PRACTICE MANAGEMENT: THE ROAD AHEAD

Integration of Telemedicine Into Clinical Gastroenterology and Hepatology Practice

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Two trends in health care delivery that will continue unabated are a) reimbursement pressure and b) increasing demand for our services. Practices that care for patients with complex and chronic conditions are exploring innovative means to expand their care footprint in an economically viable way. One approach currently being used by many health systems is telemedicine. Telemedicine is care delivered remotely using some type of electronic communication. Potentially, telemedicine will allow us to provide specialty services remotely to primary care physicians or even patients. The University of Michigan IBD program is piloting remote video conferencing, integrated within the electronic medical record system, to provide specialty GI consultation directly to Crohn's and ulcerative colitis patients within their homes. U Michigan Health System has an office ready to arrange rapid teleconsultation for any provider. Payment for services has been secured from several payers after health system negotiations. This practice is well established in multiple specialties and settings. In this month's Road Ahead column, two telemedicine experts review the state of the field, so you too can participate. This innovation is something you should consider for your practice. Technology and payment mechanisms are now available.

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As defined by the American Telemedicine Association (ATA), telemedicine is the exchange of medical information from one site to another via electronic communication to improve a patient's clinical health status.[1] If we include care provided over the telephone via providers and nurses between office visits, telemedicine has been practiced for decades. A recent study from the University of Pittsburgh documented 32,667 phone calls from 3118 patients with inflammatory bowel disease (IBD) in 2010. Seventy-five percent of these calls were related to patient concerns or were generated by the nurse because of changes in the treatment plan.[2] If these results are applied to a representative work week, busy IBD centers typically handle more than 100 phone calls per day.[3] Telemedicine in clinical practice has expanded to include a variety of modalities such as two-way video, email or secure messaging through electronic medical records systems, smart phones, wireless tools, and other forms of telecommunication technology (Figure 1). The increase in use of telemedicine in practice has been driven by a number of factors. First, it is almost universal that patients have access to a computer and/or cellular telephone. According to the Pew Research Center's Internet and American Life Project, as of May 2013, 91% of adults are using cellphones.[4] As patients have become more connected digitally, it is natural that they desire delivery of services, including healthcare services, electronically. Second, despite advances in medical, endoscopic, and surgical treatment, many patients still have suboptimal outcomes. There are many reasons for this including but not limited to nonadherence, poor patient education, inadequate monitoring of symptoms and side effects, concurrent psychiatric disease, comorbid medical conditions, low self-efficacy, and limited access to healthcare; these issues can be addressed, at least in part, by telemedicine. Finally, patients are also seeking more efficient and convenient ways to receive their care; including travel and wait times, an average office visit takes up to 2 hours.[5]

Expanded use of telemedicine can address the desire of patients to connect digitally, to overcome treatment

Resources for Practical Application
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Abbreviations used in this paper: **ATA, American Telemedicine Association; ECHO, Project Extension for Community Health Care Outcomes; HAT, Home Automated Telemanagement; IBD, inflammatory bowel disease; PCP, primary care provider; UC, ulcerative colitis.**

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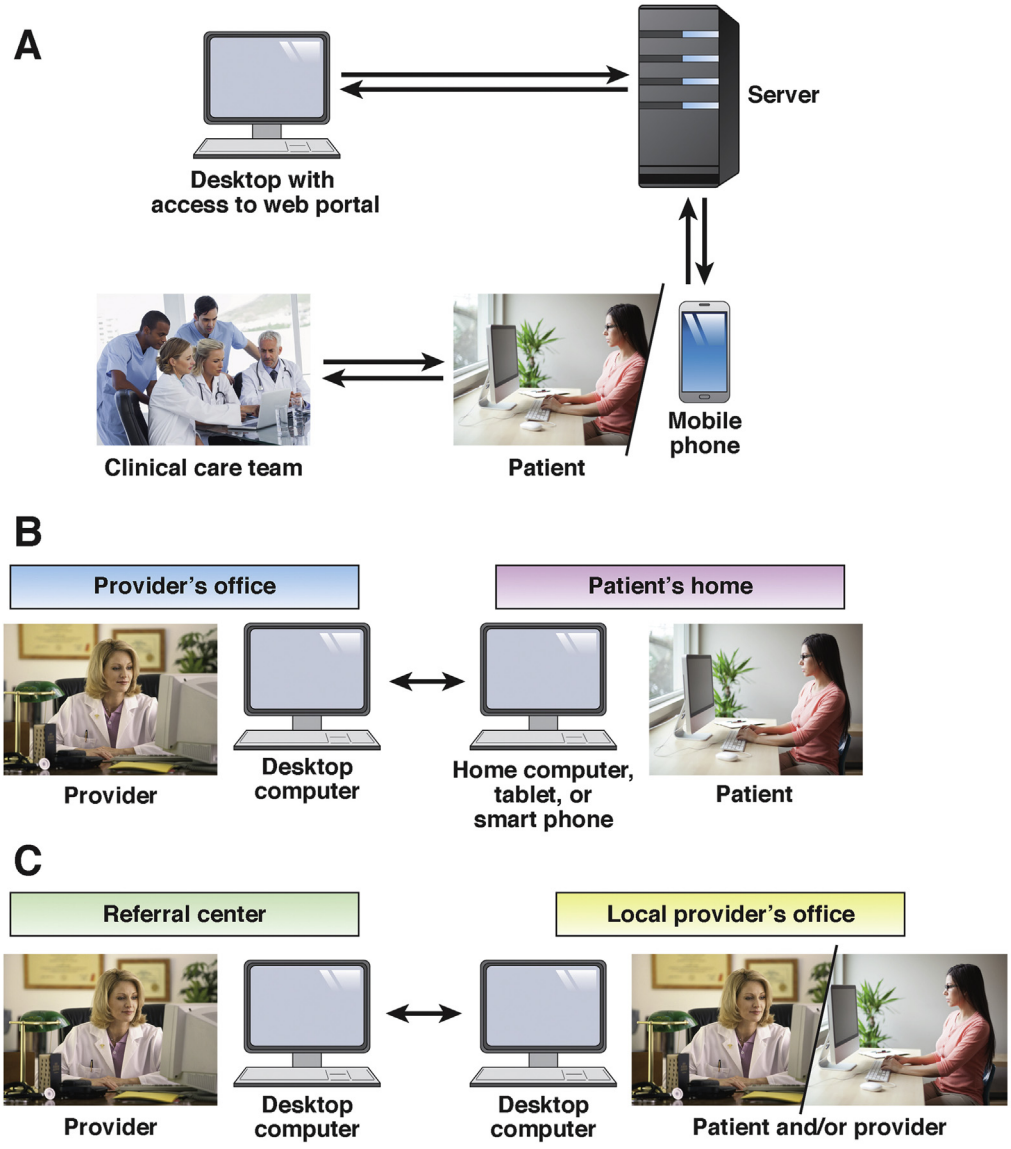

Figure 1. Models of telemedicine use in clinical practice. (*A*) Telemonitoring. Patient interacts with healthcare team through use of some form of remote technology (cellular telephone, mobile application, or computer). After completing assessment, patients receive automated feedback and/or a response from the medical team. (*B*) Telehealth visits. Patient enters a "virtual exam room" at which time the patient and provider undergo a clinical encounter. (*C*) Teleconsultation. This model is similar to (*B*). However, patient undergoes the telehealth visit in another provider's office. This model also allows for an interaction between the on-site provider and the remote provider with or without direct patient involvement.

obstacles, and to improve the efficiency of healthcare. Telemedicine can be used to provide enhanced monitoring of patients between office visits, prompts for medication use and diagnostics, self-management plans, treatment of psychiatric disease, and education. In addition, two-way videos between patients and providers can be used to expand access to a gastroenterologist in remote areas and to providers with expertise in certain disciplines such as IBD, hepatology, and irritable bowel syndrome. Similarly, gastroenterologists can be connected with other providers to manage complex patients or to provide guidance for complex treatments such as those for hepatitis C.

Enhanced Monitoring and Self-care Through Use of Telemedicine Technologies

Several groups have implemented telemedicine to improve monitoring and self-care in patients with IBD. Our group at the University of Maryland, Baltimore has developed several systems to improve care as part of research protocols. Our first telemedicine system included a laptop computer and electronic weight scale connected telephonically to a server. Patients were asked questions about bowel symptoms, medication use, side