

Health Challenges in Resource-Limited Settings: The Burden of Cancer, Infectious Diseases, and the Impact of Conflict on Disease Control

Bayeh Abera^{1*}, Adane Nigusie^{2,4}, Negese Sewagegn² and Belay Bezabih³

¹Department of Medical Microbiology, College of Medicine and Health Sciences, Bahir Dar University, Bahir Dar, Ethiopia.

²Health Research Development Directorate, Amhara Public Health Institute (APHI), Bahir Dar, Ethiopia.

³Director General, Amhara National Regional State Public Health Institute (APHI), Bahir Dar, Ethiopia

⁴Department of Health Promotion and Health Behavior, Institute of Public Health, College of Medicine and Health Sciences, University of Gondar, Ethiopia

*Corresponding author: Bayeh Abera: Cell phone: +251918705245; Email: bayeabera15@gmail.com Ethiopia

The current issue of the Ethiopian Journal of Translational Sciences (EJTS) addresses the multifaceted health challenges facing low-resource countries such as Ethiopia. It addresses a spectrum of health issues, from molecular biomarkers in prostate cancer to the epidemiology of infectious diseases, including childhood diarrhoea and zoonotic threats, as well as health system resilience. The issue illustrates how evidence spanning molecular to community levels can inform effective public health interventions and policy decisions.

Cancer remains a growing public health concern in resource-limited settings, where late diagnosis and limited treatment options contribute to high morbidity and mortality. Molecular studies investigating DNA mismatch repair pathways are essential for understanding cancer pathogenesis, identifying high-risk populations, and developing targeted therapies¹, which can inform local screening programs and guide evidence-based treatment strategies. Advancing molecular insights alongside improved diagnostic infrastructure can significantly strengthen cancer control efforts in these contexts. While cancer control requires advanced diagnostics and timely treatment, similar systemic gaps affect the management of infectious diseases, where inadequate infrastructure, limited workforce, and resource constraints hinder effective prevention and care.

Infectious diseases such as acute diarrhoea and scabies continue to pose a major burden, particularly among children, owing to inadequate water, sanitation, and hygiene (WASH) conditions^{2,3}. These epidemiological insights can inform targeted community interventions and guide local public health policies aimed at disease prevention and control. Likewise, zoonotic diseases, such as rabies, remain a persistent threat due to close human-to-animal interactions, limited vaccination coverage, and gaps in surveillance⁴. Addressing these challenges requires One Health approaches, integrating human, animal and environmental health strategies to reduce transmission, prevent and respond outbreaks.

Furthermore, the health systems in low-income countries face additional human-made vulnerabilities. Conflict and political instability disrupt essential services, including disease control programs, resulting in reverses for malaria elimination and other public health interventions⁵. Strengthening health system resilience and ensuring continuity of services are therefore critical for sustaining health gains and mitigating the effects of crises, providing a basis for policymakers to design adaptive strategies that maintain essential health services during conflict or instability.

These challenges underscore the need for a multidisciplinary, multi-sectoral and multiagency approach to prevent and control public health important diseases in resource-limited countries. Biomedical and public health research, when combined, can provide interventions that address both biological and social determinants.

In resource-limited countries, health challenges are multifaceted and interconnected. Natural and man-made hazards, such as infectious diseases, zoonotic outbreaks, and malaria, intersect with the growing burden of non-communicable diseases, including mental health disorders and suicide. These challenges are further exacerbated by conflict and political instability, which weaken already fragile health systems. Addressing such complex issues requires lasting solutions that translate scientific evidence into practical actions, strengthen health systems, and adopt integrated One Health approaches. Through coordinated national and regional efforts, countries like Ethiopia can build more resilient health systems and safeguard communities against both current and emerging health threats.

REFERENCES

- ¹Graham LS, Schweizer MT. Mismatch repair deficiency and clinical implications in prostate cancer. *The Prostate*. 2022 Aug;82:S37-44.
- ²Heukelbach J, Feldmeier H. Scabies. *The Lancet*. 2006 May 27;367(9524):1767-74.
- ³Kyu HH, Vongpradith A, Dominguez RM, Ma J, Albertson SB, Novotney A, Khalil IA, Troeger CE, Doxey MC, Ledesma JR, Sirota SB. Global, regional, and national age-sex-specific burden of diarrhoeal diseases, their risk factors, and aetiologies, 1990–2021, for 204 countries and territories: a systematic analysis for the Global Burden of Disease Study 2021. *The Lancet Infectious Diseases*. 2025 May 1;25(5):519-36.
- ⁴Hampson K, Coudeville L, Lembo T, Sambo M, Kieffer A, Attlan M, Barrat J, Blanton JD, Briggs DJ, Cleaveland S, Costa P. Estimating the global burden of endemic canine rabies. *PLoS neglected tropical diseases*. 2015 Apr 16;9(4):e0003709.
- ⁵Nigusie A, Legesse S, Desie G, Bezabih B, Zeru T, Yitayal M. Health under Siege: The Far-Reaching Impact of Conflict on Health Services. *Ethiopian Journal of Translational Sciences*. 2024 Oct 1;2(1):1-2.