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**Invited Editorial**

# Strategies for Enhancing Inflammatory Bowel Disease Care in Pakistan: Bridging Gaps and Building Capacities

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## Introduction

A substantial increase in the global prevalence of inflammatory bowel disease (IBD) poses a significant economic and social burden on healthcare systems and self-payers. Additionally, it is rapidly expanding from West to South Asia, a region struggling with limited healthcare resources.[1]Crohn's disease (CD) which is a subtype of IBD significantly impacts patients' health due to disease progression, debilitating complications such as strictures, fistulae, or abscesses in about 50% of patients, requiring surgery in almost 80% of the cases at some point.[2]

Most studies on CD in low and lower-middle-income countries (LLMICs) have originated from South Asia, particularly India, yet 73% of LLMICs lack any CD epidemiological research, underscoring a significant lack of data. Among all LLMICs most of the incidence and prevalence data originated from India, Indonesia, Sri Lanka, and the Philippines, suggesting a potential underdiagnosis or underreporting of CD in LLMICs rather than an actual absence of the disease.[3]

Asia, home to over half of the global population with 4.6 billion people,[4] faces healthcare challenges due to limited resources, low GDP per capita, and minimal healthcare budget. Despite economic growth, a significant portion of its population lives below the poverty line, often lacking insurance and relying on out-of-pocket expenditures for health services.[5]

A recent study by Akhtar et al.[6] serves as a poignant narrative, delineating the intricate diagnostic journey of CD patients in Pakistan. Through a retrospective analysis, the study not only maps the symptomatic terrain of CD in Pakistan but also illuminates the unmet need for specialized diagnostic tools and medical expertise.

## CD in Pakistan: Challenges

In Pakistan with a population of 242.8 million, most of the patients with gastrointestinal symptoms are being treated by physicians and family physicians. Hence, lack of epidemiological data, insufficient healthcare infrastructure, and limited medical expertise hinder CD diagnosis, often confused with conditions having similar symptoms such as infectious, ischemic, and drug-induced colitis, as well as malabsorptive syndromes, irritable bowel syndrome, and gastrointestinal tuberculosis. Considering the endemicity of tuberculosis in Pakistan, distinguishing gastrointestinal tuberculosis (GITB), especially in the ileocecal area, from CD in 50%–70% of instances remains challenging.[7]

Pakistan also faces a shortage of IBD-trained gastroenterologists and access to advanced treatments, leading to disparities in care. Many patients have to travel long distances for treatment, rely on inadequate therapies and gaps in optimal use of available medications for CD, and/or undergo surgery due to the high cost and limited availability of biological agents including infliximab, adalimumab and their biosimilars, with newer treatments like interleukin- and Janus kinase-inhibitors remaining inaccessible.

Financial obstacles, chiefly limited health insurance coverage, also create significant financial barriers to IBD treatment, with patients often paying for expensive treatment out-of-pocket, leading to limited and suboptimal usage.

Additionally, cultural stigmas and a preference for Complementary and Alternative Medicine, [8] the low acceptance of surgery, stigmatization for ostomies, and a shortage of specialized surgeons' often lead to delays in care delivery, complicating outcomes for the increasing IBD patient population.[9]

Over-the-counter availability of antibiotics promotes self-medication, also leading to empirical treatment of symptoms like bloody diarrhea by primary physicians.[10] Referrals to specialists occur only if multiple antibiotic treatments fail. Limited early colonoscopy access contributes to misdiagnosis, with IBD often mistaken for hemorrhoids or

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fissures, causing diagnostic delays with significant long-term consequences.[11]

In resource-constrained Asian countries, the management of IBD predominantly aligns with protocols established in high-income countries. Nonetheless, contributions from entities like the Asian Organization of Crohn's Colitis and the Asia Pacific Association of Gastroenterology have begun to illuminate the distinct challenges endemic to this region.[12–14] Notably, the genetic and microbiome profiles of Asian populations diverge from those observed in North American and European cohorts,[15] influencing the manifestation and treatment strategies of IBD, even though the phenotypic expression of the disease remains comparable.[16]

## CD in Pakistan: Potential Solutions

A targeted approach is essential to challenges for managing IBD cases in Pakistan. Here are the proposed solutions for the identified issues as discussed in different studies and summarized in Figure 1.[17,18]

Enhanced data standardization and electronic integration in Pakistan are essential for in-depth IBD research, potentially

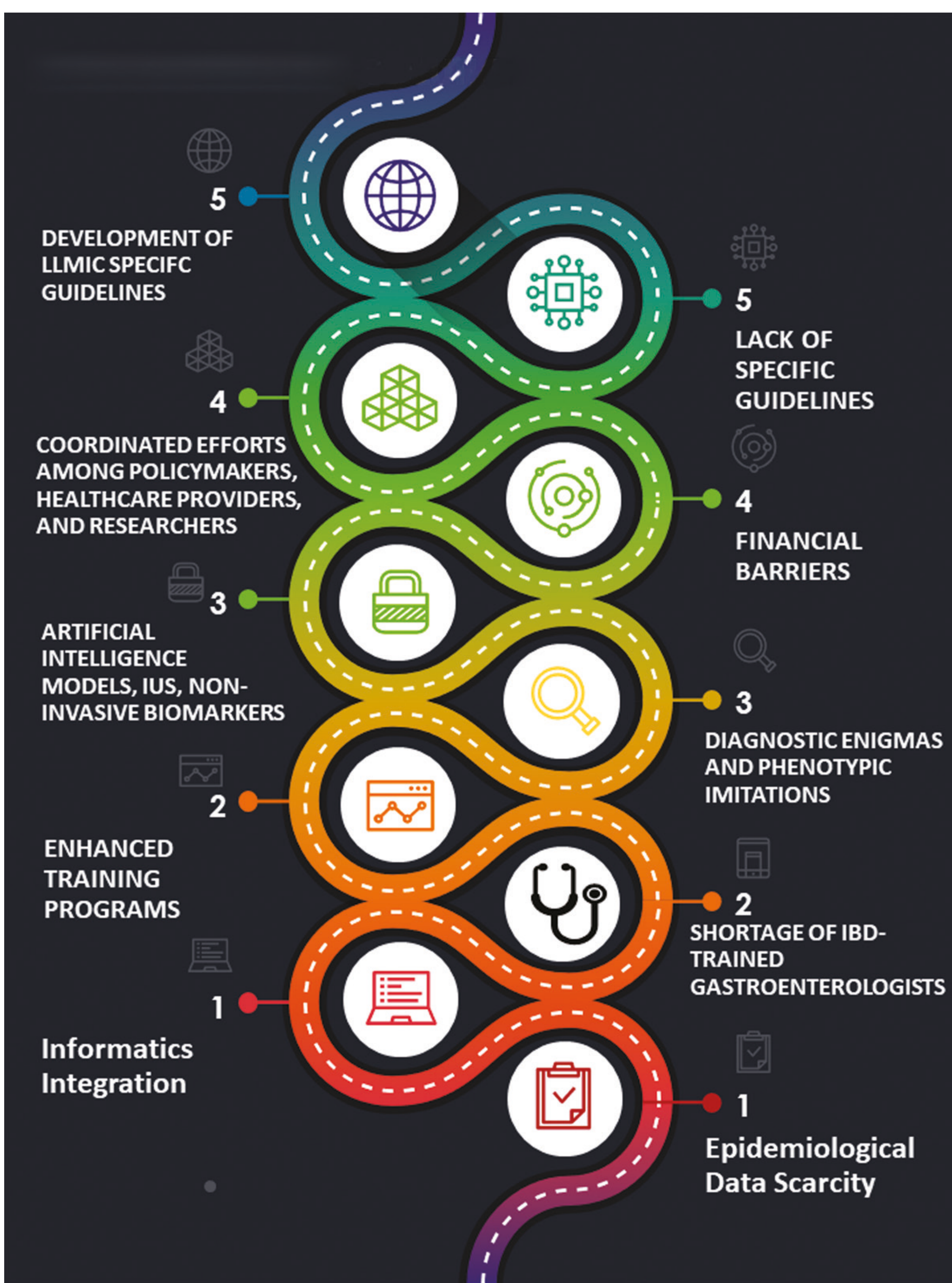


**Figure 1.** Challenges and solutions for IBD in Pakistan.

unveiling region-specific treatments, improving healthcare access, and diminishing disparities.

The systematic review on the use of artificial intelligence (AI) for differentiating CD from GITB reveals that AI models, especially those based on endoscopy and multiparameter analyses, offer high diagnostic accuracy (69.6%–100%). This advancement is crucial for LLMICs, where distinguishing between CD and GITB is challenging due to overlapping symptoms and high tuberculosis prevalence.[19]

IBD treatment often opts for immunomodulators like thiopurines due to economic constraints, with emerging support for NUDT15 genotyping adjunct to thiopurine methyltransferase testing to manage side effects, yet its availability is limited.[20] Biosimilars reduce costs but need wider adoption. Concerns about TB reactivation limit biologic use, while oral medications like Janus kinase inhibitors offer a cost-effective, lower-risk alternative, despite some reactivation risks.

The universal effectiveness of STRIDE II guidelines for IBD is uncertain,[21] prompting a move towards affordable, noninvasive biomarker tests and ultrasound, which, despite its benefits, requires IBD-trained gastroenterologists in Pakistan.

Additionally, to mitigate cultural barriers in Pakistan, urgent educational initiatives for IBD patients are essential, involving stigma-reducing resources in regional languages and forming patient-led support networks.

## Future Perspectives

To adapt to increasing IBD incidence and its complex comorbidities, healthcare professionals in Pakistan must enhance their management approaches. The underutilization of point-of-care ultrasound (POCUS) in Asia, except in Japan, signifies a gap in adopting proven diagnostic methods. Addressing this gap requires the establishment of training centers and fostering of collaborative research to boost IUS utilization in IBD care. Support from policymakers and cooperation among IBD experts are crucial to improving diagnosis, treatment, and the development of guidelines tailored to regional needs. Furthermore, integrating AI could refine diagnostic accuracy and offer cost-effective solutions, enhancing treatment outcomes and healthcare efficiency. However, the development of comprehensive guidelines in Asia is impeded by the lack of extensive epidemiological studies, often limited to small-scale hospital-based data. The "ECCO led consensus about challenges in management of IBD in LLMICs," spearheaded by Dr. Shaji Sebastian and Alaa El-Hussuna under the European Crohn's and Colitis Organization, aims to address these challenges and improve IBD patient care in the region.

## Conclusion

In conclusion, managing IBD in Pakistan requires a nuanced approach that addresses both clinical and systemic challenges. Implementing STRIDE II guidelines, enhancing training in noninvasive diagnostics like intestinal ultrasound and AI, and expanding access to cost-effective treatments such as biosimilars and oral medications are pivotal. Overcoming cultural stigmas, improving healthcare infrastructure, and fostering multidisciplinary collaboration are essential to tailor IBD care to the region's unique needs. Ultimately, coordinated efforts among policymakers, healthcare providers, and researchers are crucial to advance IBD management, reduce health disparities, and improve patient outcomes in Pakistan.

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## Conflict of Interest

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