practice, requiring approaches that go beyond the traditional biomedical model and incorporate social, economic, and behavioral dimensions of the health–disease process.

Despite the technological and scientific advances achieved by contemporary medicine, health systems still show significant limitations in responding effectively to the complexity of chronic diseases. Such limitations stem largely from the predominance of curative, fragmented care models centered on the treatment of acute events, which prove insufficient in the face of long-term, multifactorial conditions strongly influenced by the social determinants of health. In this context, the central problem that emerges is the inadequacy of traditional care strategies in view of the growing burden of NCDs in the scenario of the global epidemiological transition.

Given this reality, this chapter has the general objective of analyzing the challenges faced by contemporary medicine in confronting chronic diseases in the context of the global epidemiological transition. As specific objectives, it seeks to understand the concept of the epidemiological transition and

its relationship to the rise of NCDs; to identify the main social, demographic, and behavioral factors associated with the expansion of these diseases; to discuss the limitations of traditional health care models; and to highlight the importance of integrated strategies for prevention, health promotion, and continuous care.

The relevance of the topic is justified by the magnitude of the impact of chronic diseases on morbidity and mortality, on the population's quality of life, and on the economic and social costs for health systems. Understanding the challenges imposed by this scenario is essential to support the formulation of effective public policies, the reorganization of health services, and the improvement of medical practice, especially in strengthening primary care and adopting care models centered on the patient and on the comprehensiveness of care.

From a theoretical perspective, the discussion is grounded in the theory of the epidemiological transition proposed by Abdel Omran, which describes the progressive replacement of infectious diseases by chronic diseases as the main causes of illness and death. Subsequent contributions by authors such as Marmot, Beaglehole, and Starfield expand this approach by emphasizing the role of the social determinants of health, socioeconomic inequalities, and the organization of health systems in shaping the current epidemiological profile. Contemporary literature thus highlights the need for integrated, interdisciplinary care models oriented toward health promotion, capable of responding effectively to the complex demands of chronic diseases in a globalized world.

## **METHODOLOGY**

### **TYPE OF RESEARCH**

This study is characterized as qualitative research, with a descriptive and exploratory approach. This design was chosen because it enables an in-depth understanding of the challenges faced by contemporary medicine in the context of chronic diseases—a complex and multifactorial phenomenon involving epidemiological, social, economic, and organizational aspects of health systems. The qualitative

approach allows for critical interpretation of different theoretical conceptions and scientific evidence, fostering a contextualized analysis of the global epidemiological transition.

## METHODOLOGICAL DESIGN

The methodological design adopted was based on a narrative review of the literature, considered appropriate for studies whose objective is to discuss broad concepts, trends, and explanatory models. Unlike systematic reviews, the narrative review allows greater analytical flexibility and the integration of different theoretical perspectives, which is pertinent to analyzing the challenges of chronic diseases in contemporary medicine.

## DATA COLLECTION TECHNIQUES AND INSTRUMENTS

Data collection was carried out through a bibliographic survey in national and international scientific databases, including PubMed, SciELO, and the Virtual Health Library (VHL/BVS), as well as institutional documents published by the World Health Organization, the Pan American Health Organization, and other international bodies. The instruments used consisted of scientific articles, books, book chapters, technical reports, and official documents, selected using controlled and uncontrolled descriptors such as “chronic diseases,” “contemporary medicine,” “epidemiological transition,” and “global health.”

## SAMPLE AND SELECTION CRITERIA

The study sample consisted of publications relevant to the topic, intentionally selected in accordance with the proposed objectives. Full-text studies published in Portuguese, English, and Spanish were included, prioritizing works published in the last ten years, without excluding classic works fundamental to understanding the theoretical framework. Duplicated materials, publications lacking

scientific support, opinion texts without theoretical grounding, and studies not directly related to the chapter's central theme were excluded.

## DATA ANALYSIS PROCEDURES

The analysis of the selected material was conducted in a critical, reflective, and interpretative manner. Initially, an exploratory reading of the publications was performed, followed by analytical reading and synthesis of the main findings. The data were organized into thematic categories such as epidemiological transition, social determinants of health, organization of health systems, and challenges of contemporary medical practice. This process made it possible to identify convergences and divergences among authors, as well as gaps in scientific knowledge.

## BASIS FOR THE METHODOLOGICAL DISCUSSION

The discussion of the data was grounded in classical and contemporary authors in the field of public/collective health and epidemiology, enabling articulation between theory and empirical evidence. This foundation made it possible to understand how demographic, social, and economic transformations influence the global epidemiological profile and impose new challenges on contemporary medicine. In this way, the adopted methodology contributes to an integrated and consistent analysis of the phenomenon studied, ensuring scientific rigor and coherence with the chapter's objectives.

## RESULTS AND DISCUSSION

The results obtained from the literature analysis show that chronic noncommunicable diseases constitute the main challenge faced by contemporary medicine in the scenario of the global epidemiological transition. There is consensus among the analyzed authors that population aging—associated with changes in living patterns, accelerated urbanization, physical inactivity, unhealthy diet,

and increased consumption of harmful substances—has contributed decisively to raising the incidence and prevalence of these illnesses in different regions of the world.

The findings also indicate that the epidemiological transition does not occur homogeneously among countries, being strongly influenced by socioeconomic factors and inequalities in access to health services. In low- and middle-income countries, chronic diseases coexist with infectious diseases and poverty-related conditions, configuring a double burden of disease. This reality increases pressure on health systems and highlights structural and organizational limitations that hinder the provision of continuous and comprehensive care, as discussed by Beaglehole and collaborators.

With respect to the organization of health systems, the results indicate that care models are still predominantly oriented toward the treatment of acute events, with low articulation among different levels of care. The analyzed literature highlights that this fragmentation compromises the longitudinal follow-up of individuals with chronic diseases, reduces the effectiveness of interventions, and increases care costs. Authors such as Starfield emphasize that health systems based on strong primary care achieve better outcomes in the prevention and control of NCDs, in addition to greater equity.

Another relevant finding concerns the role of the social determinants of health in the genesis and evolution of chronic diseases. Studies grounded in Marmot's contributions demonstrate that factors such as income, education, working conditions, and the social environment exert a direct influence on the risk of illness and on health outcomes. Thus, contemporary medicine is challenged to broaden its scope of action by incorporating interdisciplinary and intersectoral approaches that go beyond an exclusively biomedical focus.

The discussion of results also highlights the need to reorganize clinical practices and public health policies, with emphasis on health promotion, prevention of risk factors, and strengthening supported self-care. Strategies such as health education, multiprofessional follow-up, and the use of digital technologies for monitoring chronic conditions are identified in the literature as promising tools for addressing current challenges.

Although this chapter does not present primary empirical data, the synthesis of findings from the literature makes it possible to identify consistent trends and gaps in addressing chronic diseases. The inclusion of tables, graphs, or figures—when permitted by editorial standards—may contribute to systematizing information, such as the global distribution of NCDs, the main risk factors, and the most effective health care models. Thus, the results discussed reinforce the urgency of a more integrated, preventive contemporary medicine guided by the principles of equity and comprehensive care.

## CONCLUSION

This chapter aimed to analyze the challenges faced by contemporary medicine in light of the advance of chronic diseases in the context of the global epidemiological transition. Throughout the development of the study, the intention was to understand the complexity of this phenomenon, considering epidemiological, social, and organizational aspects of health systems, as well as the limitations of traditional care models in view of the demands imposed by chronic noncommunicable diseases.

The results discussed show that increased longevity, transformations in lifestyles, accelerated urbanization, and social inequalities have contributed significantly to the growing global burden of chronic diseases. It was observed that health systems—still strongly oriented toward the care of acute conditions—have difficulties in offering continuous, comprehensive, and equitable follow-up to individuals affected by these illnesses. The analyzed literature reinforces that fragmentation of care, coupled with insufficient valorization of health promotion and prevention, compromises the effectiveness of interventions and increases social and economic costs.

As the main contribution of this research, the critical systematization of scientific evidence is highlighted, pointing to the need to reorient medical practice and public health policies. Strengthening primary care, adopting patient-centered care models, multiprofessional action, and incorporating the

social determinants of health as a structuring axis of health actions emerge as fundamental strategies for confronting chronic diseases in contemporary medicine.

Finally, it is suggested that future research deepen empirical analysis of the effectiveness of integrated models of care for chronic diseases in different socioeconomic contexts, as well as investigate the impact of intersectoral interventions and the use of digital technologies in managing these conditions. Such investigations may contribute to improving care strategies and consolidating health systems that are more resolute, equitable, and sustainable in the face of the challenges of the global epidemiological transition.

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