

ADVANCES IN IBD

Current Developments in the Treatment of Inflammatory Bowel Disease

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Telemanagement for Inflammatory Bowel Disease



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G&H How is telemedicine applied to management of inflammatory bowel disease?

RC At a very basic level, telemedicine can be used to help coordinate patient care. It can also be used to identify high utilizers of care so that interventions can be put in place to prevent visits to the emergency room or hospitalization.

Most inflammatory bowel disease (IBD) centers provide care via telemedicine but do not fully realize it. Most established IBD centers have physician extenders and/or nurse coordinators who are involved in patient care. The work that these clinicians do via telephone in between patient office visits is telemedicine.

Findings from a paper by Ramos-Rivers and colleagues from the University of Pittsburgh, published in *Clinical Gastroenterology and Hepatology*, show that the volume of telephone calls in IBD care is absolutely staggering. The research team estimated that patients with IBD generated approximately 125 calls per day. Fifty percent of these calls were for clinical concerns, 25% were outgoing calls from the medical center and involved change-of-care plans and so forth, and the remaining 25% were refill requests, appointment requests, inquiries about disability forms, and so forth. The researchers also found that the call volume in a 30-day period could be used to predict which patients would visit the emergency room or require hospitalization. Patients with 8 or more telephone calls over 30 days were 4 times more likely to visit the emergency room or to be hospitalized.

G&H Can you explain how the Home Automated Telemanagement system is used in the management of patients with IBD?

RC The Home Automated Telemanagement (HAT) system, used at the University of Maryland Inflammatory Bowel Disease Program, also can be called telemonitoring. Initially, patients were given refurbished laptops to log into our telemanagement system. Laptops have now been replaced by smartphones through which patients are sent texts about symptoms and adverse effects of therapy. Patients are also asked to check their weight using a weight scale and are given educational messages. After a patient completes testing and answers questions about symptoms, his or her condition is ranked into 1 of 3 zones. A well patient would be in the green zone. A patient with mild-to-moderate symptoms would be in the yellow zone. A patient with moderate-to-severe symptoms would be in the red zone. The zone assessment lets the patient know his or her level of vulnerability, which is useful for patient education and self-management. The patient then receives a personalized action plan. The testing also triggers an alert to a nurse coordinator who reviews the recommended action to make sure that the diagnostic assessment is accurate and the action plan is appropriate.

G&H How accepting are patients of HAT?

RC We did pre- and posttest studies in which we followed patients with both ulcerative colitis and Crohn's disease

over time. Patients were very accepting of the technology and liked using it. This translated into improvements in patient satisfaction with care and trends toward better control of disease and improved quality of life. Then, we changed the system slightly, adapted it for patients with ulcerative colitis, and performed a randomized controlled trial of HAT use in this patient group. Again, we found that patients were accepting of the technology. We found that, when we adjusted for a number of baseline factors, the quality of life was better for patients using the telemedicine system.

Patients with IBD know that there is no cure for IBD and are interested in making the lives of other patients with Crohn's disease and colitis better. As such, they are often willing to participate in studies, such as the ongoing studies of HAT, so recruiting for studies about the value of telemedicine in IBD has been fairly easy.

G&H Is there a learning curve for patients using the system?

RC When a patient is recruited into studies about the program, the telemedicine provider—a company called MedAdherence in our case—is contacted. The patient's information is entered on a secure website. The patient then receives an immediate opt-in by text message. Once the patient accepts the opt-in, he or she simply responds to a series of questions about his or her disease just as would be done in a clinic, but the questions are received and answered via texting.

The whole process only takes 5 minutes or less. It is very quick, and there is not much of a learning curve even for older patients who may not be tech savvy. We also have a contract with Verizon so that we can supply phones to patients who need them. Interest from patients has been excellent, as has been recruiting and participant retention. Loss to follow-up has been less than 10%.

G&H What gaps in care is HAT providing for patients with IBD?

RC Telemedicine may improve adherence through frequent prompts about medications. We also think that the system helps break down barriers between the provider and the patient because, even though the system is automated, the text messages and subsequent telephone triage help patients feel more connected to their doctors and the medical center. It also facilitates earlier detection of a flare, resulting in earlier treatment and improved outcomes. The patient education provided may also help improve outcomes.

The educational messages are like “tweets.” The messages are 160 characters or less and are frequently delivered (weekly or biweekly) as highly focused items. We are

currently studying the effect of this strategy on patient education as part of a 1-year study.

G&H Do telemanagement outcomes differ between patients with Crohn's disease and those with ulcerative colitis?

RC Patients with ulcerative colitis are a more homogeneous group, and treatment is more algorithm-based, especially among patients with mild-to-moderate disease. A study from Europe that focused on telemanagement in this population group found outcomes similar to those of our studies. Although relapse rates were the same compared with patients receiving standard care, relapses were shorter, adherence with acute treatment was better, and quality of life was improved.

G&H What impact might telemanagement of IBD have on office-based practice?

RC Our current trial will address whether telemanagement as an adjunct to care improves outcomes in patients with IBD. It is possible that telemanagement may be particularly useful for subgroups of patients with IBD. Examples include the patient in whom new drug therapy is being started, a patient who is intentionally or unintentionally nonadherent, and a patient with limited access to care. Other forms of telemedicine are also likely to be useful in practice. Teleconferencing among clinicians is likely. Imagine a scenario where a central IBD team at 1 care facility, such as a university hospital, provides education and triage for clinicians in satellite care centers throughout the state. This interaction would help the local gastroenterologist manage patients with more complex needs. A program such as this was put in place in northern California whereby clinicians, fellows, and faculty at the Palo Alto Veterans Affairs Center were able to teleconsult with gastroenterologists at the Veterans Administration in San Francisco. In Maryland, tele-intensive care units and tele-emergency rooms have been set up and are being coordinated by the University of Maryland. Multidisciplinary educational conferences are already being developed.

IBD care is becoming increasingly specialized and complex. As quality measures are implemented, increasingly more patients will be seeking care from centers of excellence in IBD. Because logistics may make access to such centers challenging, “televisits” will likely become more common. For example, the referral network in Maryland can be 2 to 3 hours in every direction. Traveling to a clinic for face-to-face visits can be a huge expense in terms of time and money for the patient. If the patient can visit remotely and save visits to the medical center for endoscopy, imaging studies, and other services, he or she would be appreciative.

G&H What cost and reimbursement issues are unique to telemanagement?

RC Currently, telemanagement is offered for patients as part of a clinical trial supported by the Agency for Healthcare Research and Quality. If we can show that telemanagement decreases healthcare utilization, we may be able to convince payors to adopt a system like ours for routine use. We envision that a nurse or team of nurses would monitor patients and work with providers to respond to the self-testing results. It is also possible that patients would be willing to pay out of pocket to support use of the system as supplemental care. The costs would be used to offset the technical costs of the system as well as the salary of a nurse coordinator (or team). Professional fees for televisits or remote visits are reimbursed in more than 30 states, including Maryland. However, for hospital-based outpatient clinics, the facility fee is lost if a remote visit is used. This can have a negative economic impact for those types of hospital-based clinics; however, being able to retain a patient through better access to a clinic may result in economic advantages to a practice in the future (ie, through

endoscopies, future face-to-face office visits that would have been lost otherwise, infusions, etc).

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Suggested Reading

Cross RK, Arora M, Finkelstein J. Acceptance of telemanagement is high in patients with inflammatory bowel disease. *J Clin Gastroenterol*. 2006;40(3):200-208.

Cross RK, Cheevers N, Rustgi A, Langenberg P, Finkelstein J. Randomized, controlled trial of home telemanagement in patients with ulcerative colitis (UC HAT). *Inflamm Bowel Dis*. 2012;18(6):1018-1025.

Cross RK, Finkelstein J. Feasibility and acceptance of a home telemanagement system in patients with inflammatory bowel disease: a 6-month pilot study. *Dig Dis Sci*. 2007;52(2):357-364.

Elkjaer M, Shuhaibar M, Burisch J, et al. E-health empowers patients with ulcerative colitis: a randomised controlled trial of the web-guided 'constant-care' approach. *Gut*. 2010;59(12):1652-1661.

Krier M, Kaltenbach T, McQuaid K, Soetikno R. Potential use of telemedicine to provide outpatient care for inflammatory bowel disease. *Am J Gastroenterol*. 2011;106(12):2063-2067.

Ramos-Rivers C, Regueiro M, Vargas EJ, et al. Association between telephone activity and features of patients with inflammatory bowel disease [published online November 19, 2013]. *Clin Gastroenterol Hepatol*. doi:10.1016/j.cgh.2013.11.015.