



Critical Theory or Accepted Practice? Combining Careers in Critical Care Medicine and Gastroenterology

Saad Saffo¹ · Thomas M. Leventhal²

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Training in Gastroenterology and Critical Care Medicine

Advanced fellowship training in gastroenterology (GI) has become increasingly popular over the past decade [1]. After completing a traditional 3-year GI fellowship, graduates often opt to pursue an additional fourth year of training in therapeutic endoscopy, transplant hepatology, inflammatory bowel disease, or motility disorders, though less conventional options also exist, including critical care medicine (CCM). In the USA, CCM fellowship has historically been coupled with pulmonology such that approximately 80% of physicians who become certified in CCM are also certified in pulmonology [2]. Yet, alternative pathways are available for those who have completed fellowships in other medical specialties such as GI. According to the American Board of Internal Medicine (ABIM), fellows who complete training in an accredited internal medicine subspecialty lasting 2 or more years can become certified in CCM with the completion of one additional year of clinical training [3]. Although the combination of gastroenterology and critical care medicine is not common from a training perspective, there is substantial clinical and academic overlap between the two disciplines, creating the opportunity for enhanced patient care and clinical research. Here, we provide an overview of the opportunities and obstacles associated with a dual career

in GI and CCM and describe our individual experiences and career goals.

Opportunities to Enhance Clinical Care

Patients admitted to the intensive care unit (ICU) are commonly impacted by one or more gastrointestinal diseases, either as the inciting factor for their admission or as a complication of critical illness. Examples include gastrointestinal bleeding, malnutrition, acute-on-chronic liver failure (ACLF), cholangitis, and pancreatitis, among many others. Although some conditions such as gastrointestinal bleeding and cholangitis may improve over a period of hours to days with timely medical and/or procedural interventions, others such as ACLF or severe acute pancreatitis may be more complex and require prolonged ICU stays. At most centers, pulmonary-critical care physicians will oversee the care of such patients, along with consulting gastroenterologists, who may be physically present in the ICU for limited periods each day to reassess patients and communicate with families and providers. However, having sustained oversight from GI/CCM-trained providers working within the ICU can streamline patient care and communication, promote interdisciplinary knowledge among staff and trainees in the ICU, and dynamically inform prognostic decisions. In high-volume academic centers, these providers can also help improve operational processes by offloading GI consult services and can lead impactful GI-based quality improvement initiatives within the ICU. Some centers have also begun implementing dedicated “liver ICUs” aimed at optimizing the care of pre- and post-transplant patients, thus creating a potential opportunity to integrate GI/CCM-trained providers in a more targeted fashion and enabling those individuals to shape the organization of the unit.

✉ Saad Saffo
saad.saffo@yale.edu

¹ Section of Digestive Diseases, Department of Internal Medicine, Yale University School of Medicine, 333 Cedar Street, 1080 LMP, New Haven, CT 06520-8019, USA

² Division of Gastroenterology, Hepatology and Nutrition, Department of Medicine, University of Minnesota, Minneapolis, MN, USA

Opportunities to Enhance Clinical Research

Due to the overlap between GI and CCM, there is also significant opportunity for impactful multidisciplinary clinical research. From an institutional level, such an effort can be spearheaded by GI/CCM-trained faculty who are keenly aware of clinical care gaps that bridge both fields and have a working understanding of both the GI and ICU infrastructures at their centers. These investigators can also collaborate with other intensivists and/or gastroenterologists to participate in or lead multicenter studies addressing common conditions in the ICU such as gastrointestinal bleeding or ACLF. One noteworthy example of a research collaborative that has published relevant GI-based CCM studies is the Canadian-based Guidelines in Intensive Care, Development and Evaluation (GUIDE) group that is co-chaired by Dr. Waleed Alhazzani, a GI/CCM-trained physician at McMaster University [4]. Furthermore, during the COVID-19 pandemic, a number of new and effective collaborations developed among gastroenterologists and intensivists to study the association between COVID-19 and gastrointestinal diseases, highlighting the potential of multidisciplinary research in GI and CCM and creating a roadmap for future investigators.

Potential Obstacles

Although advanced fellowship training in CCM presents diverse opportunities for those interested in developing a creative clinical and investigative niche within GI, there are a number of obstacles that trainees and young faculty members may face. The initial and most obvious challenge is finding employment after fellowship. Since the combination of GI and CCM is exceedingly uncommon, institutions or departments may be reluctant to offer candidates dual appointments for a number of administrative reasons, including financial considerations, scheduling constraints, and systems-based historical factors, namely that medical ICUs in the USA have been preferentially staffed by pulmonologists. Furthermore, from a clinical care perspective, individuals will be tasked with developing and maintaining a remarkably broad knowledge base and procedural skillset that spans multiple disciplines, while caring for some of the sickest patients in the hospital. For trainees and recent graduates, achieving a sustainable practice model may initially seem daunting. Finally, defining a professional trajectory in the absence of a clear path and often without sustained input mentors who have embarked upon a similar career can be challenging and may hinder academic advancement. Nevertheless, for

those of us who are enthusiastically devoted to a career in GI/CCM, these obstacles seem surmountable with hard work and perseverance.

A Fellow's Perspective (SS)

My combined interest in GI and CCM stems from the breadth, pace, and hands-on nature of the clinical experiences that these disciplines offer, along with the opportunity to engage in innovative clinical research. As an internal medicine resident and GI fellow, I cared for patients with life-threatening complications of cirrhosis while learning from faculty who are leaders in the fields of hepatology and CCM. Through these interactions, I became passionate about improving the care of critically ill patients with cirrhosis, ultimately deciding to pursue a dual career largely for this purpose. Nonetheless, my interest in CCM is also based on the premise that I would like to maintain a holistic approach to patient care and work in a setting where physiology regularly impacts clinical decisions across a wide range of disease processes. I am pursuing additional training in CCM so that I can formally expand my clinical and investigative skillsets to achieve these goals. For example, I would like to become more adept in using point-of-care ultrasonography to make accurate and timely hemodynamic assessments, especially among patients with cirrhosis, since this represents a common challenge for ICU providers. From a research perspective, I would like to continue my current work on developing novel therapies for portal hypertension, including treatments that may be used for patients in the ICU. In the future, I aspire to have an academic career at a tertiary center as a gastroenterologist, intensivist, and clinical investigator. My ideal job would involve splitting my clinical time between the ICU and inpatient GI consult services while devoting the remainder of my effort toward developing a multidisciplinary clinical research infrastructure.

An Attending's Perspective (TML)

As an undifferentiated fourth year medical student on a hepatology rotation, I cared for a patient with acute liver failure from hospital admission through an ICU course, which progressed from intubation, initiation of dialysis, and intracranial pressure monitoring to listing for emergent transplant and unfortunate demise prior to transplantation. This and similar experiences solidified my passion of caring for patients with acute liver failure. I knew then that I had to obtain training in GI, transplant hepatology, and CCM to give myself the tools to prevent this clinical outcome from happening again. Caring for critically ill patients who are

pre- or post-liver transplantation continues to be my passion in both clinical medicine and in clinical research. Working in an academic medical center with large transplant volumes provides significant exposure to such patients. Although I predominantly work as a transplant hepatologist, my critical care work is meaningful since it provides additional opportunities to work with medical trainees and multidisciplinary teams while teaching co-faculty and CCM fellows the nuances of GI and liver disease to which they may not have been otherwise exposed. Though it has been a challenge to gain acceptance as a critical care provider given my atypical pathway, the hospital and health system have recognized the unique perspective and opportunities I can contribute. It is my full intent to continue this multi-faceted clinical practice and further escalate my clinical research, studying patients with severe liver disease.

Conclusion

Dual fellowship training in GI and CCM offers the promise of a diverse, challenging, and fulfilling career. For GI fellows who ultimately decide to seek this career path, there are approximately 30 training programs throughout the USA that offer 1-year fellowships, of which the majority now participate in both the Electronic Residency Application Service (ERAS) and the National Resident Matching Program (NRMP). Fellowships are comprised of 12 months of rigorous clinical training in medical, surgical, trauma, and neurosurgical ICUs where fellows achieve competency in the medical management of critically ill patients and develop procedural expertise in airway management, vascular access, and other bedside diagnostic and therapeutic procedures. Each year, application cycles usually begin in July, approximately 1 year prior to the start of the fellowship,

with interviews occurring throughout the summer and fall seasons. The cycle concludes when the NRMP results are released in late November or early December. Additional details are provided online by individual institutions and the ABIM, although the authors of this manuscript are also available to provide additional insight for those who are interested.

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Declarations

Conflict of interest The authors declared that they have no conflict of interest.

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