

# GI Fellow Advisor

Education and resources for the next generation of GI practitioners

## Preparing for an Advanced GI/Endoscopy Fellowship:

### What to Expect and How to Manage the Transition to Specialized Practice



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As mastery of complex procedures—such as endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasound (EUS)—often is necessary for the diagnosis and management of pancreaticobiliary diseases and other gastrointestinal (GI) conditions,<sup>1,2</sup> many GI fellows seek out specialized training on these essential tools in 1- to 2-year advanced fellowship programs.<sup>3</sup> However, for the several dozen highly qualified fellows entering these programs yearly,<sup>4,5</sup> transitioning to learning procedures beyond ablation, colonoscopy, enteroscopy, resection, and others studied earlier in their careers<sup>3</sup> may present a challenge.

“The transition to an advanced fellowship can be a bit of sensory overload,” said Justin J. Forde, MD, ABOM, a physician with Atlanta Gastroenterology Associates in Lawrenceville, Georgia. “Once you’re a third-year general fellow, you become very competent and comfortable performing general upper and lower endoscopic procedures. However, once you start your advanced fellowship, you may be involved in performing new procedures to which you were previously not exposed, such as ERCP and EUS. Depending on where you completed your general GI fellowship, the first day of your advanced fellowship may be the first time you are using an ERCP or EUS scope.”

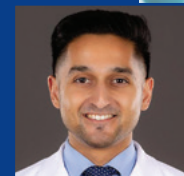
Dr Forde received his medical degree from Florida State University College of Medicine in Tallahassee, completed an internal medicine residency at the University of Florida Health Shands Hospital, in Gainesville, and his fellowship in general gastroenterology at the University of

## Using Modern GI Imaging Modalities:

### Clinical Perspectives on Innovative Technologies and Developing Proficiency

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Advanced imaging technologies are the foundation for the modern endoscopic investigation of gastrointestinal (GI) disorders, and have allowed for the expansion of minimally invasive procedures used to diagnosis and treat GI disease in the field.<sup>1</sup> One of the latest updates is the EVIS X1™ endoscopy system by Olympus®, cleared in 2023 for the purpose of assisting physicians in diagnosing, treating, and observing GI diseases and disorders.<sup>2</sup>

“The EVIS X1 endoscopy system helps me improve the quality of my endoscopic procedures in terms of detecting, characterizing, staging, and even treating irregular lesions that I may see during my endoscopic procedures,” said Tony S. Brar, MD, the medical director of gastroenterology and advanced therapeutic endoscopy at Digestive Disease Associates and an assistant professor at the University of Central Florida College of Medicine, in Gainesville.

In this system, Texture and Color Enhancement Imaging™ (TXI™) technology is designed to emphasize image information by combining three image processing algorithms—brightness correction of the dark part of the image; color difference expansion processing, and texture component emphasis processing—into a final image wherein subtle differences in tissue are clearly defined and the image appearance is similar to white light.<sup>3,4</sup> As white light endoscopy (WLE) has been used for upper endoscopy and colonoscopy for years<sup>5,6</sup> TXI technology aims to provide a detailed but relatable final image for the clinician (Figure).<sup>3,4</sup>

Recent data has shown the use of TXI technology significantly improved ADR in colonoscopy versus WLE by more than 13% (54.6% vs 40.99%;  $P=0.01$ ). Also, use of TXI technology improved the rate of adenomas per colonoscopy  $\geq 5$  mm in size versus WLE ( $P=0.02$ )



Most of your time as an advanced fellow will be spent in the endoscopy suite performing advanced maneuvers which draw upon the skills you acquired during your general fellowship training. You are there to learn, and as with all skills, the more you practice, the better you will become.

—Justin J. Forde, MD

»» FELLOWSHIP (Continued from page 1)

Miami/Jackson Memorial Hospital, where he served as the chief gastroenterology fellow, a role similar to an internal medicine chief resident.<sup>5</sup> Once his general fellowship was complete, Dr Forde embarked on an 18-month advanced therapeutic endoscopy fellowship at the University of Florida Health Shands Hospital that featured specialized training across a variety of procedures, including third-space, interventional endoscopic ultrasound, and bariatric endoscopy. In addition to learning individual procedures and techniques, Dr Forde noted that during his advanced fellowship, he was tasked with narrowing his focus on how to best match these technologies with patients.

“As a general fellow, you are serving more as an information gatherer and given lots of time to round and talk to patients,” Dr Forde said. “As an advanced fellow, you’re doing much more piecing information together that is given to you by the general fellow and from reviewing CT (computed tomographic) and MRI (magnetic resonance imaging) scans to determine the best procedure for the patient. Then, most of your time as an advanced fellow will

be spent in the endoscopy suite performing advanced maneuvers which draw upon the skills you acquired during your general fellowship training. The advanced fellowship is an intense year in which you can probably expect to be in the endoscopy suite 5 days a week.” To manage this transition, Dr Forde recommends leaning on those more experienced to answer questions, and review cases and procedures. “You are there to learn, and as with all skills, the more you practice, the better you will become,” he said. “Don’t be shy: Ask questions, such as why an attending chose a particular approach or device. Ask your attending to review films with you or if time allows, meet with the radiologist and ask them to review films with you.”

In the endoscopy suite, fellows typically are gaining hands-on experience performing ERCP, EUS, and endoscopic mucosal resections (EMRs).<sup>3,6</sup> Prior to more formalized advanced fellowship programs, ERCP and EUS were taught to GI fellows later in their program years or individually as apprentices by experienced endoscopists.<sup>6</sup> With the increasing number of standardized programs created, in 2012, the American

Society for Gastrointestinal Endoscopy (ASGE) established an advanced endoscopy fellowship (AEF) match to pair interested GI fellows with programs nationwide.<sup>6</sup> A 2021 survey of trainees matched to programs via an AEF found that a majority of fellows were comfortable performing ERCP (92.2%) and EUS (85.9%) following their programs, with a majority having performed each procedure more than 300 times.<sup>6</sup> The ASGE recommends a minimum of 200 and 225 supervised independent ERCP and EUS procedures, respectively, before assessing competency.<sup>7</sup>

Also, Dr Forde explained how programs recently have evolved to offer a variety of other advanced procedures that stem from standard ERCP, EUS, and EMR procedures: “Select programs may offer training in advanced maneuvers for EUS and ERCP, such as interventional EUS techniques (eg, EUS-guided gallblad-

» See **FELLOWSHIP**, Page 4

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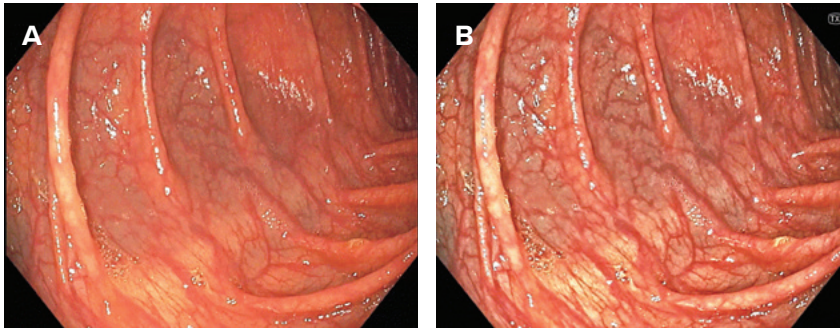
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**Figure.** Colon shown during a screening colonoscopy.

**A)** White light endoscopy (WLE)

**B)** TXI™ technology mode

Image provided by Charles Snyder, MD, using a CF-HQ1100DL colonoscope.

despite a longer withdrawal time using WLE, highlighting how TXI technology supports clinicians in identifying potential precancerous lesions.<sup>7</sup>

The EVIS X1 endoscopy system also provides existing Narrow Band Imaging™ (NBI™) technology to improve visualization of mucosal tissue via white light filtering.<sup>2</sup> NBI technology was introduced in 2005 and has become a significant advance in GI imaging.<sup>8</sup> This technology filters white light into specific wavelengths that are absorbed by hemoglobin and penetrate only the surface of GI tissue.<sup>2,8</sup> As a result, capillaries on the mucosal surface appear brown and veins in the submucosa appear cyan on the image shown on the monitor,<sup>2</sup> aiding in identifying altered vascularization as well as color and surface pattern of lesions.<sup>8,9</sup>

NBI technology is recognized as an important technology by the American Society for Gastrointestinal Endoscopy for adopting real-time, imaging-assisted endoscopic targeted biopsy during endoscopic surveillance of Barrett's esophagus<sup>10</sup> and real-time endoscopic assessment of the histology of diminutive colorectal polyps.<sup>11</sup> "NBI technology allows me to assess the mucosa well and target certain areas that might be more suspicious that I may not have otherwise noted," Dr Brar said. "For example, during colonoscopies, typical WLE may not enhance certain borders or detect subtle lesions, but the addition of NBI technology assists me in significantly increasing my detection of high-risk polyps."

Image post-processing like TXI technology aims to serve as a complement to NBI technology—revealing and detailing more potentially suspicious lesions and polyps.<sup>3,4</sup> TXI technology supports the visibility of potential lesions and may reduce miss rates for inflammation and early mucosal changes<sup>3</sup> while NBI technology enhances visualization of the capillary network and mucosal morphology.<sup>12</sup> Used in combination, TXI technology helps in regular screening colonoscopies with detecting suspicious lesions while NBI helps to characterize these lesions. Dr Brar uses NBI technology and TXI technology in a complementary fashion in the majority of his colonoscopies to help increase his adenoma detection rate (ADR). He said, "These two tools have large amounts of data showing the benefits of improving ADR."

Given the growing importance of these modern technologies in assisting physicians in diagnosing and treating GI conditions, it is important that GI fellows develop the proper skills and understand the similarities and differences among the available image-enhancing modalities. "For GI fellows, one of the biggest factors in gaining proficiency and competence is your volume of procedures, with getting a higher volume of quality endoscopic procedures being key," Dr Brar said. He also noted that understanding the clinical aspects of why a procedure has been selected for a particular patient type or condition is as important as the technical aspects, if not more important.

Also, there is a learning curve for achieving expertise with these tools, and an adequate training program can provide useful instruction on how alterations in the patterns of mucosal architecture and vasculature are characterized using image-enhanced endoscopy.<sup>13</sup> "Through your fellowship, learn how to troubleshoot situations. Get as much hands-on exposure as possible, including through simulation labs, and engage in scholarly activities, such as attending national and regional conferences," Dr Brar said. "GI fellows should realize that training shouldn't stop when you graduate as new technology is continuing to evolve. These technologies, including developing artificial intelligence tools, are the future of endoscopy with regards to detecting lesions and even, to some extent, treating them. To serve your patients and the community best, it is vital that you take a keen interest in the field and continue to grow your knowledge and skills."

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*NBI and TXI technologies are not intended to replace histopathological sampling as a means of diagnosis.*

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der drainage) or advanced ERCP techniques, such as the 'rendezvous' technique for difficult biliary cannulation, for example.<sup>8</sup> Programs also may provide advanced training on third-space GI endoscopy procedures, such as E-POEM [esophageal peroral endoscopic myotomy], Z-POEM [Zenker's POEM], G-POEM [gastric POEM], and endoscopic submucosal dissection (ESD).<sup>9</sup> These innovative procedures offer patients minimally invasive, organ-preserving treatment options who might otherwise require surgery."

Differences in procedure will require differences in devices used; Dr Forde noted that it is important for advanced GI fellows to become accustomed to the single-use and multiuse equipment used by their center, such as dilators, forceps, and snares, regardless of the vendor as well as the various scopes (eg, endoscopes, colonoscopes, duodenoscopes, enteroscopes) frequently employed in endoscopy.

"While those scopes have similar functionality, it is essential to understand how to use each during advanced procedures. Specifically, knowing how to use light filters, such as Narrow Band Imaging™ (NBI™) technology and blue laser imaging to evaluate lesions, knowing how to plug and unplug scopes, and knowing how to connect water and suction is essential. Also, learning how to pass a side-viewing and oblique-viewing scope into the correct position to perform an ERCP or endoscopic ultrasound is helpful because this is sometimes the most challenging part at the beginning of an advanced fellowship," he said. "Often, what can be most helpful is for fellows not to be focused on only performing procedures but, sometimes, for them to volunteer to be the technician for the procedure. This way, you can understand the devices more completely as opposed to only knowing what to do with them when they go through the device channel."

During an advanced fellowship, participating in research is key; however, Dr Forde noted that a fellow's other time commitments may affect how much and the type of research a fellow can undertake. "My advice would be to approach research with caution and participate in projects



that are going to be high yield to you as well as those in which you will have more of a supervisory/attending role, such as writing and editing the manuscript as opposed to data collection and chart review. Remain aware that your main responsibility during your advanced fellowship year(s) is to try and soak up every specialized skill that you can, and you should avoid projects that may take you away from this primary obligation." However, despite time constraints, Dr Forde noted that advanced GI fellows "should take every opportunity to interact with and educate the general GI fellows, whether this be through formal lectures or reviewing the imaging and decision-making process for select cases. This will deepen your understanding of advanced endoscopy and further the cognitive portion of your advanced education. Advanced endoscopy is more than a set of procedures: It is a way of thinking and problem-solving."

The 2021 ASGE survey of advanced trainees found that a large percentage of respondents moved to an academic/university hospital (39%) or private practice (34.4%) setting after fellowship.<sup>6</sup> Dr Forde noted that becoming a GI attending physician can present a new transition into becoming "a consultant's consultant." Meaning that "general gastroenterologists who may even be 10 to 20 years out of practice are reaching out to you to discuss patient cases and ask you questions. You may join a group and have physicians and other health care providers who have decades more experience than you asking clinical or procedural questions or referring patients that they are having trouble managing. That shift can be very bewildering for someone who is just out of fellowship and now they have their senior partners asking them for guidance or assistance." In this situation, Dr Forde recommends

reaching out to mentors or friends made throughout training. "It's okay to call just for reassurance, especially when starting out. Also, I look to the guidelines for formal recommendations to aid clinical decision-making," he said.

Starting with familiar, frequently performed procedures completed independently; maintaining a strong relationship with educators, mentors, and other trainers; and communicating regularly with referring clinicians and nonphysician staff members including nurses, administrators, and technologists are all suggestions for fellows beginning their careers in practice published by organizations like the ASGE,<sup>10</sup> whose guidelines Dr Forde noted also are useful resources for helping to make difficult diagnostic and/or treatment decisions. Overall, he noted, "the more people that you meet, the more friends or colleagues that you make, the more people that you will have who you can pick up the phone or send a text and discuss complex cases."

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