

Editorial

Navigating Gastrointestinal Care in Resource-Limited Settings: A Pakistani Perspective

Prof. Saad Khalid Niaz

Sindh Institute of Advanced Gastroenterology, Karachi, Pakistan

Pakistan, a lower-middle-income country (LMIC) with a rapidly expanding population, faces a dual burden of communicable and non-communicable GI diseases within the constraints of a chronically underfunded healthcare system. The challenge of delivering effective GI care in such a setting is not merely a clinical endeavor but is deeply rooted in structural, economic, and social merits. This editorial explores the realities of GI care delivery in Pakistan, focusing on healthcare financing, disease burden, and inequities in access across socioeconomic strata.

Healthcare Financing: A Foundational Limitation

Financing of the health sector is the single most important factor for the delivery of effective healthcare. Pakistan's total health expenditure is approximately 2.9% of GDP, which is significantly below global averages. This falls short of the recommended 5–6% for achieving universal health coverage (UHC) [1,2]. More critically, even though healthcare relies heavily on the public sector, health expenditure remains around 1% of GDP, positioning Pakistan among the lowest government health spenders globally [3].

This translates into a substantial burdening of households with out-of-pocket coverage of over 50% of medical expenses on health spending. [4]. Consequently, it disproportionately affects patients with chronic GI and liver diseases, where long-term care, repeated hospitalizations, and costly interventions are required. Following the 18th Constitutional Amendment, healthcare delivery has largely been delegated to provincial governments. While this transfer of power provides an opportunity for better localized planning, it also mirrors a large variation in spending between different provinces. For instance, Punjab allocated approximately Rs 258 billion for health in the 2025–26 budget, whereas Sindh allocated Rs 336.5 billion, reflecting differences in fiscal capacity and prioritization [5,6].

Burden of Gastrointestinal and Liver Diseases

Pakistan bears a significant burden of GI and liver diseases, many of which are preventable yet remain inadequately addressed.

Viral Hepatitis and Chronic Liver Disease

Pakistan is among the countries with the highest prevalence of hepatitis B and C, leading causes of cirrhosis. An estimated 9.8 million people have chronic HCV infection, while the prevalence of hepatitis B numbers around 1.1% [7,8]. Integrating hepatitis C treatment into the existing public healthcare system is essential. A more effective approach would be an "Educate, Test, and Treat" model [9]. The importance of hepatitis B vaccination must be emphasized through regular information sessions and vaccination campaigns in schools, factories, etc.

Cirrhosis and Hepatocellular Carcinoma

Cirrhosis remains a leading cause of hospital admissions and mortality in tertiary care centers. HCC incidence is rising, driven by untreated viral hepatitis and increasingly by metabolic dysfunction-associated steatotic liver disease (MASLD). Surveillance programs are inconsistently implemented. The need for an effective care strategy for these patients is often challenged by the issues of affordability.

In one study, about 82.7% were urban dwellers, with only 28.7% having home ownership. Co-morbid conditions, including diabetes, hypertension & ischemic heart disease, were present in 54% of cases.

Monthly income was <PKR 45,000 in 23% of cases, while 47% were non-earning [10]. Strengthening primary-specialty care collaboration, training healthcare workers, increasing community awareness, and prioritizing affordable treatments and timely referrals are vital steps for effective management.

Infectious GI Diseases

Infectious diseases continue to contribute significantly to GI morbidity, including and not limited to Typhoid fever, including extensively drug-resistant (XDR) strains, acute diarrheal illnesses, and parasitic infections. These conditions disproportionately affect lower socioeconomic groups and contribute to preventable mortality, particularly among children.

IBD

There is a surge in IBD cases among Asian countries, contrasting with the stabilization in the incidence in the Western world. Pakistan appears to be no different, as evident in clinical practice, but epidemiological studies are lacking [11]. Patients often exhibit uncertainty regarding their condition, its chronic nature, and the significance of treatment adherence and follow-up care [12]. Diagnostic delays, often due to confusion with intestinal tuberculosis, hinder IBD care in Pakistan. A practical approach includes early gastroenterology referral, optimization of conventional therapies prior to biologics, and selective triage for biologics. There is an urgent need for focused epidemiological studies and registries [13]. To ensure effective disease management, follow-up, and psychosocial support, the development of IBD counselors, similar to IBD nurses in Western countries, could help address these critical gaps [14].

Pancreatobiliary diseases

Pancreato-biliary diseases, including choledocholithiasis and chronic pancreatitis, constitute major indications for advanced endoscopic interventions such as ERCP [15]. These conditions represent a substantial clinical burden in Pakistan, driven largely by the high prevalence of gallstone disease and its complications [16]. Due to multiple systemic challenges, including restricted access to advanced endoscopy services in free-of-cost tertiary care settings and limited availability of trained endoscopists, addressing these disorders remains a challenge [17]. Furthermore, variability in healthcare infrastructure and resource/equipment constraints across centers hinders timely diagnosis and optimal management. To overcome this, strengthening high-quality endoscopic services, improving endoscopy training programs, and expanding access to specialized care are essential to effectively address the growing scale of pancreatobiliary disorders in Pakistan.

GI Malignancies

GI cancers are on the rise. The pattern of presentation mirrors that of low-middle-income countries- late presentation and high mortality. In Pakistan, Colorectal cancer is the second most common cancer, accounting for 4.8% of all diagnoses [18]. Despite its growing burden, the disease is frequently underdiagnosed, largely due to the absence of structured national screening programs and limited public awareness. The implementation of effective, accessible colonoscopy screening programs will be pivotal in enabling early detection and improving patient outcomes.

Emerging Epidemic: MASLD

With increasing urbanization and lifestyle changes, Pakistan is witnessing a surge in metabolic diseases, such as a rising prevalence of obesity and diabetes, and increasing recognition of lean MASLD in South Asian populations. This epidemiological transition is expected to further increase the burden of chronic liver disease in the coming decades.

Health System Constraints in GI Care Delivery

Fragmented Referral Pathways

The absence of a structured referral system leads to delays in diagnosis and continuity of care. Patients frequently navigate multiple providers without coordinated management, particularly in chronic liver disease.

Urban–Rural Divide

Specialist care is largely concentrated in urban tertiary centers, leaving rural populations underserved. Urban centers offer access to tertiary care facilities, specialists, and advanced diagnostics. In contrast, rural populations face, amongst others, a limited availability of trained providers, geographic barriers to accessing care, and delayed diagnosis and treatment. This disparity contributes to worse outcomes among rural populations.

Public–Private Dichotomy

A major fracture in the healthcare system of Pakistan is the stark contrast between high-quality care and abundance of resources available in the private sector, and the limited, under-resourced, and overburdened public sector. Advanced diagnostic and therapeutic modalities such as endoscopy, ERCP, EUS, and liver transplantation are limited to select centers. As a result, access to advanced GI care often depends on the patient's ability to pay.

In a study conducted by F. Khalid et al, several public-private differences were observed in annual expenses across different expenditure components. Males, wealthier individuals, Punjab and Sindh residents, and those in smaller households were more likely to access private outpatient care. In the inpatient model, rural residents were more likely to use a private provider, while Khyber Pakhtunkhwa residents were less likely to use private care. Private sector inpatient expenditures were approximately PKR 6660 (USD 61.8) higher than public sector expenditures, but no public-private differences were observed for outpatient expenditures [19].

Socioeconomic Inequities

The high reliance on out-of-pocket expenditure exacerbates disparities, with low-income patients delaying seeking care and underutilization of preventive services such as hepatitis screening and HCC surveillance. Consequently, the burden of disease is highest among those least able to access care.

Impact on Outcomes

Lack of funding for screening programs and inequity of care across various socioeconomic classes further ignite the dilemma! For example, despite the availability of direct-acting antivirals for hepatitis C, access remains inconsistent in many parts of the country due to cost and health system inefficiencies.

Strategic Directions for Improvement

Strengthening Primary Care and Expanding Public Health Programs

Introduction of comprehensive GI and liver disease pathways into primary care can improve early detection and decrease disease burden. National hepatitis elimination programs must be scaled up. Overcoming cultural stigma around vaccination programs would be revolutionary in combating diseases such as Hepatitis B. As transport is a major hindrance for patients, setting up mobile clinics can be an effective strategy against geographic challenges.

Human Resources, Task Shifting, and Capacity Building

Improved access to health care in rural areas can be achieved by providing financial incentives to specialists. Training non-specialist physicians in basic GI care can expand access in underserved areas.

Leveraging Technology

Telemedicine can be revolutionary in providing access to specialist care. In the era of smartphone usage and assistance of artificial intelligence-driven modes, mobile applications for gastrointestinal problems, such as symptom tracking, education about disease, and medication reminders, can help in patient follow-up, particularly for chronic conditions.

Increasing Health Investment

Improvement with an impact requires enhanced public health expenditure, aligned with the global protocols.

Research & Data

Local epidemiological data is vital for planning targeted interventions and allocating resources. Analysis of the cost-effectiveness of gastrointestinal treatment helps identify the most needed interventions that can be scaled within budget constraints.

Green endoscopy

The healthcare sector contributes to around 4% of the global greenhouse gas emissions, with gastrointestinal endoscopy among the top contributors [20]. The solution doesn't simply translate into reducing the number of procedures, as reliance on endoscopic procedures is increasing owing to innovations in the field. "Reduce, reuse, recycle, research" is a very helpful strategy in this regard. Reducing the number of unnecessary procedures, ensuring appropriate indications, avoiding single-use endoscopes, and waste management training are some appropriate steps [21].

Conclusion

Navigating GI care in Pakistan requires addressing systemic challenges that extend beyond clinical practice. The country's low health expenditure, combined with a high burden of GI and liver diseases, creates a complex landscape marked by inequity and limited access. Bridging this gap demands coordinated efforts in policy reform, health financing, workforce development, and public health interventions.

Pakistan's experience underscores a broader reality in LMICs: improving GI care requires not only medical innovation but also structural transformation. Without addressing the underlying inequities in healthcare delivery, the gap between disease burden and healthcare capacity will continue to widen, with profound implications for population health.

References

1. Zaidi, Shehla, et al. "Global Health Initiatives and Universal Health Coverage in Pakistan-Aligned for the Future?" *The International Journal of Health Planning and Management*, vol. 41, no. 1, Jan. 2026, pp. 156–70. PubMed Central, <https://doi.org/10.1002/hpm.70038>.
2. Unpacking the health budget. *Dawn News*. 2025 [cited 2026 Apr 9]. Available from: <https://www.dawn.com/news/1926475>
3. Ansari, Irshad. "Pakistan's Health Spending below 1% of GDP, Reveals Economic Survey 2024–25." *The Express Tribune*, 9 June 2025, <https://tribune.com.pk/story/2550010/pakistans-health-spending-below-1-of-gdp-reveals-economic-survey-202425>.
4. Wikipedia. Health in Pakistan. 2025 [cited 2026 Apr 9]. Available from: [https://en.wikipedia.org/wiki/Health_in_Pakistan](https://en.wikipedia.org/wiki/Health_in_Pakistan)
5. Qayyum, M.A.& A. (1970) Decentralisation's effects on health: Theory and evidence. *Fr, The Pakistan Development Review*. Available at: <https://ideas.repec.org/a/pid/journal/v62y2023i3p331-356.html> (Accessed: 09 April 2026).
6. Khan AA, Ahmed Z, Siddiqui MA, Sami N. Devolution of the health sector in Pakistan after the 18th constitutional amendment: issues and possible solutions. *J Coll Physicians Surg Pak*. 2014 Apr;24(4):295. PMID: 24709250.

7. Coalition for Global Hepatitis Elimination (CGHE). National hepatitis elimination profile for Pakistan: key takeaways. Accessed 2023 October 1. <https://www.globalhep.org/news-blogs/national-hepatitis-elimination-profile-pakistan-key-takeaways>
8. Qureshi H. Sindh serosurvey report 2020, WHO regional office Pakistan. Accessed 7 October 2021.
9. Shiha G, Soliman R, Mikhail NNH, Easterbrook P. An Educate, Test and Treat Model Towards Elimination of Hepatitis C Infection in Egypt: Feasibility and Effectiveness in 73 Villages. *J Hepatol*. 2020;72(4):658-669.
10. Salim, Adnan, et al. "Financial Burden and Social Implications of Chronic Liver Disease in a Patient Population Group in Pakistan." *Pakistan Journal of Medical Sciences*, vol. 40, no. 7, June 2024. www.pjms.org.pk, <https://doi.org/10.12669/pjms.40.7.7976>.
11. Ananthakrishnan AN, Kaplan GG, Ng SC. Changing Global Epidemiology of Inflammatory Bowel Diseases: Sustaining Health Care Delivery Into the 21st Century. *Clin Gastroenterol Hepatol*. 2020;18(6):1252-1260.
12. Banerjee R, Pal P, Mak JWY, et al. Challenges in the diagnosis and management of inflammatory bowel disease in resource-limited settings in Asia. *Lancet Gastroenterol Hepatol*. 2020;5(12):1076-1088.
13. Nabeel M, et al. Impact of Oral Mesalamine on Clinical Remission and Mucosal Response in Mild to Moderate Ulcerative Colitis: A Prospective Observational Study. *Cureus*. 2025;17(1):e96049.
14. Singh A, Bhardwaj A, Sharma R, et al. Developing IBD counsellors in low- and middle-income countries: bridging gaps in patient care. *eClinicalMedicine*. 2025;83:102541.
15. Forbes N, et al. Characteristics and Outcomes of ERCP at a Canadian Tertiary Centre: Initial Results from a Prospective High-Fidelity Biliary Endoscopy Registry. *J Can Assoc Gastroenterol*. 2021;4(2):78-83.
16. Ali M, et al. Significance of family history of cholelithiasis in a Pakistani population: A single-center, descriptive cross-sectional study. *Medicine (Baltimore)*. 2024;103(28):e38925.
17. Rodrigues-Pinto E, et al. Quality and competence in endoscopic retrograde cholangiopancreatography - Where are we 50 years later? *Dig Liver Dis*. 2018;50(8):750-756.
18. Osama M, et al. Analysis of Demographic Associations and Survival Outcomes in Patients With Colorectal Cancer at a Tertiary Care Hospital in Pakistan. A Retrospective Cross-Sectional Study. *Cancer Control*. 2025;32:10732748251351423.
19. Khalid F, Raza W, Hotchkiss DR, Soelaeman RH. Health services utilization and out-of-pocket (OOP) expenditures in public and private facilities in Pakistan: an empirical analysis of the 2013-14 OOP health expenditure survey. *BMC Health Serv Res*. 2021 Feb 25;21(1):178. doi: 10.1186/s12913-021-06170-4. Erratum in: *BMC Health Serv Res*. 2021 Jun 10;21(1):570. doi: 10.1186/s12913-021-06545-7. PMID: 33632234; PMCID: PMC7905921.
20. Namburur S, von Renteln D, Damianos J, et al. Estimating the environmental impact of disposable endoscopic equipment and endoscopes. *Gut*. 2022;71(7):1326-1331.
21. Rao A, Sultany A, Gondal A, et al. Green Endoscopy: A Review of Global Perspectives on Environmental Sustainability of Gastrointestinal Endoscopy. *J Clin Med*. 2025;14(11):3936.