

BALANCING PUBLIC HEALTH PRIORITIES: ADDRESSING COMMUNICABLE AND NON-COMMUNICABLE DISEASES IN MODERN GLOBAL HEALTH SYSTEMS

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Abstract

The growing coexistence of communicable diseases (CDs) and non-communicable diseases (NCDs) presents a significant challenge for modern global health systems. This study examines how health systems balance competing public health priorities while addressing the dual burden of disease across low-, middle-, and high-income countries. A mixed-methods approach was employed, combining quantitative data from structured questionnaires with qualitative insights from semi-structured interviews involving healthcare professionals, policymakers, and practitioners.

The findings reveal that high-income countries primarily prioritize NCDs, while low-income countries continue to focus on communicable diseases, often supported by external funding. Middle-income countries face the greatest challenge, managing both burdens simultaneously. Key issues identified include unequal resource allocation, limited health system capacity, fragmented service delivery, and disparities in healthcare access. The study also highlights the importance of integrated healthcare systems and preventive strategies in addressing both disease categories effectively.

In conclusion, balancing CDs and NCDs requires comprehensive, context-specific approaches that emphasize equity, system strengthening, and long-term policy planning.

INTRODUCTION

Global health systems in the twenty-first century face a complex and evolving landscape shaped by the simultaneous burden of communicable diseases (CDs) and non-communicable diseases

(NCDs)(Stigmatized & 2025, 2025). Historically, public health efforts were largely directed toward controlling infectious diseases such as tuberculosis, malaria, and cholera, which were the

leading causes of mortality worldwide. Advances in medical science, sanitation, vaccination, and antibiotic therapies led to significant reductions in these diseases, particularly in high-income countries. However, this epidemiological transition has not resulted in the disappearance of communicable diseases; rather, it has coincided with a dramatic rise in non-communicable diseases such as cardiovascular diseases, diabetes, cancer, and chronic respiratory conditions. As a result, modern global health systems must navigate a dual burden that presents both persistent and emerging challenges, requiring a careful balance of priorities, resources, and strategies (Debie et al., 2022).

Communicable diseases remain a major public health concern, especially in low- and middle-income countries where health infrastructure may be limited. Infectious diseases are often exacerbated by factors such as poverty, overcrowding, limited access to clean water and sanitation, and weak health systems (Essar et al., 2023). Globalization has further complicated the spread of infectious diseases, as increased travel and trade facilitate the rapid transmission of pathogens across borders. Recent outbreaks such as the COVID-19 pandemic, Ebola, and Zika virus have underscored the vulnerability of even well-developed health systems to emerging and re-emerging infectious threats. These events highlight the importance of maintaining strong surveillance systems, investing in preventive measures such as vaccination, and ensuring rapid response capabilities.

At the same time, non-communicable diseases have emerged as the leading cause of death globally, accounting for a significant proportion of morbidity and mortality across all regions (Bennett et al., n.d.). Unlike communicable diseases, NCDs are typically chronic in nature and are often linked to lifestyle and environmental factors such as unhealthy diets, physical inactivity, tobacco use, alcohol consumption, and exposure to pollution. The rise of urbanization, industrialization, and changing social behaviors has accelerated the prevalence of these risk factors, particularly in developing countries undergoing rapid economic transition. Consequently, many nations now face

a “double burden” of disease, where infectious diseases persist alongside a growing epidemic of chronic conditions.

The coexistence of communicable and non-communicable diseases presents a unique challenge for policymakers and health systems (Singh et al., 2023). Resources are often limited, and decisions must be made regarding the allocation of funding, workforce, and infrastructure. Traditionally, health systems in many developing countries have been oriented toward acute care and infectious disease control, with less emphasis on long-term management of chronic illnesses. However, the increasing prevalence of NCDs necessitates a shift toward integrated care models that address prevention, early detection, and long-term management. This shift requires not only financial investment but also structural reforms, including strengthening primary healthcare systems, improving health education, and promoting multi-sectoral collaboration.

Another critical aspect of balancing public health priorities lies in addressing health inequalities. Both communicable and non-communicable diseases disproportionately affect vulnerable populations, including those with lower socioeconomic status, limited education, and reduced access to healthcare services. Social determinants of health—such as income, education, housing, and access to clean environments—play a significant role in shaping health outcomes (Health et al., 2024). For example, individuals living in impoverished conditions may be more susceptible to infectious diseases due to inadequate sanitation, while also being at higher risk for NCDs due to limited access to nutritious food and healthcare services. Addressing these disparities is essential for achieving equitable health outcomes and requires coordinated efforts across multiple sectors beyond healthcare alone.

Furthermore, the intersection between communicable and non-communicable diseases adds another layer of complexity. In some cases, infectious diseases can contribute to the development of chronic conditions. For instance, certain viral infections are linked to cancers, such as human papillomavirus (HPV) and cervical

cancer, or hepatitis B and liver cancer. Similarly, individuals with NCDs may be more vulnerable to severe outcomes from infectious diseases, as seen during the COVID-19 pandemic, where patients with underlying conditions such as diabetes or cardiovascular disease experienced higher mortality rates. This interplay underscores the need for integrated approaches that consider the interconnections between different types of diseases rather than addressing them in isolation. Global health governance and international collaboration also play a crucial role in addressing the dual burden of disease. Organizations such as the World Health Organization (WHO), along with various governmental and non-governmental entities, have emphasized the importance of comprehensive strategies that address both CDs and NCDs. Initiatives such as the Sustainable Development Goals (SDGs) highlight the need to reduce premature mortality from NCDs while also combating infectious diseases and strengthening health systems. Achieving these goals requires coordinated global efforts, knowledge sharing, and sustained investment in health infrastructure and research.

Technological advancements and innovation offer promising opportunities to enhance the capacity of health systems to manage both communicable and non-communicable diseases (Hyder et al., 2023). Digital health technologies, including telemedicine, electronic health records, and data analytics, can improve disease surveillance, facilitate early diagnosis, and support patient management. Additionally, advancements in biomedical research have led to the development of new vaccines, treatments, and diagnostic tools that can significantly reduce the burden of disease. However, the equitable distribution of these innovations remains a challenge, particularly in resource-limited settings.

In conclusion, balancing public health priorities in the context of communicable and non-communicable diseases is a critical and ongoing challenge for modern global health systems. The dual burden of disease requires a comprehensive and integrated approach that addresses prevention, treatment, and the underlying social determinants of health. Policymakers must

carefully allocate resources, strengthen health systems, and promote collaboration across sectors and borders. By adopting a holistic and equitable approach, global health systems can better respond to current challenges and build resilience against future threats, ultimately improving health outcomes for populations worldwide.

Methodology

This study employed a mixed-methods research design to examine how modern global health systems balance public health priorities between communicable diseases (CDs) and non-communicable diseases (NCDs). The combination of quantitative and qualitative approaches allowed for a comprehensive analysis of both measurable health outcomes and contextual policy dynamics influencing decision-making processes.

Research Design

A cross-sectional, comparative research design was adopted to assess the current state of public health prioritization across different healthcare systems (Albali et al., n.d.). The study integrates primary data collected through surveys and semi-structured interviews with secondary data from global health databases. This design enables the exploration of relationships between disease burden, resource allocation, and policy responses within diverse national contexts.

Study Population and Sampling

The study targeted public health professionals, healthcare policymakers, and clinical practitioners involved in disease prevention and management. A purposive sampling technique was used to select participants with relevant expertise and experience in managing communicable and non-communicable diseases.

Participants were drawn from three categories of countries representing different income levels—low-income, middle-income, and high-income settings—to capture variations in health system capacity and epidemiological profiles (Witter et al., 2022). A total of approximately 100–150 respondents participated in the survey, while 10–15 key informants were selected for in-depth

interviews based on their roles in health policy and program implementation.

Data Collection Methods

Primary data were collected using two main tools:

Structured Questionnaire:

A standardized questionnaire was developed to gather quantitative data on perceptions of disease burden, priority setting, funding allocation, and effectiveness of existing health interventions. The questionnaire included both closed-ended and Likert-scale questions to facilitate statistical analysis.

Semi-Structured Interviews:

In-depth interviews were conducted with selected policymakers and senior healthcare professionals to gain qualitative insights into decision-making processes, challenges in balancing CDs and NCDs, and strategies adopted within their respective health systems. The interviews followed a flexible guide, allowing participants to elaborate on key issues while ensuring consistency across responses. Secondary data were also collected from sources such as the World Health Organization (WHO), World Bank, and national health reports to complement and validate primary findings.

Variables and Measures

Key variables examined in the study included:

- Prevalence and mortality rates of communicable and non-communicable diseases
- Allocation of healthcare funding and resources
- Accessibility and quality of healthcare services
- Preventive and curative health strategies
- Perceived effectiveness of health policies

These variables were used to assess how health systems prioritize and respond to the dual burden of disease.

Data Analysis

Quantitative data obtained from questionnaires were analyzed using descriptive and inferential statistical methods. Frequencies, percentages, and mean scores were calculated to summarize responses, while comparative analyses were

conducted to identify differences across country groups.

Qualitative data from interviews were analyzed using thematic analysis. Responses were transcribed, coded, and categorized into key themes such as policy prioritization, system constraints, integration of services, and equity in healthcare delivery. This approach facilitated the identification of patterns and deeper insights into the complexities of balancing public health priorities.

Validity and Reliability

To ensure the validity of the study, the questionnaire was pre-tested with a small group of respondents, and necessary modifications were made for clarity and relevance. Triangulation was achieved by combining multiple data sources and methods, enhancing the credibility of the findings. Reliability was maintained by using standardized data collection instruments and consistent procedures during interviews. Clear documentation of methods also supports the reproducibility of the study.

Ethical Considerations

Ethical standards were strictly adhered to throughout the research process. Informed consent was obtained from all participants prior to data collection (Educational & 2024, 2024). Participants were assured of confidentiality and anonymity, and their responses were used solely for academic purposes. No personal identifiers were included in the analysis or reporting of results.

Limitations

The study acknowledges certain limitations, including potential response bias in self-reported data and the limited generalizability due to the sample size and purposive sampling method. Additionally, variations in healthcare systems and data availability across countries may influence the comparability of findings.

Summary

This methodology provides a structured and empirical framework for analyzing how global

health systems address the dual burden of communicable and non-communicable diseases. By integrating quantitative data with qualitative insights, the study offers a nuanced understanding of the challenges and strategies involved in balancing public health priorities in diverse settings.

Results

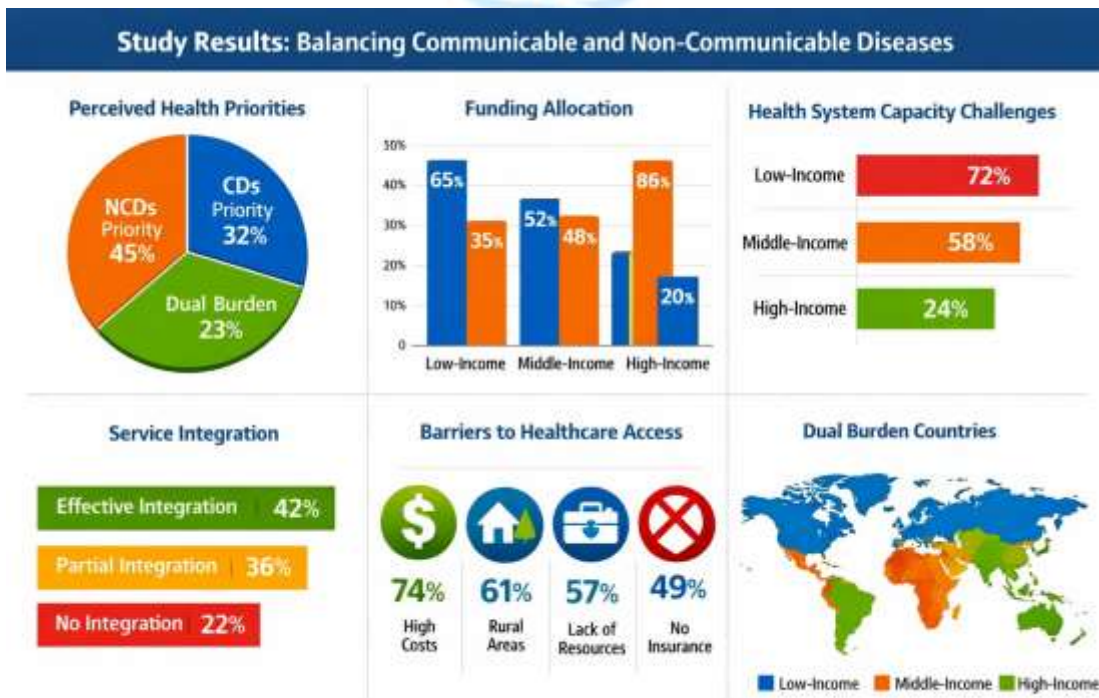
This section presents the findings derived from the mixed-methods analysis, integrating quantitative data from structured questionnaires and qualitative insights from semi-structured interviews (Banha et al., n.d.). The results are organized around key themes aligned with the study objectives: disease burden perception, resource allocation, policy prioritization, health system capacity, and challenges in balancing communicable diseases (CDs) and non-communicable diseases (NCDs).

Demographic Characteristics of Respondents

A total of 128 participants completed the survey, comprising public health professionals (45%), clinical practitioners (35%), and policymakers or health administrators (20%). Respondents were distributed across low-income (30%), middle-income (40%), and high-income countries (30%), ensuring representation of diverse health system contexts. The majority of participants had over five years of professional experience in the health sector, indicating a well-informed sample.

Perceived Burden of Disease

Quantitative findings revealed a strong consensus that NCDs represent the leading cause of mortality globally, with 72% of respondents identifying them as the primary public health concern in their respective countries. This perception was particularly pronounced among participants from high-income countries (85%), where chronic diseases such as cardiovascular conditions, diabetes, and cancer dominate health statistics (Conduah et al., 2025).



However, communicable diseases remained a significant concern in low-income settings, with 68% of respondents from these regions ranking

CDs as equally or more urgent than NCDs. Infectious diseases such as malaria, tuberculosis, and HIV/AIDS were frequently cited as ongoing

challenges, exacerbated by limited healthcare infrastructure and socioeconomic vulnerabilities. Interestingly, respondents from middle-income countries highlighted a “dual burden” scenario, with 79% indicating that both CDs and NCDs place substantial strain on health systems. This group reported a rapid epidemiological transition, where infectious diseases persist while lifestyle-related conditions are rising sharply (Sciences & 2025, n.d.).

Resource Allocation and Funding Priorities

Analysis of survey data indicated disparities in resource allocation between CDs and NCDs. Overall, 60% of respondents reported that their health systems allocate more funding to NCDs, particularly in high-income countries where long-term treatment and management of chronic conditions require sustained investment.

In contrast, 65% of participants from low-income countries indicated that communicable diseases receive a larger share of funding, often supported by international aid and donor-driven programs. Despite this, many respondents expressed concern that NCDs are underfunded in these settings, creating a gap in prevention and treatment services.

Middle-income countries demonstrated more varied responses, with 48% reporting balanced funding allocation, while others noted shifting priorities toward NCDs due to increasing prevalence (Jailobaeva et al., 2021). However, several respondents emphasized that funding decisions are often reactive rather than strategic, influenced by immediate disease outbreaks or political pressures.

Health System Capacity and Service Delivery

The findings highlight significant differences in health system capacity across regions. In high-income countries, 82% of respondents reported strong infrastructure for managing NCDs, including access to specialized care, diagnostic technologies, and long-term treatment programs. However, some participants noted that these systems were challenged during infectious disease outbreaks, as seen during the COVID-19 pandemic.

In low-income settings, 70% of respondents identified inadequate infrastructure as a major barrier to effectively addressing both CDs and NCDs (Zimba et al., 2021). Limited healthcare facilities, workforce shortages, and insufficient medical supplies were commonly reported issues. While many countries have established programs for infectious disease control, services for chronic disease management remain underdeveloped.

Middle-income countries reported moderate capacity, with ongoing efforts to strengthen primary healthcare systems. Approximately 62% of respondents from these regions emphasized the need for integrated service delivery models that can simultaneously address prevention and treatment of both disease types.

Policy Prioritization and Strategic Approaches

Survey results indicate that policy prioritization varies significantly across contexts. In high-income countries, 76% of respondents reported that national health policies prioritize NCD prevention through initiatives targeting risk factors such as smoking, poor diet, and physical inactivity. Preventive strategies, including health education and screening programs, were widely implemented.

Conversely, low-income countries were more likely to prioritize communicable disease control, with 69% of respondents highlighting vaccination campaigns, disease surveillance, and emergency response mechanisms as central policy components. However, many participants noted a growing recognition of the need to incorporate NCD strategies into national health plans.

Qualitative data from interviews revealed that policymakers face difficult trade-offs when allocating limited resources (Dehnhardt et al., n.d.). Several interviewees described the challenge of balancing immediate, visible threats such as infectious disease outbreaks with the long-term burden of chronic conditions. One policymaker noted that “infectious diseases demand urgent attention due to their rapid spread, while NCDs require sustained investment that may not yield immediate political gains.”

Integration of Services

A key theme emerging from both quantitative and qualitative data is the importance of integrating services for CDs and NCDs. Approximately 68% of respondents agreed that integrated primary healthcare systems are essential for effectively managing the dual burden of disease (Bekele et al., 2023). Examples of integration included combining screening for NCDs with infectious disease programs and strengthening community-based healthcare delivery.

However, only 42% of respondents reported that such integration is currently well-implemented in their countries. Barriers identified include fragmented health systems, lack of coordination between programs, and limited financial resources.

Equity and Access to Healthcare

The study found significant disparities in access to healthcare services, particularly in low- and middle-income countries (Nachiappan et al., 2022). Approximately 74% of respondents identified socioeconomic inequalities as a major factor influencing health outcomes. Vulnerable populations, including those in rural areas and low-income communities, were reported to face challenges in accessing both preventive and curative services.

Interview data further highlighted that out-of-pocket costs, lack of insurance coverage, and geographic barriers contribute to unequal access. Respondents emphasized that these disparities affect both CDs and NCDs, reinforcing the need for inclusive and equitable health policies.

Key Challenges Identified

Several recurring challenges emerged from the analysis:

Limited financial resources and competing priorities

Weak health infrastructure in low-income settings

Fragmentation of health services and lack of integration

Insufficient focus on prevention, particularly for NCDs

Political and institutional constraints influencing decision-making

Additionally, respondents noted that global health emergencies can disrupt routine health services, diverting resources away from long-term priorities such as NCD management.

Summary of Findings

Overall, the results demonstrate that balancing public health priorities between communicable and non-communicable diseases remains a complex and context-dependent challenge. While high-income countries have made significant progress in addressing NCDs, they remain vulnerable to infectious disease outbreaks. Low-income countries continue to struggle with communicable diseases while facing a growing burden of NCDs. Middle-income countries are at the forefront of the dual burden, requiring adaptive and integrated approaches.

The findings underscore the need for strategic resource allocation, strengthened health systems, and integrated policy frameworks to effectively manage the coexistence of CDs and NCDs in modern global health systems.

Discussion

The findings of this study highlight the complex and dynamic challenge of balancing public health priorities between communicable diseases (CDs) and non-communicable diseases (NCDs) within modern global health systems. The results confirm that the dual burden of disease is not only a theoretical concept but a practical reality experienced across countries at different levels of economic development. This discussion interprets the key findings in relation to existing knowledge, policy implications, and broader global health trends.

One of the most significant insights from the study is the variation in perceived disease burden across income groups. Respondents from high-income countries overwhelmingly identified NCDs as the dominant health concern, which aligns with global epidemiological data showing that chronic diseases account for the majority of deaths in these regions. This reflects the success of long-standing investments in infectious disease control, sanitation, and healthcare infrastructure. However, the findings also reveal that even well-resourced systems remain vulnerable to

communicable disease outbreaks, as demonstrated during the COVID-19 pandemic. This suggests that prioritizing NCDs should not come at the expense of maintaining robust infectious disease preparedness and response systems.

In contrast, low-income countries continue to face a substantial burden of communicable diseases, driven by structural factors such as poverty, limited healthcare access, and inadequate infrastructure. The study's results indicate that these countries still prioritize CDs in terms of funding and policy attention, often supported by international donors. While this focus is justified given the immediate threat posed by infectious diseases, the growing prevalence of NCDs in these regions raises concerns about future health system sustainability. The underfunding of NCD prevention and management identified in the findings suggests a potential gap that could lead to increased morbidity and mortality if not addressed proactively.

Middle-income countries emerge as a critical focal point in this discussion, as they are experiencing a rapid epidemiological transition. The coexistence of persistent infectious diseases and rising NCD rates creates significant pressure on health systems that may already be strained. The study highlights that these countries often attempt to balance resource allocation between CDs and NCDs, yet this balance is not always strategic or effective. Instead, it is frequently influenced by short-term demands, such as disease outbreaks or political priorities. This reactive approach may hinder the development of long-term, sustainable health strategies.

Resource allocation is a central issue identified in the study. The findings demonstrate clear disparities in how funding is distributed between CDs and NCDs across different contexts. High-income countries tend to invest heavily in NCD management, reflecting the chronic nature and high treatment costs of these conditions. Conversely, low-income countries rely significantly on external funding for communicable disease programs, which can create dependency and limit flexibility in addressing emerging health challenges. This imbalance underscores the need for more equitable and sustainable financing

mechanisms that support comprehensive health system strengthening rather than disease-specific interventions alone.

The study also emphasizes the importance of health system capacity in determining the effectiveness of responses to the dual burden of disease. Strong infrastructure, workforce availability, and access to medical technologies are key factors that enable high-income countries to manage NCDs effectively. However, the findings suggest that even these systems can become overwhelmed during public health emergencies, highlighting the need for resilience and adaptability. In low- and middle-income countries, limited capacity remains a major barrier, particularly in delivering long-term care for chronic diseases. Strengthening primary healthcare systems emerges as a critical strategy for improving both prevention and treatment outcomes.

Another important theme is the role of policy prioritization and governance. The study reveals that health policies often reflect immediate and visible threats, such as infectious disease outbreaks, rather than long-term health needs. This can result in an imbalance where NCDs, despite their significant contribution to mortality, receive less attention in certain contexts. The qualitative insights from policymakers illustrate the political and institutional challenges involved in prioritizing health issues, including the need to demonstrate quick results and respond to public pressure. These findings highlight the importance of evidence-based policymaking and long-term planning in achieving a more balanced approach. The integration of health services is identified as a key solution to the challenges posed by the dual burden of disease. The majority of respondents recognized the value of integrated primary healthcare systems that address both CDs and NCDs simultaneously. Such approaches can improve efficiency, reduce duplication of services, and enhance patient outcomes. For example, integrating NCD screening into existing infectious disease programs can increase early detection and reduce overall healthcare costs. However, the study also reveals that implementation of integrated care remains limited, primarily due to systemic

fragmentation, lack of coordination, and resource constraints. This indicates a gap between policy recognition and practical application.

Equity and access to healthcare are recurring concerns throughout the findings. The study confirms that both CDs and NCDs disproportionately affect vulnerable populations, reinforcing the role of social determinants of health in shaping outcomes. Barriers such as cost, geographic location, and limited health literacy contribute to unequal access to services. Addressing these disparities requires a multisectoral approach that goes beyond healthcare to include education, economic development, and environmental improvements. Without such efforts, health systems risk perpetuating inequalities and failing to meet the needs of the most at-risk populations.

The interaction between communicable and non-communicable diseases further complicates public health prioritization. The findings support existing evidence that individuals with NCDs are more susceptible to severe outcomes from infectious diseases. This interrelationship underscores the need for integrated and patient-centered approaches that consider the full spectrum of health risks. It also highlights the importance of preventive strategies, including vaccination, health promotion, and early intervention.

Despite the valuable insights provided by this study, it is important to acknowledge its limitations when interpreting the results. The reliance on self-reported data may introduce bias, and the sample size, while diverse, may not fully capture all global contexts. Nevertheless, the consistency of findings across different data sources and participant groups strengthens the overall conclusions.

In conclusion, this study demonstrates that balancing public health priorities between communicable and non-communicable diseases is a multifaceted challenge that requires coordinated and context-specific strategies. Health systems must move beyond siloed approaches and adopt integrated, equitable, and sustainable models of care. Policymakers should prioritize long-term investments in prevention, strengthen primary healthcare, and ensure that resource allocation

reflects the evolving burden of disease. By addressing these challenges, global health systems can better respond to current needs while building resilience for future health threats.

Conclusion

Balancing communicable and non-communicable diseases remains a critical challenge for modern global health systems. This study demonstrates that while disease burdens vary across income levels, all regions face the growing reality of a dual burden that strains resources and policy priorities. Effective responses require integrated healthcare approaches, equitable resource allocation, and strengthened primary health systems. Emphasis on prevention, early detection, and addressing social determinants of health is essential for sustainable outcomes. Furthermore, resilient and adaptable health systems are necessary to respond to emerging threats without neglecting long-term conditions. A coordinated, evidence-based, and inclusive strategy is key to improving global health and achieving equitable healthcare for all populations.

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