



COMMENTARY

# Tackling clinical complexity: how inpatient subspecialty gastroenterology services enhance patient care

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## Introduction

Over the past three decades, the field of gastroenterology (GI) has undergone tremendous transformation. Advances in research have led to a substantial growth in clinical knowledge across many GI conditions. Additionally, over this time, the prevalence of patient complexity, including the number of co-morbidities, mental illness burden, socioeconomic factors, and multidisciplinary needs, have continued to increase. Thus, subspecialization within GI has been an adaptive response to keep pace with the rapid expansion of medical knowledge and evolving patient needs. Division into various subspecialties occurs within luminal and solid organ systems as well as disease-specific conditions.

Although subspecialization allows providers to develop expertise in complex conditions, there remain concerns of fragmentation of care, loss of value of the general medicine provider, and higher cost of specialized services. However, several studies have illustrated the superior management of specialists compared to generalists in multiple internal medicine subspecialty fields. In this article, we aim to highlight the impact of the subspecialization of GI on outcomes of hospitalized patients, particularly in inflammatory bowel disease (IBD) and hepatology, and other developing inpatient GI subspecialties, such as pancreatology.

## IBD

IBD affects an average of 3.1 million people in the USA and >6.8 million worldwide [1]. Given the relapsing–remitting nature of the disease, patients are often subjected to multiple hospitalizations, surgical interventions, and multisystem complications. Over the past two decades, the field has advanced in the understanding of disease pathogenesis and treatment options, especially with the advent of targeted immunomodulator and biologic agents. Consequently, management of these patients has become increasingly complex such that many institutions have outpatient IBD centers and inpatient IBD–subspecialty teams.

Several studies have illustrated the valuable impact of specialized IBD care on patient outcomes. Law *et al.* showed that a specialized inpatient IBD service at a tertiary referral care center resulted in improved 30- and 90-day remission rates as well as earlier IBD-related surgical interventions [2]. Additionally, Murthy *et al.* revealed that patients with ulcerative colitis who were primarily admitted under an IBD expert had decreased in-hospital and 1-year mortality compared to those under a general medicine service [3]. Patients with Crohn's disease admitted to high-IBD-volume centers similarly had a lower in-hospital mortality [4]. Though prospective studies

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are warranted to further validate these results, the consistent findings suggest that IBD specialists are able to optimize inpatient care and prevent disease-related complications.

## Hepatology

Over the past several decades, the growth of hepatology has also been influenced by the rising global burden of chronic liver disease, which affects ~4.5 million adults in the USA and 1.5 billion worldwide [5]. Decompensated cirrhosis (DC) results in highly morbid complications such as spontaneous bacterial peritonitis, hepatorenal syndrome, hepatocellular carcinoma, and bleeding secondary to portal hypertension. Due to the tenuous nature of the condition, patients often require frequent hospitalizations, which contributes to the overall healthcare burden.

Several studies highlight the beneficial impact of having inpatient subspecialized hepatology care. As demonstrated by Ghaoui *et al.*, the implementation of a mandatory hepatology consultation for patients admitted for DC at a tertiary care center led to greater adherence to evidence-based quality indicators (QIs), particularly in the management of ascites and evaluation for liver-transplant candidacy [6]. Bini *et al.* [7] report that patients admitted for DC have a significantly shorter length of stay, lower cost of hospitalization, lower 30-day readmission rate, and decreased mortality when cared for by a hepatology consultative service during their stay. Similarly, shorter length of stay and decreased in-hospital mortality have been evident in DC patients admitted under the care of a primary hepatology attending [8].

## Growing fields

With strides in clinical knowledge and research, more subspecialty fields within GI will continue to expand, such as in pancreatology, celiac disease, and motility. At our institution, a dedicated inpatient pancreatitis consultative service has had a beneficial impact on the care of patients with acute pancreatitis; specifically, it has improved outcomes of acute pancreatitis such as length of stay, time to refeeding, and subspecialty-resource utilization [9]. These focused fields require a unique skill set and knowledge base that are able to be provided by trained subspecialists. Given the sparse data on the impact of these specialists on patient outcomes, further studies are needed to elucidate how they have advanced GI care.

## Impact and future consideration

In the USA, the total expenditure for all GI diseases is estimated to be ~\$135.9 billion annually, which is higher than any other subspecialty including heart diseases. Moreover, hospitalization rates have increased for several GI conditions since 2005, contributing to the overall cost burden [10]. Thus, GI disease has an enormous impact on the healthcare system of the country. As the findings above illustrate, there are several positive effects of subspecialty GI care on patient-related outcomes, which subsequently impact community resource utilization and healthcare expenditure.

Over the last decade, there has also been a shift of focus in the healthcare landscape towards a value-based care model, which rewards high-value care and disincentivizes low-value care. As a result, the overarching question still resonates:

How do providers optimize providing high-value care for their patients? With the constant changes in healthcare delivery, population characteristics, technological advances, and education, the answer is not distinctly black and white. However, as illustrated above, a harmonious balance of cost-effectiveness and quality care come through with the utilization of the subspecialty fields that focus on burdensome disease states.

The focus of GI-subspecialty providers on evidence-based practice and guideline-derived QIs will continue to minimize the cost of care without compromising outcomes. Furthermore, their critical role in the education of generalists and trainees as well as academic research pursuits are vital to the enhancement of patient care. Further strides should aim to adhere to evidence-based practices, standardize care amongst subspecialty providers, explore ways to disseminate subspecialty services, and identify additional targets for quality improvement in order to improve resource efficiency, economic burden, and healthcare delivery.

## Conflict of Interest

None declared.

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