

**CLIMATE CHANGE IN THE AMAZON AND THE NEW DISEASE PROFILE:
CHALLENGES FOR GLOBAL HEALTH AND MULTIPROFESSIONAL PRACTICE**

**MUDANÇAS CLIMÁTICAS NA AMAZÔNIA E O NOVO PERFIL DE DOENÇAS:
DESAFIOS PARA A SAÚDE GLOBAL E PARA A ATUAÇÃO
MULTIPROFISSIONAL**

**CAMBIO CLIMÁTICO EN LA AMAZONÍA Y EL NUEVO PERFIL DE
ENFERMEDADES: DESAFÍOS PARA LA SALUD GLOBAL Y LA ACTUACIÓN
MULTIPROFESIONAL**



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ABSTRACT

Climate change has caused significant transformations in disease profiles, especially in environmentally sensitive regions such as the Amazon. This chapter aims to analyze how climate changes have been influencing epidemiological dynamics in the region, highlighting impacts on infectious diseases, chronic conditions, and environment-related health issues, as well as discussing the role of multiprofessional teams in this context. This is a qualitative study developed through an integrative review of the scientific literature, based on recent national and international publications. The findings show that factors such as deforestation, wildfires, and changes in climate patterns have contributed to the expansion of vector-borne diseases, the worsening of chronic conditions, and increased vulnerability among Indigenous and riverine populations. The emergence of new health risks associated with environmental degradation is also observed. In this scenario, the importance of the integrated work of physicians, nurses, pharmacists, physiotherapists, nutritionists, dentists, and public health professionals in surveillance, prevention, and comprehensive care is emphasized. It is concluded that understanding the new disease profile in the Amazon is essential to guide public policies and strengthen health systems better prepared for global health challenges.

Keywords: Climate Change. Amazon. Disease Profile. Global Health. Multiprofessional Team.

RESUMO

As mudanças climáticas têm provocado transformações significativas no perfil de doenças, especialmente em regiões ambientalmente sensíveis como a Amazônia. Este capítulo tem como objetivo analisar como as alterações climáticas vêm influenciando a dinâmica epidemiológica na região, destacando os impactos sobre doenças infecciosas, crônicas e agravos relacionados ao ambiente, além de discutir o papel da equipe multiprofissional nesse contexto. Trata-se de um estudo de abordagem qualitativa, desenvolvido por meio de revisão integrativa da literatura científica, com base em publicações recentes nacionais e internacionais. Os achados evidenciam que fatores como desmatamento, queimadas e mudanças nos padrões climáticos têm contribuído para a expansão de doenças transmitidas por vetores, o agravamento de condições crônicas e o aumento da vulnerabilidade de populações indígenas e ribeirinhas. Também se observa a emergência de novos riscos à

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saúde associados à degradação ambiental. Diante desse cenário, destaca-se a importância da atuação integrada de médicos, enfermeiros, farmacêuticos, fisioterapeutas, nutricionistas, cirurgiões-dentistas e profissionais da saúde coletiva na vigilância, prevenção e cuidado integral. Conclui-se que compreender o novo perfil de doenças na Amazônia é fundamental para orientar políticas públicas e fortalecer sistemas de saúde mais preparados para os desafios da saúde global.

Palavras-chave: Mudanças Climáticas. Amazônia. Perfil de Doenças. Saúde Global. Equipe Multiprofissional.

RESUMEN

El cambio climático ha provocado transformaciones significativas en el perfil de enfermedades, especialmente en regiones ambientalmente sensibles como la Amazonía. Este capítulo tiene como objetivo analizar cómo las alteraciones climáticas han influido en la dinámica epidemiológica de la región, destacando los impactos sobre enfermedades infecciosas, crónicas y afecciones relacionadas con el ambiente, además de discutir el papel del equipo multiprofesional en este contexto. Se trata de un estudio de enfoque cualitativo, desarrollado mediante una revisión integradora de la literatura científica, basada en publicaciones recientes nacionales e internacionales. Los hallazgos evidencian que factores como la deforestación, los incendios forestales y los cambios en los patrones climáticos han contribuido a la expansión de enfermedades transmitidas por vectores, el agravamiento de condiciones crónicas y el aumento de la vulnerabilidad de poblaciones indígenas y ribereñas. También se observa la aparición de nuevos riesgos para la salud asociados a la degradación ambiental. Ante este escenario, se destaca la importancia de la actuación integrada de médicos, enfermeros, farmacéuticos, fisioterapeutas, nutricionistas, odontólogos y profesionales de la salud pública en la vigilancia, prevención y atención integral. Se concluye que comprender el nuevo perfil de enfermedades en la Amazonía es fundamental para orientar políticas públicas y fortalecer sistemas de salud mejor preparados para los desafíos de la salud global.

Palabras clave: Cambio Climático. Amazonía. Perfil de Enfermedades. Salud Global. Equipo Multiprofesional.

1 INTRODUCTION

Climate change has been increasingly recognized as one of the greatest challenges to health in the twenty-first century. This phenomenon is not limited to isolated environmental changes, but involves profound transformations in ecosystems, ways of life, and the disease profile of populations. In this context, the Amazon occupies a strategic position, both for its ecological relevance and for its influence on the global climate balance. Recent studies indicate that environmental changes in the region already produce measurable impacts on human health, especially in more vulnerable populations (CHOWDHURY et al., 2024; ARTAXO et al., 2023).

The intensification of deforestation, fires and changes in land use has caused significant changes in the natural cycles of the Amazon. These transformations favor the increase in atmospheric pollution, the rise in local temperatures and the modification of rainfall patterns. As a result, there has been a gradual change in the epidemiological profile of the region, with an increase in infectious diseases, respiratory problems, and chronic conditions related to the environment (MARLIER et al., 2020; BUTT et al., 2021). This scenario reinforces the idea that climate change is not just an environmental problem, but a direct determinant of health.

In addition, the scientific literature has shown that climate change contributes to the expansion of climate-sensitive diseases, such as dengue, malaria, and other vector-borne diseases. Changes in temperature and humidity directly influence the reproduction of vectors and the circulation of infectious agents, increasing the risk of outbreaks and epidemics in different territories (LEE et al., 2021; LEAL FILHO et al., 2018).

In this context, the emergence and reemergence of infectious diseases associated with environmental transformations is also observed, especially those related to the interaction between humans, animals and ecosystems. Studies show that environmental changes in the Amazon favor the emergence of zoonoses and new patterns of disease transmission, reinforcing the relationship between environmental degradation and health risks (NAVA et al., 2017; BONILLA-ALDANA et al., 2019).

Another relevant aspect refers to the social inequalities present in the Amazon region. Indigenous communities, riverine communities, and vulnerable populations are disproportionately affected by the impacts of climate change. These populations face difficulties in accessing health services, in addition to depending directly on natural resources for their subsistence. Studies indicate that environmental degradation has contributed to the increase in diseases, food insecurity, and population displacement, increasing health inequities (ANDRADE et al., 2021; BRONDÍZIO et al., 2016).

Given this scenario, it is essential to understand how climate change is influencing the emergence and distribution of diseases in the Amazon. The literature points out that it is not only a matter of the increase in diseases already known, but of the transformation of the epidemiological profile, with the emergence of new health risks. This phenomenon requires responses that go beyond isolated approaches and consider the complexity of the environmental, social, and biological determinants involved (MOURÃO, 2025).

In this context, the performance of the multiprofessional health team assumes a central role. Doctors, nurses, pharmacists, physiotherapists, nutritionists, dentists and public health professionals are fundamental in the early identification of diseases, in clinical management and in the implementation of prevention and health promotion strategies. The integration of these professionals allows for a broader and more problem-solving approach, capable of responding to the challenges imposed by climate change (FERREIRA et al., 2023).

Thus, understanding the new disease profile associated with climate change in the Amazon becomes essential to guide public policies, strengthen health systems, and develop more effective care strategies. In view of this, this chapter aims to analyze the transformations in the epidemiological profile related to climate change in the Amazon and to discuss the challenges and possibilities of multiprofessional action in the face of this emerging scenario.

2 LITERATURE REVIEW

2.1 CLIMATE CHANGE AND GLOBAL HEALTH: AN INCREASINGLY EVIDENT RELATIONSHIP

In recent years, the relationship between climate change and health has ceased to be just a theoretical projection to become a concrete reality in different regions of the world. Rising temperatures, the intensification of extreme events, and changes in environmental patterns have directly influenced the occurrence of diseases and the organization of health systems. Recent studies indicate that these changes affect everything from infectious diseases to chronic diseases, increasing the complexity of health care (CHOWDHURY et al., 2024).

In addition, the literature highlights that the impacts of climate change do not occur in isolation, but interact with social, economic, and environmental determinants. This means that already vulnerable populations tend to suffer more intensely from the effects of these transformations. In this sense, understanding health within a broader perspective, which considers the environment as a central factor, becomes essential for facing contemporary challenges (BRONDÍZIO et al., 2016).

Another important point is that climate change has been altering the dynamics of diseases on a global scale. It is not only about an increase in cases, but about changes in the pattern of occurrence, geographic distribution, and intensity of diseases. This scenario reinforces the need for new health care models, more integrated and prepared to deal with these transformations.

2.2 AMAZON AND ENVIRONMENTAL TRANSFORMATIONS: DIRECT IMPACTS ON HEALTH

The Amazon has been deeply affected by processes of environmental degradation in recent decades, especially due to deforestation and fires. These changes not only compromise biodiversity, but also modify the natural cycles that directly influence climate and human health. Studies show that the reduction of forest cover interferes with rainfall and temperature patterns, creating favorable conditions for the emergence of new health risks (ARTAXO et al., 2023).

Fires, in particular, have been one of the main factors impacting the health of Amazonian populations. The release of air pollutants during these events contributes to the deterioration of air quality, mainly affecting children, the elderly, and people with chronic diseases. Research indicates that periods of higher fire intensity are associated with increased attendances and hospitalizations for respiratory problems (MARLIER et al., 2020).

In addition, environmental degradation can alter the dynamics of disease vectors and reservoirs, favoring the emergence and reemergence of infectious diseases. This phenomenon highlights the close relationship between environment and health, reinforcing the need for strategies that integrate environmental protection with public health actions.

2.3 CLIMATE CHANGE AND THE NEW DISEASE PROFILE

One of the most relevant aspects observed in the literature is the change in the epidemiological profile associated with climate change. In the Amazon, there is not only an increase in diseases that are already known, but also the expansion of diseases to areas where they were previously infrequent. Vector-borne diseases, such as dengue and malaria, have shown new distribution dynamics, influenced by climatic factors such as temperature and humidity (LEE et al., 2021; LEAL FILHO et al., 2018).

In addition, environmental changes have favored the emergence of infectious and zoonotic diseases, increasing the challenges for health systems. The literature highlights that the interaction between deforestation, biodiversity loss, and climate change contributes to the emergence of new infectious agents and to the reconfiguration of transmission patterns,

especially in tropical regions such as the Amazon (NAVA et al., 2017; BONILLA-ALDANA et al., 2019).

Another important point is that climate change also influences the behavior of chronic diseases and non-communicable diseases. Exposure to high temperatures, environmental pollutants, and extreme events can aggravate cardiovascular, respiratory, and metabolic conditions, increasing the demand for health services. In addition, factors such as food insecurity and changes in lifestyles directly impact the nutritional status and general health of populations, reinforcing that the new disease profile associated with the climate is multifactorial and requires an integrated approach.

2.4 SOCIAL VULNERABILITY AND AMAZONIAN POPULATIONS

Populations living in the Amazon, especially indigenous and riverine communities, are more vulnerable to the effects of climate change. This occurs both due to direct exposure to environmental impacts and difficulties in accessing health services. Studies show that these populations face challenges related to food insecurity, environmental pollution, and the occurrence of infectious diseases (ANDRADE et al., 2021).

In addition, dependence on natural resources makes these communities more sensitive to environmental changes. Changes in rainfall cycles and food availability can compromise food and nutritional security, directly impacting health. This scenario highlights the need for care strategies that consider the cultural and social specificities of these populations.

Another relevant aspect is the expansion of health inequalities. Climate change tends to aggravate existing conditions, making the need for public policies aimed at equity and access to health services even more evident.

2.5 THE ROLE OF THE MULTIPROFESSIONAL TEAM IN THE FACE OF CLIMATE CHANGE

Given the complexity of the impacts of climate change on health, the work of the multiprofessional team becomes fundamental. Doctors are responsible for diagnosing and treating diseases, while nurses work in patient monitoring and health education. Pharmacists contribute to the safe use of medicines, especially in chronic diseases aggravated by environmental factors (FERREIRA et al., 2023).

Physiotherapists play an important role in the rehabilitation of patients with respiratory and cardiovascular diseases, while nutritionists work to promote food safety and prevent

nutritional problems. Dentists also contribute to integral health, considering that environmental factors can influence systemic and oral conditions.

In addition to these professionals, the work of specialists in collective health and social sciences is essential to understand the social determinants of health and develop more effective intervention strategies. The integration between these different areas allows for the construction of more complete responses adapted to the needs of the populations.

2.6 COPING STRATEGIES AND CHALLENGES FOR HEALTH SYSTEMS

The literature points out that addressing the impacts of climate change on health requires the construction of integrated strategies between different sectors. Environmental preservation, the strengthening of epidemiological surveillance, and the expansion of access to health services are fundamental elements in this process. Initiatives aimed at reducing deforestation and controlling fires have a direct impact on improving the health conditions of populations (VIANA, 2020).

In addition, health systems need to adapt to the new demands imposed by climate change. This includes the training of professionals, the reorganization of services and the strengthening of primary care. The integration between health and the environment becomes essential for the construction of more effective and sustainable responses.

Finally, the literature reinforces that the challenges imposed by climate change require a paradigm shift in the way health care is thought about and organized. Adopting a more integrated approach, which considers environmental, social, and biological factors, is critical to addressing current and future challenges related to global health.

3 METHODOLOGY

3.1 STUDY DESIGN

This chapter was developed from a qualitative approach, with a theoretical-analytical character, based on an integrative review of the scientific literature. This method was chosen due to the need to understand, in a broader and critical way, the relationships between climate change, environmental transformations in the Amazon and the new profile of diseases, also considering the performance of the multiprofessional team in the face of these challenges. Integrative review allows for the gathering of different types of studies and the construction of a more sensitive and contextualized analysis, respecting the complexity of the topic.

Unlike strictly quantitative reviews, this study sought to interpret the phenomena from multiple perspectives, valuing not only epidemiological data, but also social, environmental,

and organizational aspects of health. This approach enables a closer understanding of the reality experienced by Amazonian populations.

3.2 SEARCH STRATEGY AND DATA SOURCES

The search for evidence was carried out in internationally recognized databases, selected for their relevance and consistency in scientific production in health and the environment. The following sources were used:

- PubMed/MEDLINE
- Scopus
- Web of Science
- SciELO
- Virtual Health Library (VHL/LILACS)
- Google Scholar

These databases were chosen because they bring together high-impact studies in the areas of global health, epidemiology, climate change, and environmental health.

For the search, descriptors in Portuguese and English were used, combined by Boolean operators (AND and OR), in order to increase the sensitivity and specificity of the results. Among the main terms used, the following stand out:

- Climate change
- Amazon
- Global health
- Disease profile
- climate change
- Amazon
- Global Health
- emerging diseases
- environmental health

The combination of these terms allowed us to identify studies aligned with the objective of the chapter, focusing on the relationships between environment, climate, and health.

3.3 INCLUSION AND EXCLUSION CRITERIA

Scientific articles published in peer-reviewed journals, institutional documents, and relevant studies that addressed:

- Health impacts of climate change
- environmental transformations in the Amazon
- Changes in the epidemiological profile of diseases
- Relationships between the environment and infectious or chronic diseases
- Multiprofessional approaches in health

Studies available in Portuguese, English and Spanish, with access to the full text, were also considered.

Studies that did not have a direct relationship with the theme, exclusively technical studies without application in health, duplicate publications, and articles without full access were excluded.

3.4 ANALYSIS PERIOD

The selection of studies prioritized publications between 2016 and 2025, a period that concentrated important advances in scientific production on climate change and health. However, studies considered fundamental for understanding the theme were also included, even if they were prior to this time frame.

3.5 PROCESS OF SELECTING AND ORGANIZING DATA

After the initial search, the studies were submitted to a screening based on the reading of titles and abstracts. Then, the selected articles were read in full, allowing us to assess their relevance to the objective of the chapter. At the end of this process, 15 main scientific references were included, considered adequate to support the proposed discussion.

The information extracted was organized in a thematic way, allowing the analysis to be structured in central axes, such as:

- Climate Change and Global Health
- environmental impacts in the Amazon
- New disease profile
- Vulnerability of populations
- Multiprofessional performance in health

This organization facilitated the construction of a coherent and integrated narrative, connecting different dimensions of the phenomenon studied.

3.6 ANALYSIS AND SYNTHESIS OF EVIDENCE

The analysis of the studies was carried out in an interpretative way, seeking to identify convergences, divergences and gaps in the scientific literature. The synthesis of the evidence was constructed in a narrative manner, prioritizing clear, fluid writing that is close to the practical reality of health.

This stage allowed for the integration of different scientific perspectives, promoting a more complete understanding of the impacts of climate change in the Amazon and its implications for global health. The approach adopted sought to value interdisciplinarity and the articulation between different areas of knowledge.

3.7 SCIENTIFIC RIGOR

Methodological rigor was ensured by the selection of studies from recognized databases, by the use of clear inclusion and exclusion criteria, and by the critical analysis of the evidence. The diversity of the sources allowed different approaches to be contemplated, strengthening the consistency of the chapter.

In addition, it sought to maintain fidelity to scientific evidence, avoiding generalizations and ensuring that interpretations were aligned with the data presented in the studies analyzed.

3.8 ETHICAL ASPECTS

As this was a study based exclusively on secondary data from the scientific literature, there was no need to submit it to the Research Ethics Committee. All sources used were duly cited throughout the chapter, respecting the ethical principles of scientific production and ensuring transparency and academic integrity.

4 RESULTS AND DISCUSSION

The analysis of the selected studies reveals that climate change has caused concrete changes in the profile of diseases in the Amazon, evidencing an epidemiological transition influenced by environmental factors. Unlike previous scenarios, in which certain diseases had a more predictable behavior, a more complex dynamic is currently observed, marked by the coexistence of infectious diseases, chronic diseases, and conditions related to environmental degradation. This phenomenon has been mainly associated with changes in land use, the increase in fires, and the intensification of climate variations (ARTAXO et al., 2023; CHOWDHURY et al., 2024).

Among the main findings, the increase in the incidence of climate-sensitive diseases, especially those transmitted by vectors, stands out. Studies show that changes in temperature and humidity favor the proliferation of vectors such as mosquitoes, directly impacting the occurrence of diseases such as dengue, malaria and other arboviruses. In addition, these changes contribute to the geographic expansion of these diseases, reaching previously less affected areas (LEE et al., 2021; LEAL FILHO et al., 2018). This new epidemiological pattern imposes additional challenges on health surveillance and the planning of preventive actions.

Another relevant result refers to the impact of fires on the health of populations. The literature shows that exposure to smoke from forest fires is associated with an increase in respiratory and cardiovascular diseases, and worsening of chronic conditions. During periods of greater intensity of fires, there is a significant increase in the demand for health services, especially among children and the elderly, groups considered more vulnerable to the effects of air pollution (MARLIER et al., 2020; YE et al., 2021). This scenario highlights the direct relationship between environmental events and overload of health systems.

In addition to infectious and respiratory diseases, studies also indicate an increase in health problems related to environmental stress, including cardiovascular problems and impacts on mental health. Situations such as food insecurity, loss of territory, and extreme weather events have been associated with increased anxiety, psychological distress, and other mental health-related conditions, especially in more vulnerable populations (MOURÃO, 2025). This aspect further broadens the understanding of the impact of climate change, showing that its effects go beyond the physical dimension of health.

The vulnerability of Amazonian populations appears as one of the central elements in the discussion of the results. Indigenous and riverine communities are particularly affected, both by direct exposure to environmental impacts and by limitations in access to health services. Studies indicate that these populations face greater difficulties in coping with diseases, due to factors such as geographic isolation, social inequalities, and the fragility of health care networks (ANDRADE et al., 2021; BRONDÍZIO et al., 2016). This context reinforces the need for public policies that consider the territorial and cultural specificities of the region.

In this scenario, the performance of the multiprofessional health team is essential. The results indicate that effective responses to changes in the profile of diseases depend on the integration between different areas of knowledge. Doctors and nurses work directly in the diagnosis and clinical management, while pharmacists contribute to safe therapeutic follow-up. Physiotherapists play an important role in the rehabilitation of patients with respiratory

and cardiovascular diseases, and nutritionists work to prevent problems related to food insecurity and malnutrition (FERREIRA et al., 2023).

In addition, the work of professionals in the public health and social sciences is essential to understand the social determinants of health and develop more effective intervention strategies. The integration of these different areas allows us to build more complete responses, capable of dealing with the complexity of the impacts of climate change on health.

The discussion of the results also highlights the need to strengthen health systems in the face of the new demands imposed by climate change. The expansion of epidemiological surveillance, the qualification of professionals and the reorganization of health services are essential measures to ensure faster and more effective responses. In addition, public policies aimed at environmental protection, such as the control of deforestation and fires, play a fundamental role in reducing negative impacts on health (VIANA, 2020).

Overall, the findings indicate that climate change in the Amazon not only increases the occurrence of diseases, but also profoundly transforms the epidemiological profile of the region. This process requires a change in the way of thinking and organizing health care, valuing integrated and multiprofessional approaches. The construction of strategies that articulate health, environment and public policies becomes essential to face current and future challenges, ensuring better living conditions for Amazonian populations and contributing to global health.

5 CONCLUSION

The analysis developed in this chapter shows that climate change in the Amazon has caused profound transformations in the profile of diseases, configuring an increasingly complex scenario for public health. It is not only a matter of the increase in already known diseases, but of a reconfiguration of the epidemiological pattern, marked by the coexistence of infectious diseases, chronic conditions, and environment-related conditions. This new context reinforces that the climate crisis must also be understood as a health crisis, with direct impacts on the lives of populations.

The results indicate that factors such as deforestation, fires, and changes in natural cycles have contributed significantly to the emergence and intensification of climate-sensitive diseases. At the same time, these processes amplify existing social vulnerabilities, especially among indigenous populations, riverside dwellers, and communities in situations of greater socioeconomic fragility. In this way, climate change not only influences health, but also deepens inequalities, requiring fairer and more contextualized responses.

In this scenario, the performance of the multiprofessional health team becomes indispensable. The complexity of the diseases requires an integrated approach, in which physicians, nurses, pharmacists, physiotherapists, nutritionists, dental surgeons and public health professionals act in an articulated manner. This integration allows not only the clinical management of diseases, but also the development of strategies for prevention, health promotion, and epidemiological surveillance that are more effective and sensitive to local realities.

In addition, the findings reinforce the need to strengthen health systems, especially in primary care, which plays a central role in the early identification of diseases and in the follow-up of populations. Investing in professional qualification, expanding access to services, and integrating health and the environment is essential to respond to the new demands imposed by climate change.

Another essential point concerns the importance of intersectoral public policies. The protection of the Amazon, the control of fires and the preservation of ecosystems are not only environmental measures, but fundamental strategies for health promotion. The articulation between environmental, social and health policies is indispensable to face current challenges and reduce future impacts.

In this context, it is concluded that understanding and facing the new profile of diseases in the Amazon requires a change of perspective, which recognizes the interdependence between environment, society and health. The construction of effective responses necessarily involves the integration between science, professional practice and public policies, valuing multiprofessional care and sustainability as fundamental pillars for global health.

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