



# Bridging the Gap: Dual Fellowship Training in Addiction Medicine and Digestive Diseases

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## Introduction

Gastroenterologists and hepatologists often care for patients who have co-occurring substance use disorders (SUD). SUDs can lead to and exacerbate numerous gastrointestinal and liver diseases, such as pancreatitis, hepatitis, cirrhosis, and malignancies [1, 2, 3]. Although patients with SUD often seek care for other medical conditions, a small minority of individuals with SUD receive addiction treatment [4, 5]. Efforts to integrate addiction treatment into gastroenterology and hepatology care settings can improve access for patients with co-occurring SUD; such models of care have been recently described for patients with liver disease [6]. There is rising interest in developing addiction treatment skills among clinicians who care for patients with liver disease in order to integrate care [7]. Fellowship training in Addiction Medicine is a valuable path toward building expertise in addiction treatment, enabling gastroenterology and hepatology providers to integrate these practices into the care of their patients with co-occurring SUD and digestive diseases in an effort to improve outcomes for this population [8].

## How Gastroenterologists and Hepatologists Can Impact the Public Health Consequences of Substance Use Disorders

SUD is a chronic illness resulting from the interaction between an individual's environment, life experience, genetic makeup, and brain circuitry that leads to compulsive use of one or more substances despite detrimental consequences [9]. Affecting over 40 million people in the USA, SUD is a leading contributor to disability-adjusted life years [4, 10]. Deaths resulting from drug and alcohol-related overdoses have been rising, now accounting for over 100,000 lives lost annually in the United States [11, 12]. These trends have been further exacerbated by the COVID-19 pandemic [13, 14]. SUD is associated with increased acute care hospital utilization and an estimated \$13.2 billion in annual hospital-related costs [15, 16]. Furthermore, the broader individual and societal costs of SUD through effects on other medical and psychiatric illnesses, quality of life, productivity, and social functioning are immense [5]. Despite the widespread prevalence and significant public health impact of SUD, only 6.5% of individuals with SUD had received treatment as of 2020 [4].

Multiple SUDs have been associated with the development of gastrointestinal and liver diseases. Alcohol use disorder can lead to acute and chronic pancreatitis, malignancies including esophageal, colorectal, and liver, as well as alcohol-associated liver disease (ALD) [1, 3, 17]. Tobacco use disorder is also associated with the development of numerous cancers throughout the gastrointestinal tract including the esophagus, stomach, colon, rectum, pancreas, and liver [18]. Injection and intranasal substance use are risk factors for the development of hepatitis C infection (HCV), with the vast majority of new cases occurring in patients with SUD [2]. Among patients with cirrhosis, SUD is associated with higher rates of hospital readmissions and can be a barrier to liver transplantation [19]. Furthermore, individuals with ALD are

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more likely to have complications of portal hypertension at diagnosis, longer and more frequent hospitalizations, and higher healthcare costs compared with other etiologies of cirrhosis [20, 21].

Gastroenterologists and hepatologists can provide and facilitate addiction treatment for patients with digestive diseases who have co-occurring SUD. Although few patients with SUD receive addiction treatment, patients with SUD may seek care for other medical conditions, providing opportunities to intervene [15, 22]. Addressing concurrent SUD can have significant implications for liver health in patients with conditions such as ALD and HCV. For patients with ALD, abstinence, or decreased consumption, is essential to reducing the likelihood of further liver injury and increasing the chances of survival [1, 23]. Furthermore, receipt of addiction treatment among patients with ALD is cost-effective, associated with lower rates of hepatic decompensation and mortality [24, 25]. Among patients with alcohol use disorder who undergo liver transplantation, establishment or continuation of addiction treatment after transplantation in order to support abstinence from alcohol is recommended [26]. For patients with HCV and opioid use disorder, addiction treatment in the form of opioid agonist treatment is associated with lower rates of HCV reinfection [27]. Society guidelines and consensus statements recommend that gastroenterologists and hepatologists caring for patients with conditions such as ALD and HCV with concomitant SUD provide or facilitate addiction treatment [1, 2, 26].

Despite evidence demonstrating the benefits of addiction treatment in this population, patients with ALD seldom receive addiction care [25, 28, 29]. In a retrospective study of patients recently hospitalized with complications of cirrhosis with co-occurring alcohol use disorder, 65% were referred to addiction treatment during their hospitalization, but only 35% reported establishing SUD care at their post-hospitalization hepatology follow-up visit [28]. Similarly, in a large cohort of patients with cirrhosis and alcohol use disorder receiving care at the Veterans Health Administration, only 14% received any addiction treatment within 6 months of their index diagnosis of alcohol use disorder [25]. Barriers to addiction treatment from the patients' perspective include motivation, lack of transportation, financial limitations, perceptions that addiction treatment may not be effective, and a fear of being stigmatized [29, 30]. Furthermore, providers may feel ill-equipped to deliver or facilitate addiction care [7, 31]. Efforts to bridge this implementation gap through addiction medicine training and integrated care can help gastroenterologists and hepatologists deliver and facilitate SUD treatment in the form of behavioral and pharmacotherapies more routinely, directly, and consistently for patients with co-occurring SUD and liver disease,

increasing the likelihood that patients may benefit from these life-saving interventions.

## Models of Integrated Care for Substance Use Disorders and Digestive Diseases

Initiatives have been taken to integrate addiction treatment into various medical settings, including hospitals, primary care, emergency departments, and subspecialty clinics for patients with HIV. Interventions ranging from brief interventions to pharmacotherapy to integrated stepped care protocols with combinations of behavioral and pharmacological treatment within these settings have been described [32–37]. Integrated care for SUD within primary care is associated with reductions in rates of acute inpatient care [38]. The incorporation of addiction medicine consult services in the care of hospitalized patients with SUD is associated with reductions in substance use and addiction severity [39].

Analogous efforts are emerging within hepatology, particularly in the care of patients with ALD and HCV [40]. Measures to implement standardized screening for unhealthy alcohol use with validated instruments such as the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) within hepatology clinics can increase identification of alcohol use disorder and referrals to addiction treatment [41]. Incorporation of addiction specialists and dedicated addiction treatment units within liver transplantation programs are associated with decreased rates of alcohol use among patients with ALD before and after transplantation [42]. Multidisciplinary clinics providing integrated care for patients with ALD by embedding hepatology, psychiatry, psychology, and social work expertise are associated with increased uptake of medications for alcohol use disorder and decreases in acute inpatient care [6]. Models integrating primary care, mental health care, addiction treatment, and management of HCV have demonstrated successful treatment of HCV, reductions in unhealthy alcohol use, and ongoing engagement with opioid agonist treatment in people with SUD [43–45].

## Value of Dual Fellowship Training

Although the majority of hepatologists responding to several national surveys expressed interest in prescribing pharmacotherapeutics for alcohol use disorder for patients with ALD, few feel comfortable doing so and many express a need for additional training [7, 31]. In a survey of gastroenterology and hepatology providers

predominantly practicing in tertiary care liver transplant centers, 71% reported never prescribing pharmacotherapy for alcohol use disorder due to limited training and comfort level, though 90% desired more education on treatment of alcohol use disorder if it had been available during fellowship training [7]. Incorporation of standardized addiction-related education into gastroenterology and hepatology training programs has been proposed; and one such model is funded by the National Institute on Drug Abuse [46, 47]. Medical trainees have historically had limited exposure to addiction treatment skills and have felt unprepared to care for patients with SUD [48]. Steps have been taken over the past decade to integrate addiction training into medical schools and graduate medical education, foster faculty development, and develop Addiction Medicine fellowship training programs [49, 50].

The field of Addiction Medicine is a multidisciplinary specialty initially established in the 1980s that grew out of the need to promote physician training in the management of addiction across disciplines [8]. Whereas fellowships were initially accredited by the American Board of Addiction Medicine with certification examinations administered through the American Society of Addiction Medicine (ASAM), Addiction Medicine was formally recognized by the American Board of Medical Specialties in 2015 with 87 fellowships currently accredited by the Accreditation Council for Graduate Medical Education (ACGME) throughout the USA [8, 51, 52]. Addiction Medicine Fellowships are at least 1 year in length, provide clinical training centered around standard core competencies related to the diagnosis, management, and prevention of the range of SUD, and are delivered in a variety of clinical settings including general medical care, outpatient and inpatient addiction treatment programs, and hospital-based consult services [51]. Many fellowships are affiliated with academic centers and provide trainees with opportunities for research and development of skills in medical education.

The unique scholarly and educational opportunities within many Addiction Medicine fellowship programs provide an ideal foundation for a career in academic medicine by enabling fellows to also build research and teaching skills. Furthermore, completion of an ACGME-accredited fellowship fulfills the clinical requirement needed for board eligibility, with an alternative option being a “practice pathway” involving a non-ACGME accredited fellowship or adequate clinical experience through alternative means [53]. The practice pathway will be available through the year 2025, after which ACGME-accredited fellowship training will be required for physicians seeking board certification [53]. For those interested in integrating addiction treatment into gastroenterology and hepatology care settings, fellowship training and board certification in Addiction Medicine

can provide the depth of knowledge, skills, and clinical experience necessary to build innovative systems of care to address this important implementation gap.

One of us (L.H.) deliberately pursued an Addiction Medicine fellowship prior to seeking additional training in Gastroenterology and Transplant Hepatology in order to better care for patients with co-occurring SUD and digestive diseases by bridging these previously siloed fields. This training pathway proved to be remarkably rewarding, providing a strong foundation to support clinical, scholarly, and educational endeavors at the intersection of SUD and liver disease. The lack of adequate addiction-related education in medical school and residency as well as the clear need for these skills to provide comprehensive care for patients with common liver diseases such as ALD and HCV increased the value of this formal training. Directly providing addiction treatment for patients with a range of SUD while gaining exposure to the breadth of clinical settings in which addiction treatment can effectively occur—from primary care clinics and opioid treatment programs to inpatient services and residential facilities—cultivated an appreciation for the intricacies of addiction care and its lifesaving potential. Furthermore, opportunities to build skills in medical education by delivering didactics and workshops on addiction-related topics for trainees and local clinicians provided a framework for how similar initiatives can be tailored to the needs of gastroenterologists and hepatologists. Finally, the deeper understanding of addiction treatment obtained through dedicated fellowship training and board certification has informed scholarly activity to address the many unanswered questions regarding the optimal models of care with which to provide addiction treatment for patients SUD and liver diseases.

### **Additional Resources for Gaining Addiction Medicine Knowledge and Skills**

Addiction medicine training in the form of didactic and experiential learning is associated with increased knowledge and improved attitudes toward patients with SUD among medical students and trainees [54–56]. There is a growing array of resources available for medical providers who are interested in gaining knowledge and skills in addiction treatment, short of completing a fellowship. Immersion programs for residents, chief residents, fellows, and junior faculty that include longitudinal mentorship from Addiction Medicine specialists provide opportunities to build and disseminate knowledge and skills related to Addiction Medicine within academic settings [47, 57–59]. Multiple web-based resources are available including the ASAM Fundamentals of Addiction Medicine Course, the SUD 101 Core Curriculum through the Providers Clinical Support System supported by the Substance Abuse and Mental Health Services

Administration, the Addiction Treatment: Clinical Skills for Healthcare Providers course offered by addiction medicine experts at Yale University through Coursera, and the Michigan Collaborative Addiction Resources and Education System [60–63]. Finally, the American Society for the Study of Liver Diseases has recently developed a course entitled “Addiction Medicine for Liver Care Providers” including lectures tailored to the needs of patients with liver diseases delivered by national addiction medicine experts for dissemination through their online platform *LiverLearning* [64].

## Conclusion

SUDs are prevalent and can exacerbate various digestive diseases. Although treatment of SUD is associated with improvements in outcomes among patients with co-occurring conditions such as ALD, few patients receive effective addiction care. Integration of addiction treatment into subspecialty gastroenterology and hepatology care settings may increase access to and uptake of SUD treatment in this population. There is rising interest among gastroenterologists and hepatologists in building addiction treatment skills with growing avenues through which additional training can be pursued. Formal fellowship training in Addiction Medicine is a unique and rewarding path toward developing clinical expertise as well as research and educational skills related to addiction treatment, providing a valuable foundation for building care models to fill this important need.

## Key Messages

1. Substance use disorders can lead to the development of several digestive diseases including pancreatitis, hepatitis, cirrhosis, and gastrointestinal malignancies.
2. Treatment of substance use disorders in patients with liver diseases such as alcohol-associated cirrhosis and hepatitis C infection is associated with improvements in liver-related outcomes.
3. Integrating care for substance use disorders into gastroenterology and hepatology subspecialty settings can increase access to addiction treatment and address the unique needs of patients with co-occurring conditions such as alcohol use disorder and alcohol-associated liver disease.
4. Through fellowship training in Addiction Medicine, gastroenterologists and hepatologists can gain robust clinical skills in the diagnosis and management of substance use disorders as well as expertise in related research and medical education.

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## Declarations

**Conflict of interest** The authors declare that they have no conflict of interest.

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