

Supplement Article

International Organization for the Study of Inflammatory Bowel Disease: Global Strategies for Telemedicine and Inflammatory Bowel Diseases

Sara Lewin^a, Charles Lees^b, Miguel Regueiro^c, Ailsa Hart^d,
Uma Mahadevan^a; for the International Organization for the Study of
Inflammatory Bowel Diseases (IOIBD)

^aDivision of Gastroenterology, University of California, San Francisco, CA, USA ^bInstitute of Genetics & Molecular Medicine, University of Edinburgh, Edinburgh, UK ^cDepartment of Gastroenterology, Hepatology & Nutrition, Cleveland Clinic, Cleveland, OH, USA ^dIBD Unit, St Mark's Hospital, London, UK

Corresponding author: Uma Mahadevan, MD, 1701 Divisadero Street Ste 120, San Francisco, CA 94115, USA. Tel: 415-502-4444; E-mail: Uma.Mahadevan@ucsf.edu

Abstract

Before the onset of the COVID-19 pandemic, the majority of care for inflammatory bowel disease patients was provided in-person. The practice of gastroenterology care has since rapidly transformed, with telemedicine emerging as an essential tool to provide medical care to patients while maintaining social distancing and conserving personal protective equipment. This article provides insight into past and current practices among inflammatory bowel disease specialists and shares regulatory, financial and practical considerations for incorporating telemedicine into clinical practice. Continued government and other payer support for telemedicine and ongoing innovation to provide remote objective patient data will help to sustain the use of telemedicine long after the current pandemic subsides.

Key Words: Telemedicine, inflammatory bowel disease, reimbursement, COVID-19

1. What is Telemedicine?

The COVID-19 pandemic has radically transformed the practice of clinical medicine, with telemedicine rapidly expanding as a critical technology to provide medical care to patients while reducing the risk of transmission of COVID-19. One major shift has been the rapid implementation and widespread adoption of telemedicine. While these are forced adaptations, the lessons learned and skills gained will promote lasting changes in the way we practise medicine.

Telemedicine can be defined as the application of information and communication technologies for providing healthcare services at a distance without direct contact with the patient.¹ Before the COVID-19 pandemic, telemedicine was already in use in some gastroenterology and inflammatory bowel disease [IBD] practices. However,

barriers to broader adoption included requirement of a face-to-face visit before a telemedicine visit, stringent technology requirements, restrictions on teleconsultation across regional lines, and uncertain reimbursement compared to in-person visits.² Additionally, patient and provider expectations of the traditional paradigm of in-person visits with a 'hands-on' physical examination may have also contributed to slower adoption of telemedicine.

Major international gastroenterology societies [e.g. American Gastroenterological Association, American College of Gastroenterology, American Association for the Study of Liver Diseases, American Society for Gastrointestinal Endoscopy, British Society of Gastroenterology, European Crohn's and Colitis Organisation] have recommended that elective office visits be

conducted remotely, via telemedicine if possible, to decrease density in the office and to provide care to patients who are less willing or unable to travel.³⁻⁵

In the USA, the Department of Health and Human Services has temporarily waived certain restrictions on telemedicine services for Medicare beneficiaries in order to facilitate increased use of teleconsultation.⁶ These waivers have allowed for more flexibility on the use of communication platforms to be compliant with the Health Insurance Portability and Accountability Act [HIPAA] privacy rules, fewer restrictions on providing care across state lines, and more consistent reimbursement.

In Asia and Europe, easing of restrictions on the use of telemedicine and increased opportunities for reimbursement have also facilitated increased adoption of telemedicine.⁷ Nonetheless, regulatory barriers and the availability of technology still vary across borders. For example, in a survey of general practitioners in Lombardy, Italy, during the COVID-19 pandemic, 73% of patient encounters were provided by telephone compared to 24% by video.⁸ In the USA, by contrast, many practices aim to perform most remote visits in video format.

2. Recent Shifts in Telemedicine Use in IBD

In IBD patients, telemedicine even before the COVID-19 pandemic had already been shown to be a cost-effective means of delivering high-quality care, with associated high patient satisfaction scores.⁹ However, in-person visits still predominated as the primary means of providing care. To assess pandemic-related changes in clinical practice, we conducted a survey of IBD practitioners attending a virtual IOIBD meeting in April 2020. The great majority of survey respondents, 37/44 [84%], reported that before the onset of the COVID-19 pandemic, >75% of their patient encounters had been performed in person. Indeed, 30/44 [68%] survey respondents reported having performed no video consultation at all before the pandemic.

These proportions have now shifted dramatically. Among these same 44 respondents, since the onset of the COVID-19 pandemic, 38 [86%] respondents are providing less than <25% of patient care in person, with 19 [43%] conducting at least 50% of patient visits using telephone consultation and 16 [36%] conducting at least 50% of patient visits using video consultation. An additional 12 respondents [27%] planned to use video consultation in some capacity in the future.

Moreover, a Twitter poll conducted by Miguel Regueiro, MD, from April 19 to April 22, 2020, found that 94% of 274 respondents planned to continue to do telemedicine even when they could see patients in person again, with 41% stating that they plan to do more telemedicine than before the COVID-19 pandemic. Similarly, in an international survey with 802 respondents from 56 countries,¹⁰ the vast majority of respondents reported that pre-pandemic, only 0–25% of clinical encounters were conducted via telemedicine, whereas now, during the current pandemic, the majority of respondents reported >75% of clinical encounters are being conducted via telephone or video. Respondents further reported that telemedicine would remain a significant part of their medical care of the patient with IBD post-pandemic, estimating 25–50% of clinical encounters will be conducted via telemedicine after lifting of shelter restrictions.

3. Telephone Visits

Some patients may not be able to participate in a video visit due to a lack of access to the internet or necessary technology [a smartphone, tablet, or computer with a microphone and video camera],

insufficient social support to set up a visit, limited technological literacy, or technical problems on the day of the visit. A telephone visit allows the provider to communicate with patients in another location, while obtaining a detailed history and communicating a plan for management of the patient's disease. Telephone visits do not require additional technology or training on the part of the provider or patient. Commercial insurance reimbursement [Table 1] for telephone visits has been only about half that for in-person and video visits of the same length, although this has been recently adjusted in the USA, and the gap may be less of a consideration in single-payer systems. While some commercial payers and other health plans are supporting telephone visits during the pandemic, the coverage might not be sustained in the future.

For a successful telephone visit, both provider and patient must have an adequate telephone connection and a quiet space in which to conduct the visit, although visual distractions are less of a concern.

4. Video Visits

Although the traditional aspects of the physical exam including palpation, auscultation and percussion cannot be performed by the provider over video, much data can be obtained by inspection alone. A comprehensive physical exam can still be obtained and documented [Table 2] that will allow for assessment of multiple organ systems and maximize the complexity of the visit for billing purposes.

A visit between a provider and a new and/or established patient using both an audio and video connection can be accomplished via several telecommunication platforms. Some platforms are fully integrated into the electronic medical record [EMR], such as Epic virtual visit platforms, and others are linked to the EMR, such as American Well.

Examples of non-integrated platforms include Zoom for Healthcare, Cisco Webex Meetings, GoToMeeting, Doxy.me, Doximity, VSee and Skype for Business, all of which are HIPAA-compliant. In the UK, the platforms Attend Anywhere and Consultant Connect have been successfully piloted by the National Health Services. Additionally, during the COVID-19 pandemic, the US Department of Health and Human Services announced a temporary loosening of restrictions on use of popular applications that allow for video visits including Apple FaceTime, WhatsApp, Google Hangouts/Duo and Facebook Messenger Chat. Regardless of the platform used, it is important to understand the platform's security and patient privacy functions to prevent security breaches [e.g. 'Zoom bombing']. Patient consent to use telemedicine platforms should be obtained before the start of the visit and clearly documented in the medical record. The Centers for Medicare & Medicaid Services are reimbursing visits provided using these platforms that provide real-time communication with interactive audio and video telecommunication at the same rate as regular, in-person visits, for both new and established patients during the COVID-19 pandemic.

In the USA, interstate restrictions for providing care for patients across state lines have also been loosened, allowing for providers to treat patients remotely who reside out of the state where the provider is licensed. While licensing, malpractice and competition concerns may limit this practice post-pandemic, it may be a way to provide high-level IBD care in segments of the country that lack this expertise. In Europe, practice varies by country, with participants in the national healthcare scheme eligible for that country's telemedicine service anywhere in the world, but residents of other countries eligible in limited cases by private payment.

Table 1. Work relative value unit [wRVU] reimbursements for inpatient and outpatient clinical encounters

	Level	wRVU	Medicare [USD]
New patient outpatient visit [video visit or in-person]			
99 203	Level 3	1.42	\$109.35
99 204	Level 4	2.43	\$167.09
99 205	Level 5	3.17	\$211.12
Follow-up outpatient visit [video visit or in-person]			
99 213	Level 3	0.97	\$76.15
99 214	Level 4	1.50	\$110.43
99 215	Level 5	2.11	\$148.33
Telephone E&M			
99 441	5–10 min	0.25	\$13.08
99 442	11–20 min	0.50	\$26.21
99 443	21–30 min	0.75	\$38.92
eConsult [chart review only]			
99 446	5–10 min	0.35	\$18.41
99 447	11–20 min	0.7	\$37.17
99 448	21–30 min	1.05	\$55.58
99 449	31 mins or more	1.4	\$73.98
Initial hospital consult [video visit or in-person]			
99 221	Level 1	1.92	\$101.91
99 222	Level 11	2.61	\$137.53
99 223	Level 111	3.86	\$201.75
Subsequent hospital consult [video visit or in-person]			
99 231	Level 1	0.76	\$40.06
99 232	Level 11	1.39	\$73.62
99 233	Level 111	2.00	\$106.10

Telemedicine visits have the advantage of allowing providers to not only speak with patients, but also to visually assess patients through video. A successful video visit is contingent on both patient and provider having access to appropriate technology, internet or data connection, and a quiet and non-distracting environment in which to conduct the visit.¹¹ Patients may be contacted ahead of time to ensure that they understand how to utilize the telemedicine platform and troubleshoot any technological problems that may arise, so that the appointment time can be designated to health concerns and not technical challenges. Additionally, pre-charting by medical assistants, nurses and others may be done in advance, similar to an in-person visit. Telemedicine notes may be entered as a template that include pre-charting of outside medical records, integration of symptom scores, quality of life and other patient-reported outcomes. Trainees and advanced health practitioners can also be incorporated into visits, either by participating in the video visit with the supervising provider or by using their own virtual meeting room. Most platforms support the addition of an interpreter [ideally also via video connection].

5. Inpatient Visits

Telemedicine for inpatient consultation had been piloted for inpatient palliative care, dermatology and medicine subspecialties even before the COVID-19 pandemic began.^{12,13} In the COVID-19 era, similar to the outpatient environment, telemedicine promises to limit exposure of both patients and providers and additionally conserves personal protective equipment required for in-person consultation. Besides traditional inpatient visits, inpatient consultation can be provided as an e-consult [chart review with no direct patient contact], telephone consultation or video visit [Table 3].

Table 2. Physical exam template for teleconsultation

Vital signs	Patient-reported height: --- Patient-reported weight: ---
General	Normal, healthy, cooperative, in no acute distress Able to interact verbally by video conference
Psych	Orientation: normal [oriented to time, place, person and situation] Mood/affect: normal and appropriate
Head/Neuro	Head normal size and shape. Facial appearance normal
Pulmonary	Normal respiratory effort
Cardiovascular	Patient describes extremities normal, warm, no oedema
Abdominal	Flat Visible protrusions or hernias: no Incisions/scars: none Areas of pain/tenderness: patient denies
Skin	Abnormal lesions not visualized
Motor	Patient seen sitting with normal appearing strength and coordination
Anorectal exam	Verbal consent by patient to allow visualization of the perianal area Perianal skin: no erythema or lesions Haemorrhoids or skin tags: no Fistula: none Prolapsing rectal tissue: no

Video teleconsultation can be conducted with hospital-provided technology or alternatively using the patient's personal smartphones/devices if hospital resources are limited. Similar to the outpatient setting, a high-quality internet connection and support for the patient to set up the teleconsultation are required.

In the inpatient setting, the bedside nurse or a patient care assistant may facilitate the visit by assisting the patient in setting up the video platform, ensuring the patient can adequately hear and see, and minimizing other distractions in the room [such as blaring television or beeping medical equipment].¹⁴ Inpatient consultations that may be best suited to teleconsultation include: stable patients with a narrow or straightforward consultation question, low likelihood that an in-person examination will change management and/or recommendations, follow-up consultation after initial in-person consultation, and an absence of patient communication barriers [e.g. hearing impairment]. The decision to pursue teleconsultation should be discussed directly with the primary medical team, to ensure that expectations are aligned. Video telemedicine consultations may be reimbursed at the same rate as similarly complex in-person consultations.

6. The Future of Telemedicine

As both patients and providers adjust to a 'new normal' as the COVID-19 pandemic progresses and social distancing restrictions evolve, comfort with and interest in telemedicine are likely to persist for years to come. Fewer regulatory hurdles, increased reimbursement and innovation in telemedicine will also facilitate sustained adoption of telemedicine. Innovation is already underway to develop new tools that can enrich the telemedicine encounter. Many telemedicine programs in gastroenterology and IBD already include an electronic survey of symptoms and telemonitoring systems.^{15,16} The physical exam can already be augmented using tools such as smart watches and devices that can record heart rate, record respiratory

Table 3. Options for performing inpatient consultations

Inpatient eConsult	<ul style="list-style-type: none"> • Chart review only • No direct patient contact • Direct communication required with primary team • Consultant provides formal, written advice
Inpatient telephone consult	<ul style="list-style-type: none"> • Consult question should be narrow in scope • Provider interviews patient over telephone • No visual or physical contact with patient • Appropriate if a physical exam would not impact management of patient
Inpatient telemedicine [video] consult	<ul style="list-style-type: none"> • Documentation in format of traditional in-person consult note • Requires both audio and video connection to conduct history and limited physical examination • Appropriate if an in-person physical exam would not impact management of patient
‘Traditional’ in-person consult	<ul style="list-style-type: none"> • Documentation in format of traditional in-person consult note • History and physical examination performed at bedside • Consultant provides formal, written advice • Appropriate for complex patients with complex consult question

Table 4. Best practices for a successful telemedicine visit

Telemedicine setup	<p>Choose a telemedicine platform that:</p> <ul style="list-style-type: none"> • can provide a secure, private connection • is compliant with local government regulations of telemedicine • can be easily implemented by both patients and provider
Pre-visit preparation	<p>Prior to a telemedicine visit:</p> <ul style="list-style-type: none"> • Develop a workflow to identify patients who are appropriate for telemedicine visit [vs those who need in-person evaluation] • Provide instructions to patient on how to access telemedicine platform, including tips for troubleshooting • Clinic staff may opt to perform a ‘dress rehearsal’ with patient to ensure patient can easily access telemedicine platform • Utilize electronic tools to collect history and data from patient [online questionnaire, eHealth, IBDoc, myIBDcoach]. Ideally, this can auto-populate in the electronic medical record • Clinic staff [e.g. medical assistants, nurses or others] can ‘pre-’ chart and input clinical information including IBD scores • Find a space that is quiet, private and without distractions to conduct visit • Determine if telemedicine visit must be performed by provider in a clinic space [rather than from home] in order to optimize reimbursement and meet regulatory requirements
During the visit	<ul style="list-style-type: none"> • Medical Assistant may ‘room’ the patient and review insurance, demographics, preferred pharmacy and perform medication reconciliation • Obtain verbal consent to perform video visit • Obtain history and limited physical examination • Complete visit, communicating follow-up plan
Addressing technology challenges	<ul style="list-style-type: none"> • Can mostly be avoided by pre-visit trial with medical staff and/or providing a tips sheet for troubleshooting ahead of time • Trial of alternative platform [e.g. FaceTime, WhatsApp] • If all else fails, convert to telephone visit
After the visit	<ul style="list-style-type: none"> • Provide electronic copy of after-visit summary. • Route prescriptions and laboratory orders electronically. Drive-through pharmacy and delivery options should be encouraged
Documentation	<ul style="list-style-type: none"> • Instruct staff to contact patient to schedule follow-up care • Use similar note template to in-person documentation • Use a physical exam template appropriate for video visit • Document that patient provided consent to conduct telemedicine visit • Document the modality used for the visit [e.g. real-time audio and video connection]

rate, generate an ECG tracing or serve as an in-home stethoscope.¹⁷ The use of mobile applications to monitor patient-reported outcomes has been studied extensively, but has not achieved widespread adoption.

Point-of-care and home testing (e.g. kits for faecal calprotectin or finger stick for blood evaluation) may provide valuable information to providers regarding IBD disease activity, especially if access to a laboratory or capacity to perform endoscopic staging procedures is limited. A study of three calprotectin home tests with companion enzyme-linked immunosorbent assay [ELISA] tests showed 76–87% agreement

for faecal calprotectin ≤ 500 $\mu\text{g/g}$,¹⁸ suggesting this measure could be an accessible management strategy for objective assessment of disease activity.

Chatbots, artificial intelligence devices with natural language processing capabilities, are able to provide virtual conversations with patients while mimicking human interactions. Chatbots have already been deployed for screening in COVID-19 patients, but also could be utilized to efficiently gather history and data from a patient that could be auto-populated into the electronic medical record for review by the provider either in advance of or during the patient encounter.

7. Conclusion

The delivery of clinical care has changed rapidly with the COVID-19 pandemic. Providers and patients alike must adapt to these changes, which include rapid adoption of telemedicine. Table 4 summarizes best practices. A wide array of technology options and loosening restrictions on how telemedicine can be deployed and reimbursed have paved the way for telemedicine to become an integral part of clinical practice now and in the future. Further technological innovations allowing at-home collection of objective patient data as well as increased familiarity with and enthusiasm for telemedicine will help to cement telemedicine's role in clinical care in the future.

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Conflict of Interest

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Author Contributions

S.L.: primary writing of manuscript, research and development of tables. C.L.: editing and development of IOIBD survey. M.R.: editing and development of Twitter survey. A.H.: editing of manuscript. U.M.: final editing, concept design and framing of article.

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