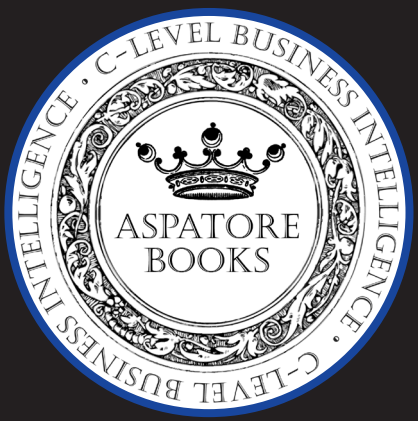
INSIDE THE MINDS™

THE ART AND SCIENCE OF GASTROENTEROLOGY

TOP DOCTORS ON DIAGNOSING GASTROENTEROLOGICAL CONDITIONS, EDUCATING PATIENTS, AND CONDUCTING CLINICAL RESEARCH



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Gastroenterology: The Focus on Mind and Body

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Gastroenterology: A Blending of Science and Art

The field of gastroenterology meets my needs of combining the technical aspects of medicine with a strong focus on the patient; it truly is a blending of science and art. In that regard, gastroenterology is different from other medical sub-specialties. For example, with cardiology, pulmonary disease, and nephrology, clinicians can rely on cardiac catheterization lung physiology or kidney function tests to understand how well a specific organ is functioning, and this closely relates to how ill the patient is. But understanding gastroenterological illnesses is more complex; there are no numbers or calculations of organ function to explain why the patient has abdominal pain or nausea. Thus conventional physician and patient expectations to test, diagnose, and treat are not always met. Gastroenterology looks at the person and his or her symptoms (e.g., pain, nausea, or diarrhea) in the context of daily functioning, life stress, quality of life, and coping style. It is all of these in combination that determines the challenge and excitement of working with gastrointestinal disorders.

The science of gastroenterology starts at the microscopic or submicroscopic level, understanding how neurotransmitters and hormones in the bowel such as serotonin or cholecystokinin (CCK) affect gastrointestinal function. Furthermore, stress can produce these and other neurotransmitters in the brain and they can then work "downstream" to affect intestinal motility, inflammation of the bowel or the secretion of these organs. All GI symptoms are intimately connected to and regulated by the brain; that is why understanding psychosocial issues are so paramount.

The gastroenterologist must understand the science in relation to possible disease and dysfunction of organ systems that produce symptoms and often consider how it may be modified by the individual's life context. Thus, nausea may occur from a disease in the liver, or from gallstones, a stomach ulcer, poorly functioning intestinal movements (motility), medication side effects, a recent infection, an early pregnancy, a recollection of early traumatic experience or even having an argument with one's spouse. Similarly, a patient with inflammatory bowel disease (IBD) may be doing well and then

suddenly experience pain and diarrhea; the disease itself may or may not have worsened, but other factors—such as a super-imposed infection, stress, or dietary change or any combination—may also be the cause.
Then these historical data need to be refined with a physical examination and diagnostic studies: when to do the blood tests, or an endoscopy, whether to order the CT scan or MRI or even do no testing at all. Once all this information is obtained the gastroenterologist must put it all together, and come up with a reasonable diagnostic approach and plan of care. So the science involves integrating the evident data on gastrointestinal pathology and physiology within the context of the person. This brings us to the art: the interaction with the patient.

The art of gastroenterology is not what you do but how you do it. It involves understanding and participating in the patient's inner world as related to his or her illness: to use good interview skills to validate the previous medical information and obtain new meaningful data directly from the patient, and to put the more personal psychosocial influences into proper context. It also involves understanding the patient's "illness schema" or perception of what is wrong, and what his or her concerns or expectations are from the doctor. Then the information is integrated into an effective diagnostic and treatment plan. Finally, the physician must convey this information in a manner that is acceptable to the patient, and work toward reaching mutual agreement as to how to move forward. In effect, all of this involves establishing a trusting relationship with good communication and shared decision making.

When the diagnostic issues are clear, such as with a gallbladder attack, hemorrhaging from a duodenal ulcer or a bowel obstruction, the expectation for diagnosis and treatment is almost always shared; the doctor must take control and the patient agrees to this. But the way in which the diagnostic and treatment plan is conveyed remains important, and good communication improves patient understanding and reduces anxiety. Importantly, when the gastrointestinal illnesses are chronic, different expectations for diagnosis and treatment between patient and physician may arise and more work is needed to be sure that both are "on the same page."

These skills are not learned through technology or textbooks. Rather it requires that gastroenterologists be mentored from knowledgeable teachers, learn from their own experience with patients, and also possess a genuine desire to help the patient. Typically, doctors like patients who get better and thank them for the effort. But the most prevalent GI disorders are chronic (e.g., chronic liver disease, inflammatory bowel disease, functional GI and motility disorders, chronic pancreatitis, and intestinal malabsorption) and require ongoing management. With these patients, physicians need to value the process of their care. This means building the relationship to help patients help themselves, expecting only occasionally to make a rare diagnosis or to cure. What patients with chronic illness truly want is a sense of hope, and to have a doctor who cares and won't abandon them. The studies show that an effective physician patient relationship not only improves patient satisfaction and adherence to treatment and avoids litigation, but it also leads to better clinical results (1-3).

Communication Strategies

A trusting patient-doctor relationship characterized by good communication and shared decisions can be enhanced by using a few simple strategies. I tell students, residents, and GI fellows (i.e., internists taking additional training in the sub-specialty of gastroenterology) that to obtain meaningful information one must "sit where the patient is": to see their personal understanding and expectations from the illness (their "illness schema"). The following questions can help:

1) What do you think is going on?
2) What are your concerns or worries?
3) What brings you here at this time?
4) What are your expectations from me?

Asking these questions lets the patient know of their physician's interests in their personal views. Likewise, the patient's responses help their physician understand any misconceptions that need to be addressed. For example, patients often believe that their abdominal pain is due to cancer, or that

their chest pain is due to heart disease or a hiatal hernia. However, chronic abdominal pain is uncommonly related to cancer, heart disease can be easily excluded, and a hiatal hernia rarely produces symptoms. So the physician who elicits these beliefs can appropriately address them thus reducing their patient's unneeded worry or concern.

Communication skills are also important for handling patients' responses to test results and diagnoses. Paradoxically, some patients with chronic or unexplained symptoms may be disappointed when a specific structural diagnosis is not found (`Is it in my head then?", "Is this doctor competent?"). This may lead the patient to request more studies at a time when the physician sees their symptoms as part of a chronic illness that does not require further diagnostic studies. Consequently, the patient may view the physician's lack of interest to do diagnostic studies as a failing, while the physician may perceive the patient's insistence to do more studies as defiant of his or her plan. This dilemma is avoided if the physician is able from the outset to elicit the patient's perspective and respond appropriately. For instance, the greatest concern to most patients is cancer. If the doctor quickly reassures by saying "Nothing is wrong," the patient may perceive this as a false reassurance without proper attention to the issue and lose confidence. However, if the doctor says, "We can never fully exclude cancer but I feel reassured from what you've told me and the study results that you have (name diagnosis) and we should focus on management. However, I'll stay vigilant to any changes in your clinical condition that could require further studies, for example, if you have bleeding or weight loss." This approach takes the patient's concerns seriously and emphasizes continuation of care while presenting boundaries to ordering unnecessary studies.

Understanding the Life Context in Developing a Diagnosis and Treatment Plan

Sometimes the process of developing a diagnosis and treatment plan is straightforward. If, for instance, a patient reports blood in the stool or has heartburn or becomes jaundiced, it does not take more than ten or fifteen minutes to get the history and decide on a plan: endoscopy for bleeding or

heartburn, or blood studies and diagnostic imaging to evaluate the liver. The rest follows without difficulty.

On the other hand, seeing patients with chronic unexplained conditions often require a more comprehensive biopsychosocial perspective (4). Diagnosis first involves reviewing extensive records, often in advance of the patient's visit, to see what studies have and have not been done. Once the background information is obtained rather than asking the same questions or redoing the tests, the physician tries to go where others have not: to consider diagnoses that may have been overlooked, and importantly to find out about the illness within the life context of the patient. For example, did the symptoms be in at Christmas dinner on the first anniversary of the parent's death? Or has there been a history of emotional trauma or physical or sexual abuse (5)? At tertiary care medical centers half of the women seen in the gastroenterology clinics report a history of abuse, and those individuals have more severe symptoms and poorer quality of life (6). We are now learning that this observation may be due to malfunctions in certain areas of the brain that can amplify the pain (7,8). It is this biopsychosocial understanding of illness and disease that puts the patient's symptoms into a clearer perspective and opens the door to more effective treatments.

Physicians who use a biopsychosocial perspective can often uncover critical information. For instance, some patients have become conditioned to respond to stress with gastrointestinal symptoms, yet are not aware of this association. This may be confusing, or in the least, challenging for gastroenterologists where an association with stress seems evident. For example, if a child goes to school for the first time at age five, he or she might experience a psycho-physiological response to the fear of leaving home: abdominal cramps and diarrhea. If the parent singles out these symptoms as a reason to keep the child home, and in fact "rewards" the child by providing toys and allowing him to watch TV, the child's relief in avoiding the feared situation could reinforce the recurrence of such symptoms in future distressing circumstances, even into adult life. If, on the other hand, the parent says, "You have a stomachache. Maybe you are feeling nervous about going to school; let's talk about it," then the child learns to understand his anxiety about going to school and

verbalize it rather than expressing it through the conditioned symptoms. Our research has shown that patients who make the link between stress and GI symptoms seem less distressed with their symptoms and don't go to doctors as often as patients who do not make this link (9).

I once had a patient with a history of many years of abdominal pain and many evaluations say to me on the first visit: "I am not leaving this table until you agree to operate." These are challenging situations for both patient and doctor. Indeed, the patient who says that they know their pain is "real" and there is no stress in their lives requires a physician with experience, patience, and skill to provide a different level of understanding and support. These patients may have also been mishandled by the health care system, and they are fearful of being rejected yet choose to see many doctors trying to find an answer.

Rather than take a biopsychosocial perspective, it is often much easier in our litigious and cost-focused health care system to perform expensive tests and prescribe symptomatic treatments without making the effort to understand the patient's perspective. Patients with complex long-standing conditions don't benefit from this approach. In the 1970s, researchers studied a concept called "furor medicus" (10). They evaluated patients who came to the emergency room and divided them into two groups: those with acute problems and those with chronic conditions. Researchers found that patients with chronic conditions had more procedures done, more medications prescribed, and more exploratory laparotomies performed even when the doctors believed they probably weren't indicated. Why should they go against their better judgment? Furor medicus depends on two factors: the level of uncertainty within the doctor and the level of insistence by the patient to do something. Residents in training are likely to perform extra procedures and unneeded treatments because they don't have the experience to deal with the uncertainty of medicine; on the other hand, even experienced physicians may go against their better judgment and order studies and treatments when the patient insists that something be done now in order to achieve a quick solution. The most respected gastroenterologists are those who can step back and look at the big picture rather than simply react. In situations like this it is best to "don't just do something, stand there."

Instead of rushing to do something, in these types of situations, the physician needs to acknowledge the patient's frustration, make it clear that the pain is real, and then focus on developing a supportive relationship that helps the patient find ways to accept the illness and learn to self manage. These are patients who have been to many doctors and what they need is someone to work with them regardless of the diagnosis or outcome. It may take a little longer on the first visit to obtain and integrate the needed information and establish an effective relationship. However, the results pay off for the patient, far more than paying for another endoscopy that turns out negative. This is the type of practice I choose to do, and working with someone who has suffered for many years without understanding why, and helping them to find the answers and improve their quality of life is immensely rewarding.

But aren't we talking about gastroenterology? As it turns out, I have not reflected on the technical aspects of the discipline. Technical skill and adequate knowledge of the science is a requirement for training. The learning is standardized and reinforced in practice and it is challenging and exciting: stopping a bleeding artery in the stomach, taking out a gallstone during sphincterotomy or managing a complex liver transplant patient. However, a deeper satisfaction can occur through training and application of the more cognitive aspects of gastroenterology, clinical reasoning and decision making, communication skills, and building of the physician-patient relationship. The use of these skills pays off in the long-term care of patients with chronic GI disorders through physician and patient satisfaction, improved clinical outcomes, and reduced costs.

Helping Patients with Functional GI Disorders to Help Themselves

I've been fortunate to have trained both in gastroenterology and psychosomatic or biopsychosocial medicine, and so my focus tends to be on the interaction of the brain and gut (4); my practice often involves working with the most complex functional GI disorders. These disorders must be understood from a biopsychosocial approach in order to integrate the role of biological, psychological, and social factors in understanding the illness for clinical care and research.

About fifteen years ago, I was fortunate to recruit William Whitehead Ph.D. from Johns Hopkins to the University of North Carolina and together we founded the UNC Center for Functional GI and Motility Disorders at the University of North Carolina (www.med.unc.edu/ibs). Our collaboration has led to an internationally recognized program in clinical care, research, and teaching of the functional GI and motility disorders.

Patients with functional GI and motility disorders who have been to many high-quality practices are referred to us because they continue to have disabling symptoms and poor quality of life. On occasion we come up with new diagnoses and treatments; however, most often we attend to the educational and management aspects of conditions that have already been diagnosed. Yet patients may say, "No one has told me what I have," which I interpret as a failure in communication. They say "Nothing has worked for me" and here it is important to understand what was prescribed, for how long, whether it was taken, and how much the patient was given the opportunity to become involved in the care.

Because functional GI disorders do not have specific findings with laboratory studies, X-ray or endoscopy, the patients often feel that something else is being missed, or that without any of these findings their symptoms are psychosomatic or "in my head." They feel "out of control" and unable to manage their symptoms. A vicious cycle then ensues: without feeling able to understand or control a condition that has great impact on their life, the patient becomes anxious and distressed, and that in turn leads to more symptoms. And so it continues. At UNC we employ gastroenterologists, physician assistants, psychologists, and motility experts who work together to get to know the illness, the patient, and their psychosocial and coping resources to find the ways to break the vicious cycle. In addition to using state-of-the-art diagnostic and treatment methods when needed, we also help patients regain their sense of control over their illness and their life. We make the effort to provide a clear physiological explanation as to why they are having the symptoms, and offer rationale for treatment based on this understanding. A major effort is to focus on helping patients become "empowered" so they can feel in control enough to manage their symptoms.

Since these are chronic GI disorders, we explain that while "cure" may not occur, they can still regain their daily function and improve their quality of life. It's not unusual for a patient with years of disability to come back feeling much better saying: "The symptoms are still there, but they don't bother me as much."

Helping to Advance the Field of Functional GI and Motility Disorders

Scientific knowledge in the area of functional GI and motility disorders has grown quite rapidly over the last two to three decades with research relating to visceral hypersensitivity, neurotransmitters and receptors in the GI system, alterations of bacterial flora, post-infectious IBS, brain imaging, and the brain-gut axis. Our ability to integrate these diverse areas into a clear understanding is based on the shift from the more traditional biomedical model to the Biopsychosocial Model (4) first promoted by George Engel in 1977 (11). (Figure 1) demonstrates the multi-component nature of this model for the functional GI disorders.

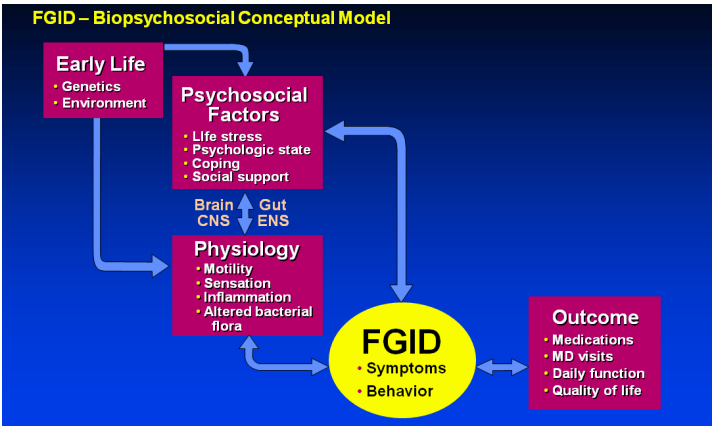

Figure 1

Patients with functional GI and motility disorders comprise the largest component of gastroenterology practice, about 40 percent (12). While research is giving us the scientific knowledge to understand when, how, and why these disorders develop, the work has not yet become common knowledge. Advancement in this field has grown so fast that it is only beginning to

become a standard component of educational curricula. Therefore work is needed to introduce this new knowledge in medical schools to clinicians and scientists as well as to the general public. There are several national and international initiatives to help disseminate this information.

The Rome Foundation (www.romecriteria.org) is an organization of over one hundred world experts in functional GI and motility disorders who are committed to helping the lives of patients with these disorders. The group has helped educate clinicians and scientists, other health care workers, the pharmaceutical industry, and regulatory agencies by publishing diagnostic criteria and a compilation of the evidence-based clinical and research findings. The primary products of Rome III was published in the journal Gastroenterology in April, 2006 (13) and as the Rome III book later that year (14). These publications help advance the field by providing comprehensive information on the pathophysiology, diagnosis, and treatment of over two dozen adult and pediatric functional GI disorders. Other projects underway include CD slide sets, lectureships, and other educational materials.

The International Foundation for Functional Gastrointestinal Disorders, headed by Nancy and William Norton, is the largest lobbying and patient advocacy group of its kind (www.iffgd.org). Based in Milwaukee WI, this group provides educational information to patients, responds to patient questions, provides a national resource list of physicians for patients, advocates for research funds from Congress to go to NIH, and raises funds independently to support research. It also hosts international educational conferences for physicians.

Other scientific groups that have been organized to focus on these disorders include the Functional Brain-Gut Research Group (www.fbgweb.org), the American Motility Society, and the European Society for Neurogastroenterology and Motility. Together these groups have worked to help advance our scientific knowledge of these disorders ultimately to the benefit of patients.

Figure 2 shows the number of citations (publications) in the area of irritable

bowel syndrome, only one of the many functional GI and motility disorders. It clearly demonstrates the increased scientific interest in this condition. I believe that in ten to twenty years this will be one of the most important clinical and research areas in gastroenterology.

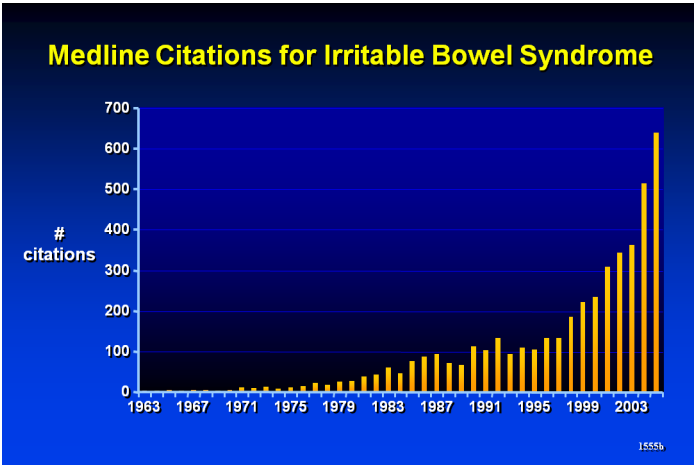

Figure 2

The Success of a Gastroenterology Practice

To be successful, gastroenterologists must acquire a variety of skills. Within clinical practice, gastroenterologists diagnose and treat patients in their offices and also see them as consultants when they are inpatients in the hospital. They must be good at listening, synthesizing information, and relating well to patients. A certain amount of these skills are innate, though physicians can also learn to enhance them. Perhaps the area least developed in training programs relates to communication skills and the physician-patient interaction. I learned these skills through my training with George Engel (15), as well as through later study with the American Academy on Physician and Patient which follows the work of Karl Rogers. I now try to teach these skills in presentations and workshops at home and when traveling. However, these components that are intrinsic to good practice are not rewarded financially since third party payers favor reimbursing procedures over such "cognitive skills." Nevertheless the rewards occur through clinical improvement associated with physician and patient gratification.

Success in clinical gastroenterology requires an open mind to new ideas, ongoing study, and a great deal of experience seeing a wide variety of patients. I believe it is also helpful to keep the practice "alive" by engaging in some form of teaching, either as a volunteer at a medical center or by having fellows and residents rotate through the practice under supervision. Clinical gastroenterologists must also be skilled in endoscopic procedures, primarily colonoscopy, and upper endoscopy. A large part of gastroenterology practice involves screening colonoscopy, but with the emergence of virtual colonoscopy, an X-ray procedure, gastroenterologists will spend less time in the future doing screening colonoscopies. However, other procedures like therapeutic colonoscopy, diagnostic upper endoscopy, and, of course, emergency endoscopy for gastrointestinal bleeding and other urgent problems will continue.

It also helps to bring on younger physicians to the practice as it grows since the older clinicians are exposed to the newer knowledge from their younger colleagues. Finally, the success of a gastroenterology practice also depends on the quality of the office staff, the nurses, technicians, receptionists, and accounting personnel. The needs of patients are met by staff that possesses technical efficiency and good interpersonal skills. There is no excuse for a patient calling in distress and not being able within a reasonable period of time to reach someone who can help. These days it's difficult to have the physician return calls immediately so many practices have a pool of nurse practitioners who are available to return phone calls or relay laboratory results or other clinical information.

Academic gastroenterologists primarily perform research and their success is gauged by the federal grants they receive, the publications they produce, and the presentations they are invited to. They also often carry on small practices in the hospital and have teaching responsibilities. Once their publications become familiar to peers, they are often invited to give presentations nationally and even internationally. These activities often lead to appointments to regional, national and international committees and organizations, including their leadership in these organizations. The standards for success are reasonably clear and are often set by federal agencies (e.g.,

NIH), the American Board of Internal Medicine, academic organizations like the American Gastroenterology Association or the American College of Gastroenterology, or the home academic institution.

The standards for success within academic gastroenterology are reached by the small few who are committed to work hard to excel in their particular research area. My research interests relate to treatments for functional GI disorders, the role of stress (including abuse history) on clinical outcomes, research in health related quality of life, brain imaging, and the proper design of treatments studies for these conditions.

Sub-Specialties Within Gastroenterology

Gastroenterology is a complex field encompassing a variety of organs and systems. Research is constantly changing the way we view GI diseases and conditions. As a result, a variety of sub-specialties within the broad area of gastroenterology have emerged, as it now has become difficult to keep on top of everything in this field. When I was in training in the 1970s we worked in all areas of gastroenterology and liver disease. Over time, "sub sub-specialties" emerged where individuals worked solely with particular organ systems, such as the esophagus, pancreas, and the liver, and each had their own sets of diseases and dysfunctions. In fact, over the past twenty to thirty years, liver disease has developed into the clearly defined sub-specialty of hepatology. Nowadays gastroenterologists often distinguish themselves as either "solid" (i.e., liver and pancreas) or hollow organ (i.e., esophagus stomach, and intestines) specialists.

Specialists in other organ system areas include esophagologists, pancreatobiliary physicians, and nutritionists. There are also experts who work with one set of diseases, such as inflammatory bowel disease (ulcerative colitis and Crohn's disease) or GI cancer. Physicians who work in these areas usually do some general gastroenterology, but emphasize their particular discipline in practice or research.

In addition to organ system specialists, there are procedural specialists working under the broad field of endoscopy. While all gastroenterologists

learn endoscopy, some focus primarily on the technically precise disciplines of endoscopic ultrasound or interventional endoscopy, doing sphincterotomies for gallstones in the common bile duct and stent placements for benign and malignant strictures. In recent years there is growing interest in endoscopic surgery.

Finally, there is a small and emerging group of sub-specialists who focus on functional GI and motility disorders, and treat the largest group of patients (about 40 percent) seen in gastroenterology practice. Diagnosis is based on symptoms and at times physiology testing since there are no findings on X-ray or endoscopy. The symptoms are understood to be caused by dysfunction of the nerves and muscles of the gastrointestinal system. This leads to altered motility, increased nerve sensitivity called visceral hypersensitivity, and other physiological dysfunctions that are amplified by stress and emotions. Many who have an interest in this field are skilled in gastrointestinal motility of the esophagus, stomach, intestines, and anorectum while others focus primarily on diagnosis and management based on the symptoms that define these disorders. The disorders include irritable bowel syndrome, which is the most common one, as well as esophageal chest pain, functional dyspepsia, bloating, functional constipation, vomiting disorders, biliary dysfunction, diarrhea, incontinence, and rectal pain.

Challenges in Gastroenterology

The biggest challenge in gastroenterology is to address and hopefully reverse the shift over the last two decades from a focus on the provision of quality care to that of bringing in more money (16). Physicians are performing more and more procedures and are seeing patients in briefer periods of time since more income can be generated by doing a procedure than by performing a clinic visit, talking, and thinking. For example, it is not unusual for a patient coming for abdominal pain to immediately get an endoscopy and if it's negative, be prescribed a narcotic painkiller without the physician thinking through the diagnosis, the reason for the visit or the long-term management plan. Managed care has changed the way we look at patients these days: diagnostic tests have replaced clinical decision making and a quick fix is

preferred, and if it brings in more money, all the better.

A second challenge is to reverse the continued reduction of federal funding for clinical gastroenterological research. Many gastroenterologists who do clinical research are being forced to move out of academic medicine into the pharmaceutical industry or clinical practice, because it is becoming more difficult to find the needed support to do clinical research. Although the National Institutes of Health (NIH) are looking to provide more "translational" and clinical research support, their history is to prioritize basic over clinical research, and the lowest priority is directed toward the functional GI and motility disorders. Furthermore, any effort to reverse this pattern is hampered by continual budget cuts to NIH due to other priorities. The general perception that basic research is a funding priority relates to the premise that finding the molecular basis for diseases will lead to cures. No doubt this has potential for many diseases. However, the health problems in Western society have shifted from immediately treatable acute diseases to multi-determined chronic disorders that impact the patient and the family. With chronic illnesses, treatment now needs to be directed toward symptom management and improved quality of life, and cure may not be likely for quite some time. Thus, it is important to find ways to allocate clinical funds for research to help patients manage chronic gastrointestinal disorders.

A third challenge, because of their profound health care impact, is to find ways to legitimize the chronic gastroenterological disorders. For example, irritable bowel syndrome is considered second to the common cold in work absenteeism and about $2 billion is spent treating patients with IBS; when factoring in indirect costs such as loss in work productivity, the cost to society in the U.S. is close to $20 billion (17). Yet these disorders are not considered as important compared to cancer or heart disease. They can be overlooked, ignored, or considered insignificant by the media, general public, and funding agencies, despite their morbidity, impaired quality of life, and health care costs. It's not completely clear why this is the case, though it may relate to societal values that minimize or bring humorous attention to bodily functions like gaseousness, vomiting, and defecation—difficulties produced by gastrointestinal disturbances. Furthermore, because these disorders do

not show abnormalities by X-ray or endoscopy, they are often relegated to second-class status when compared to disorders with obvious biological markers like ulcer disease, colon cancer or inflammatory bowel disease (18). People often believe that if the doctor can't find a physical cause for the symptoms then it is "in the head." Thus, there needs to be a way to communicate to patients, physicians, and society an understanding of the biopsychosocial model for understanding GI disorders.

The fourth challenge, as discussed, is to find the ways to teach physicians how to build their clinical decision making and relationship skills. I believe that the advances in technology within the field have been and will continue to take care of themselves. The risk is that the field will move almost completely toward technology, since it is exciting and it pays well. Yet the paradox is that most of GI patient care involves outpatient management of chronic disorders. After thirty years in practice, my experience has shown that the attention to aspects of good data gathering, clinical reasoning, communication and relationship building contributes the most to physician and patient satisfaction and to improved clinical outcomes for all gastrointestinal disorders. It is therefore critical that the personal elements of the doctor-patient relationships do not become lost along the way.

Learning to Stay on Top

The field of gastroenterology changes constantly. To keep up and stay ahead, gastroenterologists need to attend meetings—regionally, nationally, and sometimes internationally—and academicians need to speak and collaborate with other investigators at these meetings. Listening to and participating in presentations and discussions among peers is far more illuminating than simply reading journal articles. Nevertheless there are key journals that help one stay knowledgeable in the field: Gastroenterology, Gut, American Journal of Gastroenterology, Clinical Gastroenterology and Hepatology, and the Journal of Clinical Gastroenterology. It is also helpful to write articles, because it hones one's clinical and research skills. One must review the literature on the chosen topic, and then synthesize that knowledge along with the research findings or clinical experience into a "story" that others

can learn from. Learning works best by having a focused question that can be communicated to others.

Looking to the Future of Gastroenterology

In the 1960s, gastroenterologists moved away from being internists with special interests in the gastrointestinal tract to becoming "proceduralists," performing endoscopies and later interventional endoscopies and ultrasound. Now gastroenterologists can reduce the need for surgery by endoscopically removing polyps before they turn into cancer, or draining abscesses that otherwise would require an operation, or taking out gallstones. Over the next five years, we are likely to see more emphasis on technical procedures such as surgical endoscopies and newer diagnostic imaging methods. It is likely that interventional endoscopy will begin to move away from "mainstream" gastroenterology." The technical demands in the future will require additional training to maintain competence than can be provided by a regular GI fellowship. Similarly, other areas of gastroenterology will also separate out because of their own unique features. Hepatology has already done that; possibly inflammatory bowel disease specialists and GI oncologists will need to affiliate more with multidisciplinary teams at medical centers because of the need to collaborate with surgeons and radiologists.

What will be left? Routine gastroenterological care and endoscopy will always be needed by patients in the community, and I believe that is where most gastroenterologists will be. The gastroenterologist in practice will function much like the internist—serving as a "gatekeeper" and managing the routine problems like GERD, functional GI disorders, milder forms of liver, and other GI disorders on an ongoing basis and performing routine endoscopies as needed. The practicing gastroenterologist will refer the patients to specialists when expertise is needed in a more specialized area of gastroenterology. This is already happening.

I am hopeful that most gastroenterologists, particularly those primarily involved with functional GI and motility disorders, will have found ways to learn the communication and cognitive skills to effectively diagnose and care for these patients. This may require a shift in our health care economics

to a more nationalized system where proper compensation can be applied to such cognitive skills. It is also likely that nurse practitioners or physician assistants, as well as nutritionists and psychologists, will be part of this health care team. In the end, the hope is that all patients with GI disorders will be better served.

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Douglas A. Drossman received his M.D. degree at Albert Einstein College of Medicine and obtained his medical residency at the University of North Carolina School of Medicine and NYU — Bellevue Medical Center. He sub-specialized in psychosocial (psychosomatic) medicine at the University of Rochester School of Medicine and in Gastroenterology at the University of North Carolina.

Dr. Drossman is professor of medicine and pychiaty at the University of North Carolina School of Medicine, and co-director of the UNC Center for Functional Gastrointestinal and Motility Disorders (since 1993). He is founder, past chair (19891993), and newsletter editor of the Functional Brain-Gut Research Group of the AGA, chair (since 1989) of the Rome Committees (Rome I II and III), and president of the Board of the Rome .Foundation (since 2004), past chair of the Functional GI campaign of the American Digestive Health .Foundation's Digestive Health Initiative (19992001) and of the Motility and Nerve-Gut Interactions Section of the AGA Council (2003-2005). He is past-president of the American Psychosomatic Society (1997), a fellow of the American College of Physicians, a master of the American College of Gastroenterology, and is on the board of directors and chair of the Scientific Adviso,y Board of the International Foundation for Functional GI Disorders (IFFGD). He is on the Institute of Medicine Committee of Gulf lFar Veterans and Stress, has been an ad hoc member of the NIH-NCCAM advisory board, and is a member of NIH-National Commission on Digestive Diseases.

Dr. Drossman has written over 400 articles and book chapters, has published two books, a GI procedure manual, and textbook of functional GI disorders (Rome I, II, III), and serves on six editorial and advisory boards in gastroenterology, psychosomatic medicine, behavioral medicine, and patient health. He just completed his fiveyear term as associate editor of the journal Gastroenterology and has been the gastroenterology section editor of the Merck Manual.

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Dedication: *To my mentors: George Engel, M.D., Don Powell M.D., and Debbie Drossman*

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