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# Preparation in the Big Apple: New York City, a New Epicenter of the COVID-19 Pandemic

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## INTRODUCTION

COVID-19 is raging through cities all across the globe with exponential daily growth. The United States (USA) is currently the third most affected country after China and Italy. New York City (NYC) has the most confirmed cases accounting for approximately half of all US cases. The initial cases of COVID-19 were reported to the World Health Organization (WHO) by China on December 31, 2019. The first US case was reported only 2 months ago, on January 20, 2020, and the first death occurred just over 5 weeks later. New York State has over 30,000 cases, roughly 6.6 % of the global total. In NYC alone, there are now over 17,800 confirmed cases. COVID-19 was deemed a pandemic by the WHO on March 11, 2020. NYC, which includes 5 boroughs, is the largest city in the United States, with a population of approximately 8.4 million people. The first reported case here of COVID-19 occurred on March 1, 2020, in a woman who had recently returned from Iran. Since the report of this initial case, NYC has become the COVID-19 epicenter within the United States (1) (Figure 1). Expedited reports with battle-tested advice have come out of Italy and China on specific safety measures to consider during endoscopic procedures (2,3). This article summarizes how NYC gastroenterology departments have responded to this pandemic, a scourge that has invaded our hospitals, offices, units, and psyche.

## Academic distancing

COVID-19 is a highly contagious lipid-encased virion that seems to affect both the upper and lower airway; it has a variable incubation period and still little is known about its biology. This pandemic poses an ever-expanding threat to healthcare providers, who are subject to sustained exposure risk, then possible quarantine for those suspected of confirmed infection, and removal from the workforce. This results in substantial strain on the healthcare system, leading to concerns about properly caring for patients and for physician personal health and safety. Just as the general public has been mandated to practice social distancing (with variable success), gastroenterology divisions in NYC have eliminated faculty gatherings, a sort of “academic distancing.” All conferences, including grand rounds, transplant selection, and tumor boards, have gone virtual.

## Communication

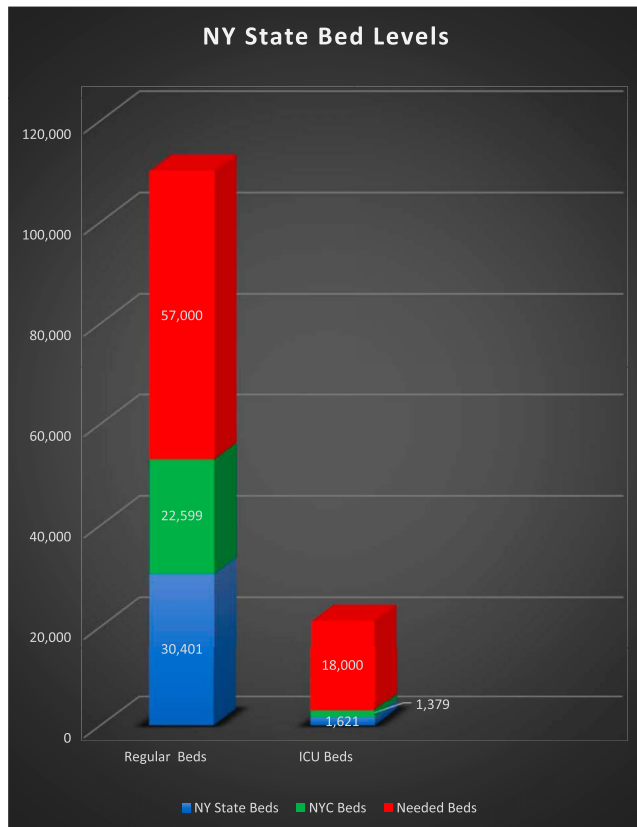
Communication about local, regional, and national responses to COVID-19 is constant yet fluid, and nearly every guideline is subject to change. Widespread awareness of gastrointestinal manifestations (diarrhea and potential fecal-oral transmission) and warnings about potential aerosol-generating procedures such as esophagogastroduodenoscopy (and the importance of risk-stratified personal protective equipment [PPE] (2–4)) would not have been possible without robust communication channels. Whether one-way or interactive, communication occurs at many levels, including the healthcare system, professional society member alerts, e-print journal articles, the individual hospital, the department of medicine, and division leadership. The ability to share information can lead to information overload, so the division of gastroenterology must provide focused information to keep faculty up to date. This can be done by virtual meetings, conference calls, group texts, and/or email updates. Updates should be daily (including weekends) because hospital, society, and government recommendations can change on a daily basis. We as gastroenterologists must be ready to respond and adapt. Perhaps equally important, we must not ignore the emotional and mental toll this pandemic has brought on each of us. In this vein, one medical center has established a system-wide custom of pausing at 8 PM each evening to thank all ‘healthcare heroes.’ Whatever the method, reaching out and connecting with colleagues brings us together and is helpful to navigate a new normal of relative professional isolation.

## Outpatient care and endoscopy operations

A silver lining is the accelerated availability and reimbursement for telemedicine. Telemedicine is now reimbursed by Medicare at the same rates as in-person visits and private insurance carriers are following suit (5). Most NYC hospitals have suspended nonurgent face-to-face office visits to minimize exposure to each other and to minimize the need for front office staffing. Furthermore, patients are instructed to come alone without family or friends in an effort to reduce the number of people present. Those patients requiring a face-to-face visit (such as new cancer diagnosis, severity of symptoms, worrisome symptoms in an older adult or immunocompromised patient, and infusions) are screened by risk assessment questions in

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**Figure 1.** The current and needed regular and ICU beds for New York State. The combined total beds currently in NY State is 53,000, but an additional 57,000 beds are needed. The current ICU bed level is 3,000, but an additional 18,000 beds are needed (ref. [7]). \*Source for needed beds from press conference of Governor Andrew Cuomo on March 23, 2020. ICU, intensive care unit.

advance and again at the building entrance, and forehead temperatures are taken (with  $>100.4$  °F considered abnormal). These processes are also being extended to all staff, including physicians.

In addition to the joint society guidelines to “strongly consider” canceling elective cases, local, state, and federal governments have recommended suspending elective surgical procedures, including cancer care, and this includes endoscopy. This will reduce exposure to both patients and the endoscopy team and preserve PPE. The challenge lies in differentiating elective procedures (initially defined as those that can wait up to 3 months) from urgent endoscopy procedures (Table 1). An adjudication process involving endoscopy leadership can be helpful in decision-making. Consolidation is occurring at the health system level too; one system has 6 endoscopy locations (15 rooms) in Manhattan, and all are now closed except for the main hospital unit (3 rooms). Managing both physician and patient anxiety over procedure postponements is another new subtlety of practice.

### Inpatient care

Despite having so many hospital beds in NY State, based on the current projections, more beds will be needed (Figure 2). Hospitals are now in “lockdown mode,” and in most cases, lobby security, with rare exceptions, prohibits all visitors. One significant logistical challenge is supporting the inpatient gastroenterology services and its subspecialty services including general gastrointestinal, advanced endoscopy, inflammatory bowel disease, and hepatology. The overriding strategy at NYC hospitals is now to modify consultative services to both reduce virus exposure and preserve resources. Teams are rotated to keep as many providers at home for 1 to 2 weeks at a time, including trainees. Hospitals have developed teams of attendings and fellows from such subspecialties with multiple full backup teams in the event of quarantine or illness of the primary team members. Vacations have been eliminated, although working remotely has been encouraged and “mental health days” may be increasingly necessary. The department of medicine is also asking divisions to provide a rotation schedule for fellows recruited for general inpatient COVID care. In addition, divisions are deepening their bench by having providers (both full-time and voluntary) be a part of inpatient service needs, including those who have long stopped participating in such activities. Ideally, physicians are

**Table 1. Differentiating elective and urgent procedures**

Elective (delay)	Semielective (perform)	Urgent (perform)
Screening or surveillance colonoscopy	Severe iron deficiency anemia and suspected GI source (new onset and believed that endoscopy will change management)	Upper and lower GI bleeding
Screening or surveillance EGD in a patient with asymptomatic upper GI disease	Significant weight loss	Dysphagia affecting oral intake
Evaluation of nonurgent symptoms (e.g., EGD for nonalarm symptoms, such as vague abdominal pain, nausea, and GERD, or nonurgent endoscopic procedures)	PEG placement	Cholangitis
EUS for pancreatic cyst or small submucosal lesion.	EUS/staging for malignancy	Symptomatic pancreaticobiliary disease
All motility procedures (esophageal/anorectal manometry, pH studies)	Prosthesis removal (luminal, pancreaticobiliary) where waiting would cause potential harm to patient	Palliation of GI obstruction
	Any significant upper/lower GI symptom that will aid in diagnosis/management of suspected disease that the patient and physician believe cannot wait 3 months to evaluate.	Patients with a time-sensitive diagnosis (evaluation of suspected malignancy).

EGD, esophagogastroduodenoscopy; EUS, endoscopic ultrasound; GERD, gastroesophageal reflux disease; GI, gastrointestinal, PEG, percutaneous endoscopic gastrostomy  
Developed by the New York Society for Gastrointestinal Endoscopy (NYSGE), reprinted with permission.



Figure 2. Timeline of arrival of COVID-19 from China to New York City, NY.

surveyed on their confidence in their current skill sets (ability to manage internal medicine patients independent of a resident, write orders in hospital EMR, etc.) so that deployment assignments are reasonable. Specifically, in New York, on March 22, Governor Andrew Cuomo accepted the Army Corps of Engineers' recommendations for temporary hospital sites, such as the Javits Convention Center in NYC. The city and state are also working aggressively to get additional equipment and supplies, including PPE. The federal government has also authorized the USNS Comfort to deploy to NYC a 1,000-bed floating hospital.

Unfortunately, the number of cases in NYC in just 25 days from March 1, 2020, to March 25, 2020, has gone from one case to over 17,800 cases and counting, with approximately 13% requiring hospitalization. Gastroenterologists all have skills as internists, and hospitals are quickly evaluating staff resources and are establishing redeployment plans for volunteer fellows and attendings in all specialties. In some hospitals, fellows are being credentialed as internal medicine attendings and functioning as hospitalists. One institution has developed a strategy incorporating gastroenterologists using 4 separate waves of reinforcements (Table 2), similar to military strategy. Hospitals on a daily basis continue to convert full hospital floors to COVID-19 beds and CoVICUs. There are differing strategies on PPE allocation and reuse among the NYC hospitals.

### Recommendations: how to prepare for COVID-19

Even before the number of COVID-19 cases begin to increase in your part of the country, you can follow some important steps to better prepare for this pandemic.

1. Encourage your local hospitals and laboratories to immediately obtain the ability for COVID testing. Widespread early testing was not available in NYC and was a missed opportunity to identify patients early and isolate them from others.
2. Assume everyone has the potential to harbor the virus, even when asymptomatic, and take the appropriate safeguards.
3. Conserve PPE. Even if you are in an area with minimal or no COVID-19 patients, learning to conserving PPE now will allow you to perfect this process and maintain your current supplies for the future.
4. Begin a strong public outreach and advocacy plan to encourage everybody to stay home, practice social distancing, and meticulously wash their hands. Having physicians, nurses, and other healthcare providers champion these important steps will help improve credibility and compliance and change the paradigm of how this virus spreads across the country over the few months.
5. Develop the IT infrastructure to support telemedicine.

### CONCLUSION

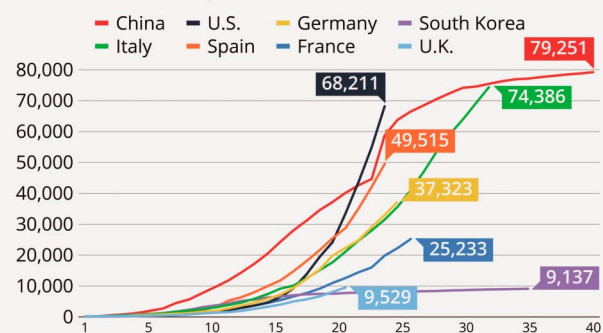
No stranger to catastrophe, over the past 20 years, NYC has weathered calamities such as the 9/11 attack and Hurricane Sandy. Hurricane Sandy incapacitated 3 large hospitals, and remarkably, the city evacuated 2 hospitals during the storm without a single casualty. However, the current COVID-19 pandemic is unprecedented in modern medicine. The rapid global spread and its devastating impact on our population and increased mortality in the elderly have upended our daily lives.

Table 2. Department of medicine redeployment model

Wave 1 ICU	Critical care-trained physicians currently not practicing in ICUs and nonmedical ICU intensivists (pulmonologists trained in critical care, anesthesia trained in critical care, cardiologists who cover the CCU, and surgeons who cover the surgical ICU)
Wave 2 ICU	Young physicians and volunteer senior fellows who receive additional training in ICU procedures and ventilator management. These physicians are board-certified in internal medicine and just a few years out from their ICU experience as residents.
Wave 3 ICU	Hospitalists who received additional ICU training
Wave 4 Medical floors	Internists and subspecialists (gastroenterologists) who will act as medical attendings to backfill the vacant hospitalist positions.
CCU, cardiac care unit; ICU, intensive care unit.	

### Coronavirus: Upward Trajectory or Flattened Curve?

Cumulative confirmed COVID-19 cases in selected countries from day 1 to 40 after 100+ cases



As of March 25, 2020  
Source: Johns Hopkins University



statista

Figure 3. Trajectory of COVID-19 disease by country. Reprinted with permission of Statista, under a Creative Common license.

We are still in the early stages of an unparalleled effort that includes public outreach, local and federal government resources, and a restructuring of hospital operations to care for more critically ill patients while trying to “flatten the curve.” (6) The measures taken by NYC hospitals are suggestions for other respective healthcare systems to consider—there is truly no manual for this crisis. The primary aim of these measures is to reshape the trajectory of the curve to mimic those of countries where infection transmission was relatively contained (Figure 3). All gastroenterologists have a role to play, and it is in conditions like these where strong leadership is essential, and our professional ethos is tested. COVID-19 is our new healthcare reality—accept it and prepare for it. The lights may have been dimmed on Broadway, but never before have they shone as brightly as they do now in the corridors of our hospitals, our clinics, and within our inextinguishable human spirit.

#### CONFLICTS OF INTEREST

**Guarantor of the article:** Seth A. Gross, MD.

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