

Smarter Care for Patients With Inflammatory Bowel Disease: A Necessity for IBD Home, Value-Based Health Care and Treat-to-Target Strategies

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In this issue, Kelso and Feagins provide a review of the literature summarizing the current status of mobile applications supporting inflammatory bowel disease (IBD) care.¹ The search yielded 56 IBD-related apps for English-speaking patients that were able to support a myriad of functions, including symptom diaries, providing disease-related information, nutrition administration logs and reminders, personal health records, and remote monitoring/surveying, with a few apps including geo-location to find restroom facilities and social media for IBD patients. However, the majority of the apps lacked clinical validation, had limited professional medical input, and did not have the capability to transmit data or reports to providers. The authors concluded that although the use of smartphone applications to manage IBD patients has the potential to improve care in multiple ways, the development of such mobile applications is still in its infancy.

It is important to highlight that, very much like drugs, not all apps are created equal. Apps that are primarily patient-facing can be free and have wider adoption but may have limited value beyond providing patient education or a social support network. To fundamentally change care delivery and experience, apps need to connect patients with providers outside the physical constraints of the health system. By having the provider engaged, such apps not only enable remote monitoring of patients through electronic patient-reported outcomes (e-PROs) or device-generated data (like activity trackers) but also lead to enhanced patient engagement.² Evidence around

ePRO-based remote patient monitoring apps has been steadily building in many chronic diseases, with some of these technologies receiving Food and Drug Administration approval. A recently published meta-analysis of 13 remote monitoring studies in heart failure reported a significant reduction in mortality (risk ratio, 0.76; 95% confidence interval [CI], 0.62–0.93) as compared with conventional care.³ Similarly, a meta-analysis of 10 randomized controlled trials on chronic obstructive pulmonary disease patients found a significant reduction in emergency room visits (odds ratio [OR], 0.27; 95% CI = 0.11–0.66) and hospitalization (OR, 0.46; 95% CI, 0.33–0.65).⁴ Recently, De Jong et al. reported that remote monitoring in IBD can be safe and reduce outpatient visits and hospital admissions compared with standard care.⁵ However, for this technology to be successful, engagement with patients and providers must allow for the right actions to be implemented at the right time.⁶

Goals for IBD treatment are moving toward a treat-to-target strategy with the use of PROs, biomarkers of inflammation, and mucosal healing to optimize therapy. Tight control, shown in the CALM study, demonstrated superior endoscopic outcomes in patients whose treatment was escalated based on an algorithm using symptoms and biomarkers compared with patients managed conventionally.⁷ The tight control approach has also shown to be cost-effective and is fast becoming a new standard of care. However, it is very difficult to achieve treat-to-target goals in routine clinical care with infrequent patient visits and without the tools to engage patients on a day-to-day basis. This is where remote monitoring can really step in.

Remote monitoring through apps can now enable CALM findings to be reproduced in the real world without spending significant resources. Successful remote monitoring programs have a 3-legged approach: remote capturing of data (patient-generated, device-generated, or Internet of things-generated), remote assessment (by provider or artificial intelligence), and remote interventions (including telemedicine and digital care plans). Although tremendous progress has been made in remote capturing of data in last decade, there is a need to standardize pathways for remote assessment and remote interventions. Most of the apps in iOS and Android stores currently allow remote capture of data. Remote assessment

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of data through provider engagement and rules-based alerting (when patient symptoms go beyond a certain threshold) has now started to become a distinguishing feature in a handful of mobile apps. The advent of point-of-care (POC) biomarker tests linked with apps (now approved in Europe) can further help provide objectivity to remote monitoring. This, coupled with advances in interoperability and natural language processing, can now allow retrieval of data about mucosal healing and physician assessment from electronic health records and endoscopy records to track meaningful progress toward treat-to-target goals.

How can IBD centers support remote monitoring in a scalable and sustainable manner? In the United States, remote monitoring of Medicare patients now qualifies for a reimbursable code if it leads to more than 20 minutes of non-face-to-face time by a member of the clinical team. Remote monitoring is also considered a Merit-Based Incentive Payment System (MIPS) Quality Improvement activity and can support an IBD home alternative payment model. What are other benefits for remote monitoring, in addition to optimizing clinical care and care pathways? By having access to near-real-time data on patients' disease control and medications, remote monitoring platforms can not only identify patients for clinical trial but can notify them of relevant trials and even recruit them through

e-consents and follow them remotely. Leveraging remote monitoring for both care transformation and clinical trials has the potential to make remote monitoring sustainable. As we collectively build more evidence, the day is not far away when remote monitoring will become a standard of care for IBD, like it is fast becoming for other chronic diseases, and a necessity for any high-quality IBD center.⁸

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