

Overcoming Challenges in Electronic Health Record Use in Inflammatory Bowel Disease Care



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Abstract: Electronic health record (EHR) systems were introduced to enhance patient data accessibility and improve care. However, in gastroenterology, particularly in the management of inflammatory bowel disease (IBD), EHRs often place a significant burden on providers. Provider burnout is a growing issue, with EHR tasks such as extensive clinical review, in-basket messaging, and office visit charting contributing to inefficiencies in complex IBD management. These challenges highlight the need for improved EHR workflows in IBD patient care. Although research suggests that effective EHR utilization can reduce burnout, standardizing strategies across IBD centers remains challenging owing to diverse systems and regulations. Previous efforts in EHR optimization have included multicenter learning systems and smaller interventions, such as documentation tools, note templates, order sets, provider checklists, and care pathways, among others. Despite these advances, barriers to standardization persist, mainly owing to differing EHR platforms and regulatory frameworks across IBD practices. To address these challenges, practical solutions for IBD providers are needed. EHR tools such as standardized text, order preference lists, standardized note templates, patient questionnaires, and clinical information summaries offer potential for optimization. We propose the development of an EHR IBD Care Roadmap, providing standardized guidance to help clinicians optimize the use of these tools and improve the quality of IBD care. Collaboration among clinician leaders, national committees, and health information technology experts is essential for successful EHR optimization and standardization. This article explores the gaps in EHR utilization and proposes strategies for optimization in the care of IBD patients.

Keywords

Inflammatory bowel disease, electronic health record, provider burnout, tools, health systems

The electronic health record (EHR) began gaining traction in the 1990s, with the rise of Internet technology and its potential to streamline patient care through enhanced data exchange and accessibility.¹ The adoption of EHRs, along with telemedicine, accelerated during the COVID-19 pandemic as a means to reduce exposure while maintaining patient care.² Furthermore, COVID-19 transformed

EHR utilization, leading to increased time spent in EHRs daily and after-hours, as well as a 50% rise of in-basket messages received from patients.³ Although EHRs have many benefits, they also have many compliance standards requiring extensive documentation that consumes valuable provider time and is now considered a leading cause of provider burnout.⁴⁻⁶ This article aims to explore current gaps in EHR utilization for inflammatory bowel disease (IBD) patient care and proposes strategies for EHR optimization.

Provider Burnout Data

Provider burnout has long been a concern in the medical field, which can lead to increased medical errors, job dissatisfaction, increased health care costs, and personal psychological strain.⁷ Studies show that the burden of EHR tasks contributes to stress, frustration, and longer work hours.⁸⁻¹⁰ The time spent completing EHR-related activities can disrupt the doctor-patient relationship, causing stress and poor communication.¹¹ Up to 50% of physicians report experiencing burnout, with higher rates among female and Hispanic/Latino providers.¹² Notably, physicians who report less after-hours charting and those who believe their organization has effectively implemented EHR systems were twice as likely to experience lower burnout, suggesting that viable solutions to EHR burnout exist.¹³ To date, however, there has been no survey study assessing provider satisfaction with EHR use in the care of IBD patients.

Previous Efforts

IBD can significantly impact patients' long-term health, leading to extensive health care utilization, creating numerous opportunities for quality improvement in IBD patient care.¹⁴ The Selecting Therapeutic Targets in Inflammatory Bowel Disease update, STRIDE-II, initiated in 2021 by the International Organization for the Study of IBD, emphasizes the importance of objective markers in IBD patient care, including standardized questionnaires such as patient-reported outcomes (PROs), endoscopic healing, and C-reactive protein levels.¹⁵ Additional quality metrics in IBD include corticosteroid use, emergency department visits, narcotic use, and hospitalization rates.¹⁶

Successful nationwide initiatives such as the learning health systems IBD Qorus and ImproveCareNow aim to standardize care for IBD patients.¹⁴ IBD Qorus, developed by the Crohn's & Colitis Foundation, is a multi-center learning health system designed to facilitate data sharing between providers and patients that has shown significant benefit in reducing emergency department visits, corticosteroid use, and opioid utilization.¹⁷ Simi-

larly, ImproveCareNow connects clinical data from over 100 pediatric IBD centers to create a collaborative network focused on data sharing and quality improvement efforts. This network has successfully improved outcomes, including corticosteroid usage, nutrition management, and remission rates among pediatric IBD patients.¹⁸

Various EHR interventions have targeted IBD care, including influenza and pneumonia vaccination, pre-immunosuppressant testing, tobacco cessation, and disease surveillance.¹⁹ Order sets, note templates, and patient education handouts in the EHR have been shown to improve vaccination rates and support tobacco cessation.²⁰ Bensinger and colleagues implemented a clinical documentation support tool that improved vaccination rates and influenced tobacco smoking cessation more than two-fold.²¹ Bernasko and colleagues introduced a reminder checklist in outpatient IBD practices that dramatically increased rates of vaccination, thiopurine methyltransferase testing, and screening for viral hepatitis and tuberculosis (improved to over 90% compliance) prior to initiating tumor necrosis factor inhibitor therapy.²² Another EHR checklist introduced by Huang and colleagues increased preventative screenings, including nutritional markers, extraintestinal manifestations of IBD, and infectious disease screenings.²³ Additionally, an integrated EHR question list potentiated transitioning from pediatric to adult IBD care.²⁴ Breton and colleagues proposed an integrated care pathway within EHR dashboards that successfully reduced the prevalence of iron deficiency anemia in pediatric IBD patients.²⁵ For adult IBD patients, care pathways have demonstrated effective guidance of diagnostic and clinical interventions prompting referral to higher care when indicated.^{26,27} Developing these care pathways require expert input and evidence-based resources to ensure accuracy and clinical relevance. However, the complexity and continuously evolving nature of IBD make it difficult to maintain long-term pathways.

In other chronic disease specialties, such as congestive heart failure and diabetes mellitus, initiatives have included disease-specific templates, analytics, alerts, order sets, care pathways, and registries.²⁸ In heart failure, there is a growing interest in the use of wearable devices that can record PROs and monitor heart rhythms and then route both results directly into the EHR. Prepopulated heart failure-specific notes pull in key clinical data, such as the last echocardiogram or other cardiovascular workup, to streamline documentation. Structured data alerts, such as those triggered by changes in patient weight or symptom frequency, can prompt clinicians to intensify medical therapy. Predictive algorithms for clinical deterioration are also being implemented in EHR systems, helping clinicians stay proactive.²⁹ Active alerts for guideline-directed medical therapy have shown promise, although

Table. EHR Tools and Their Applications

EHR tool	Use	Build complexity	Epic example
Standardized text Predefined text shortcut for inserting data or text, including selectable list options	Improves documentation efficiency while maintaining standardization and accuracy	Low; often clinicians can build and share with team	SmartPhrase; SmartLinks
Order preference list/order set sharing Customizable list of commonly used orders	Increases efficiency and convenience of orders	Low; often clinicians can build and share with team	Order Preference List Favorites
Order set Groups orders under a single entry	Promotes consistency in ordering practices and reduces errors	Medium; will require health IT assistance	SmartSet; Express Lane (available in Epic Foundation System)
Standard IBD note template Predesigned framework for clinical notes	Provides standardization of visits with clinical prompts	Medium; will require health IT assistance	SmartLinks; Speed Buttons; Note Writer
Patient-reported outcome Validated questionnaire of patient self-reported health status	Assesses disease severity and monitors progression; facilitates patient-centered care	Medium; will require health IT assistance	MyChart questions (Qorus questions available in Epic Foundation System)
Note form template Customizable documentation tool with fields, checkboxes, drop-down menus, or other logic for charting	Structures data collection with improved compliance to quality metrics and clinical decision support	High; will require significant clinician input and health IT assistance	SmartForm
Patient-level clinical information summary Comprehensive overview of key clinical data such as medications, hospitalizations, and endoscopies, among other options, over a specified period	Provides a quick assessment of patient health and supports disease surveillance	High; will require advanced health IT support with more time required for system integration	IBD Synopsis; IBD Snapshot (available in Epic Foundation System)
Clinical information summaries Tool to track and manage patient data for selected populations, providing a comprehensive overview report similar to IBD Synopsis but presents data differently than that of current office encounter	Tracks population health and detects quality metrics through data analysis. Allows quick access to key information for clinic, endoscopy, or asynchronous care	High; will require advanced health IT support with more time required for system integration	Reports; IBD Registry and Dashboard (available in Epic Foundation System)

EHR, electronic health record; IBD, inflammatory bowel disease; IT, information technology.

alert fatigue remains a challenge. In diabetes care, the advantages of drug interaction alerts and test reminders have been well documented.³⁰ Decision support tools for treatment guidelines have also been shown to improve hemoglobin A1C levels. The application of these chronic disease models to IBD can ease the effort to improve EHR utilization, given the shared complexity and chronicity of disease.

Current State

Gastroenterology requires stringent documentation and compliance within the EHR, especially when managing immunosuppressant therapies for patients with IBD. The complexity of IBD management, often involving count-

less clinical visits, further complicates EHR usage for providers. Gastroenterology providers spend, on average, an additional 45 minutes on EHR tasks for every hour of scheduled patient time.³¹ Female providers, younger physicians, gastroenterology fellows, and IBD providers are disproportionately affected by EHR burnout, primarily owing to the time spent on clinical review and in-basket management.^{32,33} However, from the perspective of patients, EHR-linked online portals have been shown to increase their quality of life.³⁴

The management of in-basket messaging has shifted toward a team-based approach, where a pool of nurses and medical assistants filter patient messages and route only complex messages to physicians. This strategy has proven effective in reducing message volume and provider time

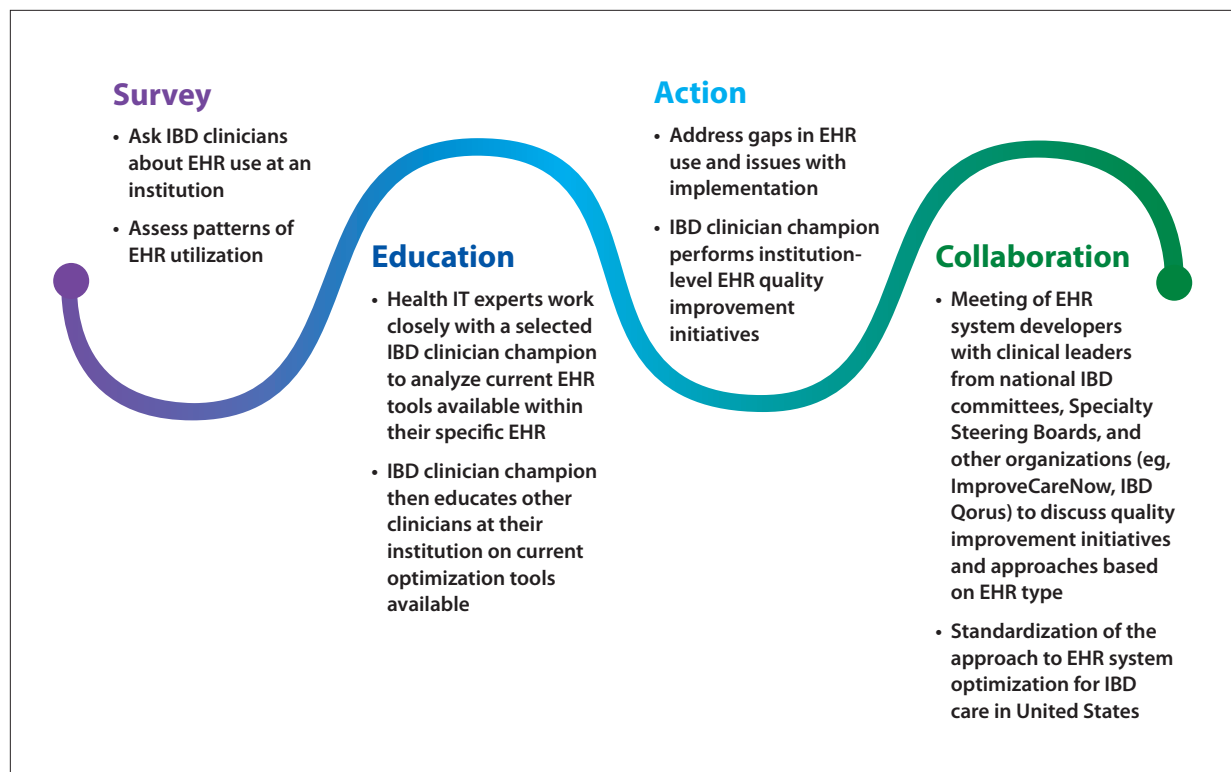


Figure. EHR IBD Care Roadmap to help standardize and optimize EHR workflows, utilizing an IBD clinician champion in coordination with health IT experts to educate clinical staff and perform quality improvement initiatives.

EHR, electronic health record; IBD, inflammatory bowel disease; IT, information technology.

outside of scheduled hours.^{35,36} Training institutions and subspecialties often have an in-basket pool consisting of patient messages and medication refill requests, which can help address urgent issues and offload tasks. In primary care, the use of an advanced practice provider dedicated to addressing in-basket messages has been shown to reduce primary care provider message volume down to 11%.³⁷ In IBD management, electronic PROs can alert treatment teams about changes in patient clinical status through in-basket notifications without direct patient-to-provider messaging, which can reduce provider workload.³⁸ The use of artificial intelligence (AI) to generate message drafts is an emerging tool. AI-generated responses can potentially reduce provider task load while delivering more empathetic and highly rated responses.^{39,40} One of the potential downsides of AI is the lack of availability as well as understanding the accuracy and capabilities of AI to generate medical advice.

A significant challenge in health information technology (IT) is lack of compatibility between different EHR systems. Each institution has separate data collection and coding standards, making it difficult to consolidate EHRs. Additionally, sharing EHR systems that

contain sensitive patient data raises security concerns and risks the loss of critical data. Implementing a universal EHR would be costly and complex, especially given the diversity of existing platforms (eg, Epic, Cerner, gGastro, eClinicalWorks).

EHR fatigue and lack of optimization remain under-reported issues, making it challenging for clinicians to justify the allocation of medical practice resources toward updating expensive EHR systems. The authors of this article recently conducted a survey on EHR utilization and optimization targeting experts at major IBD centers across the United States, the findings of which are currently under review for publication. Among 46 IBD providers across approximately 30 different centers, including program directors, division chiefs, staff physicians, and other faculty in leadership, all (100%) believed there are opportunities for EHR improvement. Nearly half (41.3%) did not report satisfaction with their EHR's ability to enhance IBD patient care. Key factors that cause dissatisfaction include time spent in EHR (88.6%), in-basket messages (81.8%), and office visit charting (59.1%). By highlighting these challenges, clinicians can better advocate for resource allocation and system improvements to optimize EHRs.

Proposed Solutions for Optimization

To address challenges in EHR use, feasible solutions are needed for practices that care for patients with IBD. Studies indicate that up to 50% of quality improvement in EHR utilization stems from a lack of understanding of current EHR features.⁴¹ An effective strategy should involve a universal approach to simplify and standardize EHR use for IBD clinics without the requirement of combining systems. Achieving this goal can occur in several ways. One key approach is to improve education for providers and practices to help them understand the current EHR tools available. Such education should include advocating for health IT changes, often requiring clinician champions within organizations.

Examples of Tools From Epic

Epic is the most adopted EHR system worldwide and serves thousands of acute care hospitals in the United States including major IBD centers.⁴² For that reason, the focus of the available EHR tools will be on Epic. Practical implementations may include standardized note templates, order sets, patient education material, and the use of PRO questionnaires. For example, within the Epic EHR system, clinicians can create standardized text with SmartPhrase, which can streamline documentation in charting such as after-visit summaries, patient questions, and patient education. More advanced workflows include tools such as SmartForm, which can host standardized questions about patient characteristics or disease histories. The Table outlines key EHR tools designed to enhance the management of IBD patients. Included are descriptions of each tool, their specific applications in clinical practice, the complexity of their implementation, and examples of how they are utilized within the Epic EHR system. Most EHR systems will offer support options, such as community forums (eg, Epic UserWeb), centralized builds (eg, Epic Foundation System), or even national committee options where experts can get involved (eg, Specialty Steering Boards). Clinicians can use tools such as IBD Qorus, SmartSet, and other resources available within the Epic Foundation System, which can be accessed with support from their IT team.

A Roadmap for the Future

Because nearly half of improvements within EHR utilization comes from awareness of the current system, we believe that the approach to EHR tools can be generalized across different EHR platforms, although literature on this topic is lacking. Other popular EHR systems include Cerner, Meditech, among others, each with its own unique opportunity for optimization through EHR builds. An important key to more complex builds is having clinician

input to help incorporate appropriate orders or clinical findings into these tools. The purpose of these EHR tools is to create shortcuts that pull key clinical information into documentation. However, a potential downside is the excessive clicking or risk of notification fatigue, which could disrupt the flow of writing. Proper personalization, tailored to IBD-specific functionalities, can minimize this issue by including pertinent information while still allowing space for traditional documentation.

Many valuable lessons can be learned from Improve-CareNow. A standardized approach to pre-visit planning, medication protocols, patient follow-up, and population analysis has been effective in improving patient outcomes on a larger scale. Clinicians should consider implementing small-scale Plan-Do-Study-Act cycles to identify and address care gaps within their health systems.

Coordinated efforts are needed to guide clinicians through EHR enhancements. We propose the development of the EHR IBD Care Roadmap, where each institution can optimize their own workflows (Figure). This roadmap is ideal because of the extensive barriers in creating a universal EHR across multiple institutions, which is not feasible for the near future. However, a universal approach to EHR quality initiatives should be effective to bridge gaps in utilization. On a larger scale, more collaboration is required between clinician leaders of national IBD committees and EHR system developers to implement easily available and standardized EHR tools for the care of patients with IBD. Increased clinical research is needed to disseminate and lend objective analysis to the importance of EHR implementation projects. Finally, understanding how large language models and generative AI will be incorporated into clinical workflows will be imperative. The importance of structuring current EHR data to utilize these future enhancements effectively will need to be continually emphasized.

Conclusion

The utilization of EHRs in IBD patient care has become a significant source of provider burden and increased demands on time. There is a critical need for standardization and optimization of EHRs across IBD practices in the United States to improve quality of care. Numerous tools are available within EHR systems that can enhance documentation and the overall management of IBD patients. As a next step, we propose the use of an EHR IBD Care Roadmap, providing standardized guidance to help clinicians optimize the use of these tools and improve the quality of IBD care. Furthermore, the creation of an organization dedicated to identifying gaps in EHR utilization is needed to develop practical solutions for gastroenterology providers to implement in their EHR systems.

Disclosures

Dr Saleh has no relevant conflicts of interest to disclose. Dr Horst is a consultant for AbbVie, Takeda, Bristol Myers Squibb, Pfizer, and Johnson & Johnson. Dr Kinnucan is a consultant/advisor for AbbVie, Takeda, Bristol Myers Squibb, Pfizer, Lilly, Johnson & Johnson, and UCB.

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