

COVID-19 and Endoscopy

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Abstract: The coronavirus disease 2019 (COVID-19) pandemic has caused significant disruptions in health care. Gastrointestinal (GI) societies have strongly recommended the rescheduling of elective procedures to limit the spread of COVID-19 infection. This has impacted patients, endoscopists, fellows in training, and administrators in different ways. While the world adjusts to this new normal, GI experts and committees are addressing the challenging task of resuming endoscopy to restore care for patients. This article addresses the current challenges and stakeholder priorities involving endoscopy in the midst of the COVID-19 pandemic.

Coronavirus disease 2019 (COVID-19), a viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was declared a pandemic by the World Health Organization on March 11, 2020.¹ Over 29 million cases and 900,000 deaths have been reported worldwide as of the middle of September 2020.² COVID-19 has wreaked havoc on the health care system, forcing procedures to be put on hold while most health care resources have been diverted toward fighting the virus. COVID-19 initially appeared to be primarily respiratory, presenting as fever and cough with a quick decline requiring ventilatory support. With time and better understanding of patterns, gastrointestinal (GI) symptoms (nausea, vomiting, diarrhea, abdominal pain), neurologic symptoms (loss of taste and smell, stroke), and other nonspecific symptomatology have also been noted.³ A recent systematic review reported that COVID-19 resulted in a severe infection (requiring intensive care unit stay and/or mechanical ventilation) in approximately 23% of patients with the virus and in death in 6%.⁴ While the rate of infected men has varied from 43% to 55%, it has been convincingly demonstrated that individuals with comorbidities (diabetes, malignancy, immunosuppressed state) have the worst outcomes.⁴ It has been reported that approximately 19% of adult patients with COVID-19 presented with GI symptoms. The most common included anorexia (26%), diarrhea (14%), nausea (9%), vomiting (6%), and abdominal pain (6%).⁵

Keywords

COVID-19, pandemic, endoscopy, gastroenterology, perspectives

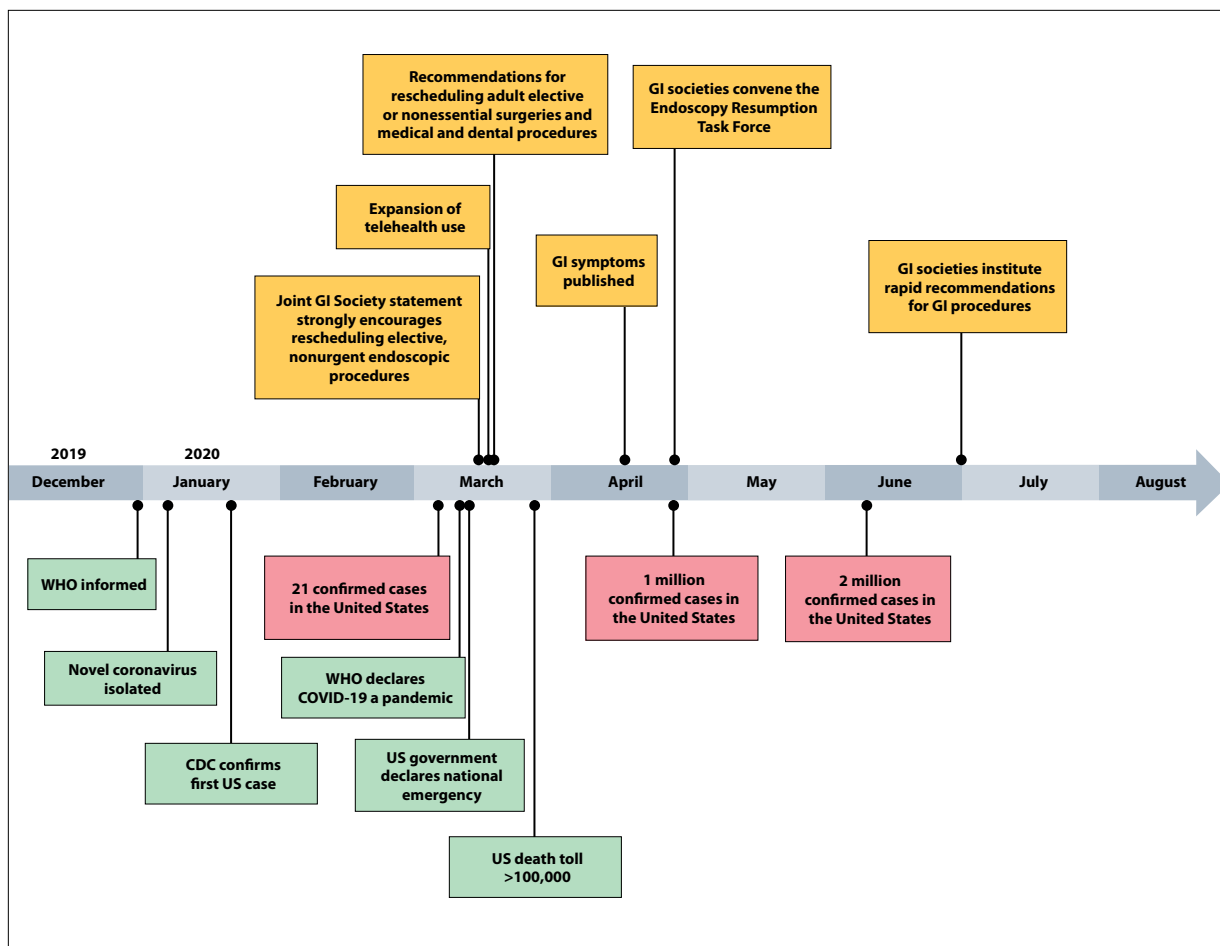


Figure 1. Timeline of events and policies about COVID-19 and endoscopy.

CDC, Centers for Disease Control and Prevention; COVID-19, coronavirus disease 2019; GI, gastrointestinal; WHO, World Health Organization.

As with other aspects of medicine, COVID-19 has had a major impact on the practice of endoscopy, including case volumes, preprocedure testing, risk of transmission, and fellowship education. The aim of this article is to highlight the impact of COVID-19 on endoscopy, particularly in terms of challenges and stakeholder priorities.

Impact on Endoscopy Procedures

While the majority of outpatient clinics were migrating to virtual forms of care delivery such as telemedicine, hospitals and endoscopy centers were advised by joint GI societies⁶ to reschedule routine procedures early in 2020 to limit the spread of COVID-19. In addition to the risk of aerosol generation during upper endoscopy, fecal shedding of the RNA virus has been documented in up to 40% of infected individuals, making lower endoscopy a considerable concern as well.⁷

A recent survey of 252 endoscopy units from 55 countries showed that there was an 83% decline in endoscopy volume, with 14% of units reporting COVID-19 among their personnel.⁸ The need for personal protective equipment (PPE) for this group is paramount. The decrease in endoscopy volume, coupled with the requirement of limited personnel directly and indirectly during procedures, has also had an impact on GI fellows and trainees.

Figure 1 depicts the timeline of the policies reported by the major governing GI societies in context with the reported number of cases and ensuing pandemic. In March 2020, the joint GI societies encouraged rescheduling elective and nonurgent endoscopic procedures. Of the 93 national and international GI societies, 21 have put forth recommendations for endoscopy during the COVID-19 pandemic. A review showed that the majority of societies recommended temporarily postponing

elective and nonurgent procedures (95%), screening for COVID-19 symptoms (86%), and reducing the number of people who accompany patients (38%). All societies recommended the use of PPE during examination and recommended that endoscopy teams must be trained in wearing and removing PPE.⁹

More recently, GI societies¹⁰ and the Centers for Medicare and Medicaid Services¹¹ have convened task forces to strategize the resumption of endoscopy and other nonemergent non-COVID-19 health care activities. Centers located in geographic areas with a low incidence of COVID-19 cases are now starting to gradually ramp up their operations to prepandemic times. The availability of adequate health care workers (including clinicians, nurses, technicians, anesthetists, and pathologists), testing, and supplies, as well as a robust workflow separating COVID-19- and non-COVID-19-related care, are crucial to increase operations.¹¹

Coronavirus Disease 2019 Testing Prior to Endoscopy

The identification of the COVID-19 genome in January 2020 paved the way for the development of molecular tests (polymerase chain reaction [PCR]-based) that are able to rapidly identify the presence of SARS-CoV-2. Samples obtained from upper or lower airways have been recognized as acceptable for this testing. Antibodies have also been detected in patients with known COVID-19, and this serology-based testing is now promoted as evidence of past infection. There are over 250 tests (PCR- and serology-based) that are currently in various stages of approval in the United States and Europe.¹² These tests have demonstrated fairly reliable pooled sensitivity (93%) and pooled specificity (97%) in symptomatic individuals.¹³

With the majority of endoscopy centers trying to resume operations, it may be tempting to use these tests on all patients prior to their procedure. In addition to resource restraints that would prevent this, it is imperative to note that the tests have not been validated in asymptomatic individuals. There is also variation in the prevalence rates of COVID-19 among geographic regions, making the interpretation of these tests less convincing in some areas. Some GI societies have emphasized that they do not recommend blanket testing of all patients prior to endoscopy.^{13,14} An article suggested a strategy to screen (by symptoms and/or test when appropriate), separate (determining patient flow with minimal contact), scope with appropriate PPE, and survey patients for symptoms 7 to 14 days after procedures.¹⁵ Centers have to evaluate the prevalence of COVID-19 in the community and assess their resources before launching such testing programs.

Infection Control With Endoscopy

All of the guidelines so far have unanimously recommended a standardized reprocessing procedure for flexible endoscopes.⁹ Given the airborne transmission and fecal shedding of the virus, this recommendation is logical. However, strikingly, there have been no major changes in the infection control practice recommendations themselves¹⁶ because of the global pandemic, apart from the requirement of social distancing and the use of PPE by personnel involved in disinfection of the endoscopes. A multinational survey of endoscopic centers noted that N95 masks and powered air-purifying respirators were used in 79% and 69% of upper and lower endoscopies, respectively. Eye shields or goggles were used in 84% and 77% of upper and lower endoscopies, respectively.⁸ While the reasons for nonuse can be multifactorial (eg, lack of availability, policy), it is of utmost importance that endoscopy personnel and administrators follow society guidelines and local recommendations to limit the exposure of staff and protect patients.

Stakeholder Priorities

Patients

Patients are the principal component of the health care system, and all activities and decisions should be centered around that tenet. While medical decisions are made by physicians in the best interest of patients, the opinions and concerns of patients are seldom included in discussions. Thus, there is scant literature about patient perspectives regarding the deferral or reopening of endoscopy units and there are limited references in any recommendation document. A single-center study of over 500 patients reported that only 4% of patients were unwilling to undergo an elective endoscopy and 22% were unsure. Despite the willingness of the majority of patients to undergo elective endoscopy, 44% of patients were concerned about COVID-19.¹⁷ This disconnect shows the confusion of patients and the need for better explanation of COVID-19 and the context of the procedure being recommended to patients. However, a study of 6 European countries surveying 3079 patients reported that 27% to 87% of the patients wanted to reschedule their endoscopy appointments and 10% to 57% wanted to cancel them.¹⁸ While appreciating that there are differences in patient perspectives between various countries, it will be important to elucidate the reasons behind these differences. The attitudes and thoughts of patients toward the pandemic, as well as their level of concern surrounding endoscopy and the reason for it, will need to be better understood.

Patients with inflammatory bowel disease are usually on immunosuppressive agents and are a high-risk

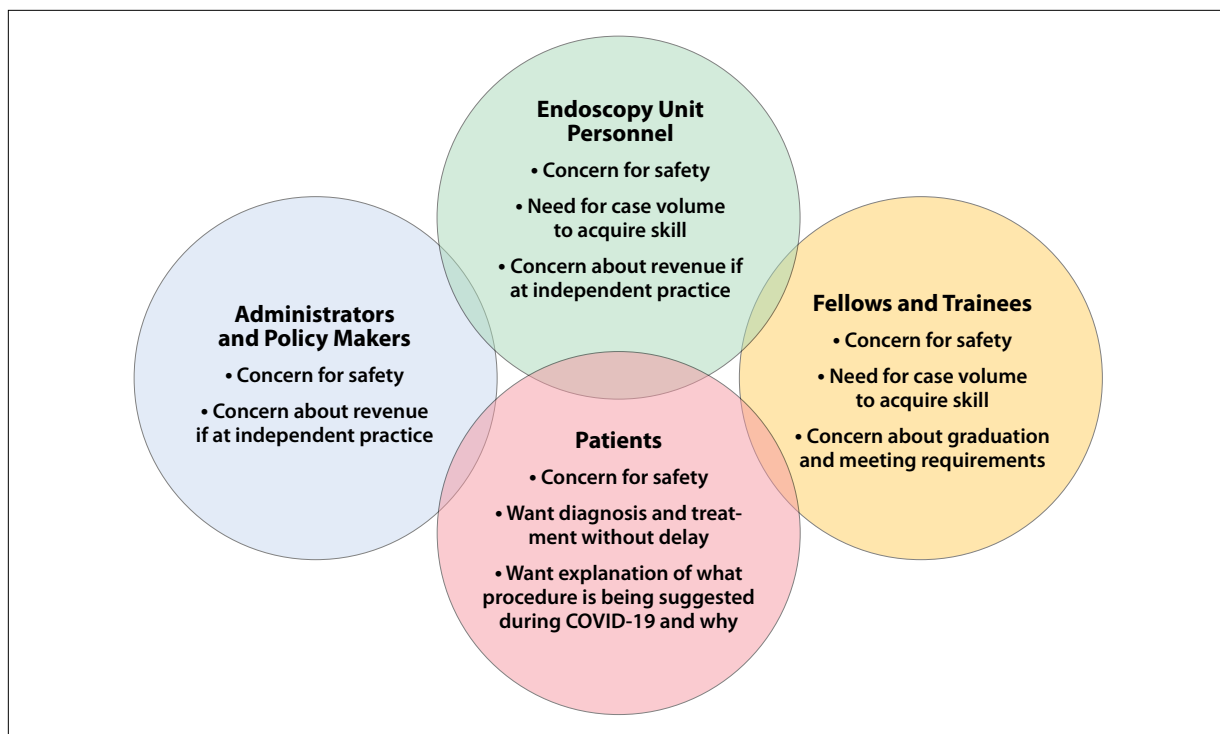


Figure 2. Stakeholder priorities and concerns in COVID-19.

COVID-19, coronavirus disease 2019.

population for severe COVID-19 infection. A study reported that over 50% of patients had their biologic dose delayed by 3 weeks or more because of the pandemic and ensuing lockdown and cancellation of services.¹⁹ A recent article from the United States suggested that there was a drop in the diagnosis of colorectal, gastric, pancreatic, esophageal, breast, and lung cancers by approximately 46% in March to April 2020 compared to January to February 2020.²⁰ While these delays are not deliberate, the health care system should attempt to have a mechanism in place to educate patients and maintain an open line of communication.

Endoscopy Unit Personnel

In general, frontline health care workers (including nurses, nurse aides, front office staff, and doctors) are 3 times as likely to receive a positive COVID-19 test result but continue to work in this high-risk environment for the safety and well-being of patients.²¹ In one of the earlier reports from Wuhan, China, 29% of positive cases were health care workers, thus highlighting the importance of PPE.²² An Italian study looking at 42 endoscopy centers found that there was a very low risk of patient-to–health care provider transmission, but it did note some transmission between health care providers.²³ This emphasizes

the importance of the need for distancing and compliance with existing policies by all care providers. Furthermore, the need for PPE training, the use of PPE with every procedure, and the possibility of exposure to COVID-19 from a patient or coworker are all legitimate concerns of practicing endoscopists.

A survey of 140 endoscopic personnel interestingly showed that endoscopists were more concerned about acquiring COVID-19 than their endoscopic staff (88% vs 59%). These endoscopists felt more comfortable performing a procedure when PPE was available and testing of patients was possible before the procedure.²⁴ As the GI community, backed by GI societies, has started reopening endoscopy centers and scaling up operations, the use of PPE, symptom-based screening, COVID-19 testing when appropriate and available, and postprocedure surveillance will continue to be recommended for some time.

Fellows and Trainees

There has also been an unmistakable impact on the current physicians in training, especially in specialties such as gastroenterology, which includes procedures that require hands-on training. The significantly lower volume of procedures and limited number of personnel in the procedure room make it challenging for fellows to acquire and

achieve required skills and competency. A recent paper suggested that the current first-year trainees would miss up to 25% of the procedures that they would have otherwise performed due to the pandemic.²⁵ A study from the United Kingdom showed that there was uniform reduction of over 90% in supervised and unsupervised trainee procedures across all years. The reasons cited included institutional policy, lack of cases, and redeployment to another area, which caused significant anxiety (50%) and burnout (11%).²⁶ These results were very similar to a worldwide study of 770 trainees from 63 countries that suggested a uniform pattern of concern across the globe in GI trainee education.²⁷

While accreditation boards are cognizant of this concern and have made some intangible relaxations, there have been no concrete plans or pathways to ensure continued adequate training of fellows. Conferences and didactic sessions have migrated to a virtual platform, and although this is convenient, it comes with the challenge of sustainable audience engagement. Simulation-based training has been proposed, and while it offers a good interim solution, its lack of availability at all centers makes it somewhat challenging. Several GI societies have set up virtual programs and grand rounds as avenues for trainees to learn from experts. Similarly, individual training programs need to make provisions and plans to reassure their trainees and instill a sense of confidence during this time.

Administrators and Policy Makers

This pandemic has stress tested policy makers at every level—departmental, institutional, local, state, and federal. Hospital administrators have had to force departments to shut down except for elective procedures, thus driving down their revenue. Additionally, administrators have had to compete to procure and ensure a stockpile of PPE for all of their staff and institute mechanisms and workflows to ensure screening of all individuals who enter hospitals and clinics. Hospitals and endoscopy centers have adopted policies to limit visitors, only allowing patients to be dropped off while the person driving them has to wait outside as the patient waits for and undergoes a procedure. Enforcing these rules is difficult and requires additional manpower and resources. There have been inevitable infrastructural upgrades or modifications to accommodate negative pressure rooms, dedicated corridors for patient and staff movement, and spacing of beds to maintain distancing norms.

Conclusion

The entire world, including health care, has been forced to adapt to the pandemic. For gastroenterologists, a slow, guarded reopening of endoscopy centers and

telemedicine-based outpatient care is becoming the norm. It is extremely important going forward to understand the mindset and concerns of all stakeholders affected by decisions as we continue to adapt to changes in endoscopy (Figure 2). This will provide sustainable, satisfactory results in the long term. Investment in technologies such as telehealth, simulation-based training for trainees, and virtual education will be necessary to maintain the management of GI conditions. Continued use of PPE, distancing measures, sanitization, screening by symptoms, and testing when appropriate will be important at all endoscopy centers. Hippocrates said, “For extreme diseases, extreme methods of cure, as to restriction, are most suitable,” and this is certainly applicable to our current situation.

Disclosures

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