

Aptar



digital health

Supporting Inflammatory Bowel Disease Patients with Digital Health Solutions



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Inflammatory Bowel Disease (IBD) is a group of chronic, inflammatory disorders that affect the gastrointestinal tract. The two most common IBDs are Crohn's Disease and Ulcerative Colitis. Crohn's Disease is characterized by an alternation of healthy and damaged intestinal mucosa anywhere in the gastrointestinal tract, and the inflammation extends through the entire thickness of the bowel wall. Ulcerative Colitis is characterized by mucosal inflammation along the large intestine with no healthy mucosa, limited to the colon and rectum. These conditions can cause various symptoms and complications, and can impact the daily life, social interactions and professional activities of patients. Research studies continue to show a rise in the number of people living with IBD. Approximately 1.6 million Americans currently have IBD, a growth of about 200,000 since 2011, and 70,000 new cases are diagnosed in the United States each year.

Analyze the patient pathway to identify unmet needs

The most common symptoms experienced by patients include abdominal pain, diarrhea, rectal bleeding, weight loss and fatigue. Patients may also experience joint stiffness, pain, skin rashes and psychological conditions such as anxiety, stress and depression. In IBD, dysbiosis initiates general inflammation responsible for clinical symptoms. Genetic, environmental and lifestyle factors may also contribute to dysbiosis. The diagnosis of IBD is typically based on a combination of symptom severity, medical history, physical examination and medical tests (blood

tests, stool tests, colonoscopy, and imaging studies).

As there is no cure for IBD, the main treatment goals are to reduce inflammation, relieve symptoms and prevent complications. Treatment options may include medications, such as antidiarrheal drugs, anti-inflammatory drugs such as corticosteroids for the treatment of flares, immunosuppressants, and biologics and JAK-inhibitors to maintain remission of symptoms in moderate to severe disease state. Surgery may sometimes be necessary to remove damaged portions of the intestine.

Patients experience important delays in diagnosis and may struggle with managing symptoms, finding an effective long-term treatment, and coping with the disease's impact on daily life. Several unmet medical needs still need to be addressed, including:

- **Reducing diagnosis time and improving diagnosis tools:** Most of the time, patients experience delays in diagnosis as the primary care provider is not aware enough of IBD. Diagnostic techniques for IBD, such as endoscopy, radio scan and imaging, can be invasive for patients. There is still a need to develop more accurate and non-invasive diagnostic tools to help identify the disease at an earlier stage.
- **Improving follow-up between appointments:** Patients mostly report their symptoms during medical appointments, which is not enough for a solid follow-up. To provide the best treatment plan, healthcare providers need

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to know what happened in-between appointments. There is a need for early treatment intervention for flares and to prevent the risk of long-term complications.

- **Enhancing symptom management:** Many patients with IBD experience extra-intestinal manifestations, such as arthritis, skin disorders and psychological conditions such as anxiety, which can significantly impact their daily life.
- **Access to reliable information:** IBD patients usually struggle to access accurate information about their condition and available resources for managing their symptoms. Patients need to educate themselves. In a study from 2019 measuring the experience of IBD patients with healthcare, nearly three-quarters of patients searched for information about disease characteristics, medication, diet or lifestyle using alternative sources to those provided by their healthcare professionals. The most frequently reported sources were web pages specialized in health (56.9%), general web pages (21.7%), general media (18.8%), patients' societies (19.1%) and other patients (27.9%). Giving patients the right information at the right time would help them live better with their disease.
- **Better mental health support:** IBD can have a strong impact on mental health. Patients may face social isolation, anxiety and depression. In a survey conducted in 2021 in the UK on 167 IBD patients, respondents reported anxiety, low mood (58%) and low self-confidence (56%) as the main

negative impacts of their condition. In the same study, most respondents felt more emotional support is needed for people with IBD.

- **Access to care and communication:** Most of the time, IBD patients met with multiple healthcare providers during their disease journey such as their primary care physician, rheumatologists,

«Patients experience important delays in diagnosis and may struggle with managing symptoms»

gynecologists, dermatologists, orthopedic surgeons and nurses. Designing a system where data-shared is possible between all healthcare providers and the patient like a remote monitoring program could enhance the patient-healthcare provider relationship as well as ease the communication between them.

- **Support for treatment switch:** Supporting patients when switching from one treatment administration mode to another (i.e.: switch from intravenous to sub-cutaneous).

Designing the digital solution to alleviate the unmet needs

Digital solutions have the potential to significantly improve the quality of life for IBD patients by addressing some of

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the unmet needs listed above. By providing patients with access to education, resources, symptom tracking and management, adherence support, remote monitoring and emotional support, digital solutions may help to alleviate the burden of this chronic condition and positively impact their quality of life. For example, digital solutions can support patients to:

- **Access reliable information:** Providing educational content through articles, testimonials and videos that give advice on daily living such as physical exercise, diet, sleep, sexuality and more.
- **Track symptoms and self-management:** Through self-management recommendations based on scientific guidelines, digital solutions can track the adverse events experienced and provide an overview of symptoms over a period. Delivering medical recommendations guide patients on how to alleviate their symptoms. Symptom tracking helps to monitor the disease daily and identify patterns that can support treatment decisions.
- **Facilitate communication with the care**

team: Patients with IBD may require frequent monitoring of their condition, which can be challenging in traditional healthcare settings. Remote monitoring tools can enable patients to receive care and support from their healthcare providers without the need for in-person visits. Healthcare providers can also access real-time data on their patients' condition thanks to a data-sharing system only possible with digital.

- **Support emotional burden:** As discussed before, IBD can significantly impact mental health and emotional well-being. Online support groups and education make it easy to access emotional support and counseling.

Improve autonomy: To treat themselves, some IBD patients must self-inject regularly. Self-injection is a stressful procedure that requires confidence and technique gestures. Being guided by video tutorials and receiving real-time feedback on the self-injection process (via sound, light, and notification on the phone) helps to improve self-confidence and reduces



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stress, which can lead to better adherence to the treatment.

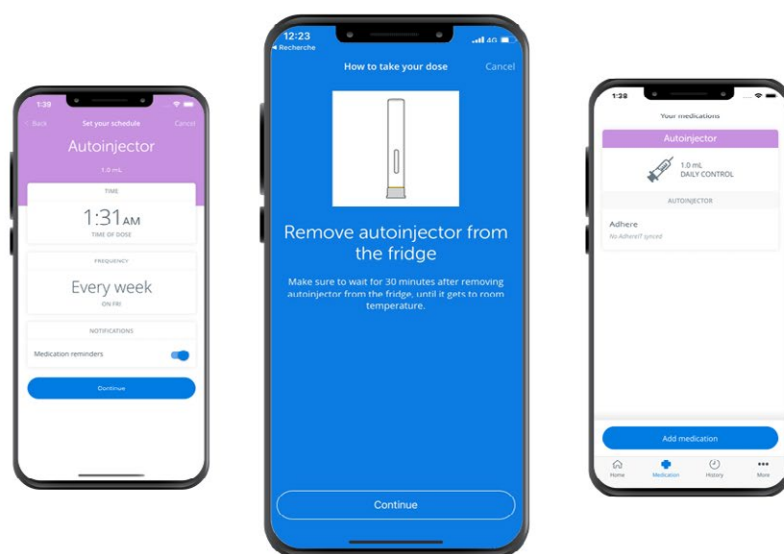
Digital health delivers value for the entire healthcare ecosystem

Digital solutions help to better understand the real-world settings in which the treatment is taken. Specifically, in IBD, literature shows that non-adherence has a strong impact on all stakeholders involved. At the patient level, non-adherence to IBD treatment is associated with an increase in disease activity, relapse, loss of response to some therapies, higher morbidity, and mortality. Patients also experience lower Quality of Life and face an increased risk of disabilities. From a healthcare system perspective, non-adherence to IBD treatment is demonstrated to increase health expenditures due to patients' worsening conditions, which may lead to unscheduled outpatient visits, ambulance and emergency admissions, inpatient admissions and readmissions. It also increases the medication cost as patients

who do not take their baseline medication might be placed on more expensive therapies. Finally, non-adherence has a strong impact on the pharmaceutical industry: lower drug consumption, lower sales, lower expectations of drug efficacy and lower brand equity.

Hence, a digital health solution serves all stakeholders in the healthcare industry:

- **Patients:** Enhances their experience and engagement with their treatment and disease, leading to more positive outcomes
- **Care teams:** Provides valuable data and insights on patients' conditions and support the clinical decision-making process
- **Pharma companies:** Improves patients' adherence to medications, thus improving health outcomes, ongoing sales and revenue
- **Payers:** Demonstrates treatment effectiveness and reduces overall healthcare system cost



About Aptar Digital Health

At Aptar Digital Health, our mission is to elevate patient experiences at every stage of their treatment journey. Our suite of end-to-end, patient-centric digital solutions leverages our unmatched expertise and diverse, industry-leading product portfolio to deliver differentiating experiences and more positive outcomes. We operate in multiple therapeutic areas including oncology, immunology, respiratory and neurology.

To discover how Aptar Digital Health can support your digital health initiatives in immunology, click below to visit our website:



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