Participating in the Webinar

Listen using your computer audio. A headset is recommended but not required.

All attendees will be muted and will remain in Listen Only Mode.

Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.

Disclosures:

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NYU Langone Medical Center

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According to ACCME guidance, because there are no current preventive or specific treatments for coronavirus infection, there are no relevant conflicts of interest for any speakers or moderators.
COVID-19: A Growing Pandemic

Presented by:
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For resources and information, please visit gi.org/COVID19

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Special Thanks to:
Professor Zhen Ding MD, PhD
Full Professor in GI, Wuhan Union Hospital

The ACG Board of Trustees was able to have a conference call on Monday March 16 with Professor Ding from Wuhan, China to learn more about the COVID-19 virus.
A Novel Coronavirus from Patients with Pneumonia in China, 2019

December 31  WHO Informed  
January  7   Virus Isolated    
January  10-12 Full Genome Sequenced  
January  11 Named 2019 nCoV  
January  12 Genome Sequence Shared with WHO Databank  
January  13 PCR Protocol Shared with WHO

Zhu N, et al. NEJM Jan 24

What is COVID-19?

• Disease caused by infection with a type of coronavirus called SARS-CoV-2  
  • 7th coronavirus known to cause disease in humans  
  • RNA virus  
• Most common symptoms are fever, cough, and shortness of breath  
  • 80% of cases are mild to moderate in severity  
• Spread by respiratory droplets and contact with infected surfaces  
  • On average, an infected person will spread the infection to 2-3 other people  
• May have fecal-oral spread (RNA is found in stool)
The virus enters the body through the nose, mouth or eyes, then attaches to cells in the airway that produce a protein called ACE2.

Fever in 98-100% of cases
Fatigue
Dry cough
Anorexia
Myalgia
Cough
Diabetes
Expectoration
Pharyngalgia
Diarrhea
Nausea
Dizziness
Headache
Vomiting
Abdominal pain

Fever and fatigue are most common, several patients only have diarrhea and nausea without fever.

JAMA. 2020 Feb
Many patients present initially with diarrhea, anorexia, and vomiting, not necessarily with respiratory symptoms.

Of the 48.5% with digestive symptoms as their chief complaint:
- 83.8% reported anorexia
- 29.3% reported diarrhea

Xiao F, Gastro, Feb 27; Gu J, Gastro Feb 26
Clinical characteristics of COVID-19 patients with digestive symptoms in Hubei, China: a descriptive, cross-sectional, multicenter study
https://journals.lww.com/apg/Documents/COVID_Digestive_Symptoms_AUG_Preproof.pdf

https://coronavirus.jhu.edu/map.html
DOCTORS SOUND ALARM AS NATION STRUGGLES

https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html  8:00pm March 21, 2020
How the Outbreak Could Spread Across U.S. Counties Under Three Social Control Scenarios

**With no restrictions** – that is, public life going on largely as usual – the outbreak could sweep across most of the country by early May.

**With some control measures**, but social distancing unevenly enforced, much of the country, including California, Florida and the Northeast, would face severe outbreaks that peak in the summer.

**With strict nationwide curbs on social contact**, the outbreak could be limited in areas that do not now have large numbers of known cases.

Source: Sen Pei and Jeffrey Shaman, Columbia University (https://static01.nyt.com/images/2020/03/21/nytfrontpage/scan.pdf)
Philadelphia: 16 Days from first case to Social Distancing = 5 times the deaths per 100,000

St. Louis: 2 Days from first case to Social Distancing = 1/5 the deaths per 100,000

COVID-19 outbreak in the world

Source: Professor Zhen Ding Division of Gastroenterology, Wuhan Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China
New case of COVID-19 in China each day

New case of COVID-19 in China each day – there were 15,152 cases diagnosed on a single day. Currently the number of new cases per day is closer to 10.

Source: Professor Zhen Ding Division of Gastroenterology, Wuhan Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Transmission route</th>
<th>$R_0$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles</td>
<td>Airborne</td>
<td>12-18</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>saliva</td>
<td>6-7</td>
</tr>
<tr>
<td>Smallpox</td>
<td>Airborne droplets</td>
<td>5-7</td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>Fecal-oral</td>
<td>5-7</td>
</tr>
<tr>
<td>Rubella</td>
<td>Airborne droplets</td>
<td>5-7</td>
</tr>
<tr>
<td>Mumps</td>
<td>Airborne droplets</td>
<td>4-7</td>
</tr>
<tr>
<td>Pertussis</td>
<td>Airborne droplets</td>
<td>5.5</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>Sexual contact</td>
<td>2-5</td>
</tr>
<tr>
<td>SARS</td>
<td>Airborne droplets</td>
<td>2-5</td>
</tr>
<tr>
<td>Influenza (1918)</td>
<td>Airborne droplets</td>
<td>2-3</td>
</tr>
<tr>
<td>Ebola virus (2014)</td>
<td>body fluid</td>
<td>1.5-2.5</td>
</tr>
</tbody>
</table>

$R_0$ is a mathematical term that indicates how contagious an infectious disease is. It's also referred to as the reproduction number. As an infection spreads to new people, it reproduces itself.
Here we provide an initial assessment of the transmission dynamics and epidemiologic characteristics of COVID-19. Although the majority of the earliest cases were linked to the Human Seaweed Wholesale Market and the patients could have been infected through zoonotic or environmental exposures, it is now clear that human-to-human transmission has been occurring and that the epidemic has been gradually growing in recent weeks. Our findings provide important parameters for further analyses, including evaluations of the impact of control measures and predictions of the future spread of infection.

We estimated $R_0$, of approximately 2.2, meaning that on average each person has been spreading infection to 2.2 other people. In general, an epidemic will increase as long as $R_0$ is

**Doubling time: 7.4 d**

$R_0 = 2.2$

---

**Mortality/Severity**

Clinical Characteristics of Coronavirus Disease 2019 in China


All Patients (N=1099)

<table>
<thead>
<tr>
<th>Disease Severity</th>
<th>Nonsevere (N=926)</th>
<th>Severe (N=173)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
<td>16%</td>
<td></td>
</tr>
</tbody>
</table>

NEJM. 2020 Feb

Source: Professor Zhen Ding Division of Gastroenterology, Wuhan Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China

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COVID-19

#Coronavirus Data Pack

The Majority of Infections are Mild

- **80.9%**: MILD
- **13.8%**: SEVERE
- **4.7%**: CRITICAL

Sources: CDC, WHO, Johns Hopkins University, and other reputable medical organizations.
Incubation Period

In general the incubation period is 1-14 days with an average of ~5 days.

Infectiousness: ~ 12 hours prior to symptom onset to 5-6 day after
- Symptomatic individuals 50% more infectious than asymptomatic

Two-thirds of infected individuals are symptomatic (many mild)

Long incubation period without any obvious symptom

Ferguson NM, et al. March 16; Imperial College COVID-19 Response Team
https://doi.org/10.25561/77482

Examples of Virologic Examination

Nucleic Acid Detection  Antibody Detection

Source: Professor Zhen Ding Division of Gastroenterology, Wuhan Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China
Table 2 Detection sensitivity and specificity of the assay

<table>
<thead>
<tr>
<th></th>
<th>NCP+</th>
<th>Non-NCP+</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>+PV</th>
<th>-PV</th>
<th>Coincidence rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nucleic acid</td>
<td>58+</td>
<td>29-</td>
<td>Yes</td>
<td>No</td>
<td>86.67%</td>
<td>87.50%</td>
<td>95.08%</td>
</tr>
<tr>
<td>Serum IgG/IgM</td>
<td>72+</td>
<td>15-</td>
<td>Yes</td>
<td>No</td>
<td>83.76%</td>
<td>83.33%</td>
<td>94.74%</td>
</tr>
<tr>
<td>Nucleic acid+</td>
<td>76+</td>
<td>11-</td>
<td>Yes</td>
<td>No</td>
<td>83.36%</td>
<td>83.33%</td>
<td>95.00%</td>
</tr>
</tbody>
</table>

Detection sensitivity and specificity of the assay

- Nucleic acid testing is only 66.67% sensitive to detecting the COVID-19 virus.
- Serum IgG/IgM testing is 82.76% sensitive. A positive result can confirm the diagnosis negative result cannot exclude the diagnosis

Submitted data Source: Professor Zhen Ding Division of Gastroenterology, Wuhan Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China

Routine Blood Test

Traditional results of routine blood test: WBC count ↑ lymphocyte count ↓

※ Degree of their variation relates to the severity of disease

Source: Professor Zhen Ding Division of Gastroenterology, Wuhan Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China

JAMA. 2020 Feb
One NYC hospital inpatients with positive PCR

- Monday 7
- Tuesday 15
- Wednesday 43
- Saturday 80 (22 ICU)
Cyclic nature of influenza and coronavirus in the Northern Hemisphere

JCM, August 2010

Non-pharmaceutical Interventions (NPI)

- Community mitigation strategies
- Social distancing
  - “Is it essential?”
- Cover coughs and sneezes with tissue or arm
- Wash hands frequently
- Avoid touching face
- Don’t go to work if you are sick

- Source control – surgical mask promptly onto patient with respiratory symptoms
- PPE
Medical Countermeasures

• Diagnostics
  • Increased availability of testing
  • Developing real-time blood tests
  • Sensitivity and specificity

• Therapeutics
  • Antiviral
  • Hydroxychloroquine
  • Chloroquine +/- azithromycin
  • Antibiotics
  • Immunosuppressants?

• Vaccines
• Predictive biomarkers

Who is at risk?

• Older adults
  • Age 70-79 years: 8% case fatality in China
  • Age ≥ 80 years: 14.8% case fatality in China

• Younger adults
  • Age 20-44 years: highest rate of hospitalization second only to 65-74 years in the U.S.
  • 18-49 year are 54% of the cases in New York (Gov Cuomo 3/21)

• People with underlying medical conditions or compromised immune systems
  • Cardiovascular disease, diabetes, chronic lung disease, high blood pressure, malignancies, decompensated cirrhosis, HIV with low CD4 counts, and immunosuppression, (including liver and other solid organ transplant recipients).
  • Pregnancy may be a risk

Source: Professor Ding, Division of Gastroenterology, Wuhan Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, China
https://ps.org/2020/03/15/joint-gi-society-message-on-covid-19/
New CDC report on US COVID-19 cases affirms seriousness for the young

BY RICH HARRY
MARCH 19, 2020

COVID Considerations for Patients with IBD

- If patient is well continue therapy
- Well controlled IBD on an immunosuppressant not a reason to isolate if asymptomatic
- If patient on steroids do what you can to taper or reduce dosing
- If patient flaring then work up as usual for cause and if COVID negative OK to start a biologic
- Would avoid tofacitinib for now
- [covidibd.org](https://covidibd.org) to register cases
On March 15th, the four U.S. Based Gastroenterology Societies published a joint statement with recommendations for Community Gastroenterologists and Gastroenterology Care Providers.

The full document and other resources can be found at [gi.org/COVID19](http://gi.org/COVID19).

### Joint GI Society Recommendations for GI Endoscopy & Clinic Practices:

1. Strongly consider rescheduling elective non-urgent endoscopic procedures
2. Pre-screen all patients
3. Make sure appropriate personal protective equipment (PPE) is available and worn by all members of the endoscopy team
4. Know how to put on and take off PPE appropriately
5. Check body temperature of the patient upon arrival at endoscopy unit or clinic.
6. Keep all patients at an appropriate distance from each other
7. Conservation of PPE is critical
8. COVID-19 positive patients, or those awaiting test results, isolation precautions should be taken with procedures performed in negative pressure rooms.
9. Consider phone follow-up
10. Strategically assign available personnel
11. Consider offering elective office visits remotely
12. Address our collective staff needs and institute policies
13. Patients on immunosuppressive drugs for IBD and autoimmune hepatitis should continue taking their medications

Recommendation #1 - Strongly consider rescheduling elective non-urgent endoscopic procedures

NYSGE recommends delaying elective procedures until the COVID-19 outbreak is considered over, using the following priority classification:

**Elective Procedures that May be Delayed**

1. Screening and surveillance colonoscopy in asymptomatic patients
2. Screening and surveillance for upper GI diseases in asymptomatic patients
3. Evaluation of non-urgent symptoms or disease states where procedure results will not imminently (within 4-6 weeks) change clinical management (e.g., EGD for non-alarm symptoms, EUS for intermediate risk pancreatic cysts)
4. Motility procedures - esophageal manometry, ambulatory pH testing, wireless motility capsule testing and anorectal manometry

**Urgent/Emergent Procedures that May Not be Delayed**

1. Upper and lower GI bleeding
2. Suspected GI bleeding
3. Dysphagia significantly impacting oral intake
4. Cholangitis or impeding cholangitis
5. Symptomatic pancreatobiliary disease
6. Palliation of GI obstruction (UGI, LGI and pancreatobiliary)
7. Patients with a time-sensitive diagnosis (evaluation/surveillance/treatment of premalignant or malignant conditions, staging malignancy prior to chemotherapy or surgery)
8. Cases where endoscopic procedure will urgently change management
9. Exceptional cases will require evaluation and approval by local leadership on a case by case basis
PPE

- Endoscopy is an aerosol generating procedure, and respiratory protection necessary
- PPE (gown, gloves, face mask/shield or goggles) for all procedures following WHO and CDC guidelines
- Proper sequence and protocol for donning and doffing PPE
- Algorithm for COVID 19 positive and suspected patients vs. low suspicion
- Given significant potential for asymptomatic persons to shed and transmit virus, continued questions about all patients currently having EGD or all GI procedures considered high risk

1. Soetikno, GIE March 19, 2020

PPE Masks

- All health care worked should be fitted for N95 respirator
- Powered air purifying respirator (PAPR) is an alternative (no fit testing, can be used with facial hair, not widely available)
- Data inconsistent—some evidence protection may be achievable without N95 respirator through use of medical masks

1. Soetikno, GIE March 19, 2020
Early infection in Wuhan China: 29% of patients were healthcare workers (40/138)

Viable virus particles detected up to 3 hours after aerosolization

Viable virus particles detected up to 3 days on surfaces

Suggested Algorithm for PPE

CDC Guidance on Putting on & Removing Personal Protective Equipment

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. **GOWN**
   - Fully cover lower body from neck to toes, allow 12 inches of overlap, and snap in back at bottom.
   - Fasten back at waist.

2. **MASK OR RESPIRATOR**
   - Secure lower strap below your nose and hang over your ears.
   - Fit the mask or respirator, adjust as necessary.
   - Remove and tie (not snap) the headband.

3. **GOGGLES OR FACE SHIELD**
   - Place over face and adjust as necessary.

4. **GLOVES**
   - Extend to cover wrist of jacket or shirt.

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Change gloves between patients
- Geographic areas with high number of cases
- Tobacco use
- Perform hand hygiene between steps

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE)

**EXAMPLE 1**

1. **GLOVES**
   - Grasp glove with dominant hand, pull up and away from the body, and remove inside out.
   - Discard gloves in sharps container.
   - Use a trash bag to remove contaminants.
   - Wash hands with soap and water or alcohol-based hand sanitizer after removing PPE.

2. **GOGGLES OR FACE SHIELD**
   - Use the tab to remove goggle or face shield from the face, then remove bottom strap.
   - Discard in sharps container.
   - Wash hands with soap and water or alcohol-based hand sanitizer after removing PPE.

3. **GOWN**
   - Slip the gown up over head, head snap is forward.
   - Remove gown from back to front.
   - Discard gown in sharps container.
   - Wash hands with soap and water or alcohol-based hand sanitizer after removing PPE.

**EXAMPLE 2**

1. **GOWN AND GLOVES**
   - Slip the gown up over head, head snap is forward.
   - Remove gown from back to front.
   - Discard gloves and gown in sharps container.
   - Wash hands with soap and water or alcohol-based hand sanitizer after removing PPE.

2. **GOGGLES OR FACE SHIELD**
   - Use the tab to remove goggle or face shield from the face, then remove bottom strap.
   - Discard in sharps container.
   - Wash hands with soap and water or alcohol-based hand sanitizer after removing PPE.

3. **MASK OR RESPIRATOR**
   - Remove the mask or respirator by pulling down the front, then remove top strap.
   - Discard in sharps container.
   - Wash hands with soap and water or alcohol-based hand sanitizer after removing PPE.

4. **WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE**

What is Happening Now?

- Widespread testing becoming more available
- Hospitals converting units for COVID patients
- Elective procedures canceled
- Elective surgeries canceled
- A tsunami has arrived

https://www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf
What is Happening Now?

• Sharply limited GI specific care
• Consolidation of remaining endoscopy
• Medical personnel, including gastroenterologists, are being reassigned to care for patients in the hospitals and telehealth
• Those with recent ICU experience or critical care experience (young faculty, senior fellows) are being additionally trained for ICU care
• Redeploying hospitalists to ICU care and backfilling their positions with those trained in internal medicine
• Trainees are contributing voluntarily as trained internists on the floors

If it has not reached you yet:

• Encourage your hospital to scale up COVID-19 testing now
• Conserve PPE
• Encourage everyone to stay home
• Wash their hands
• This is REAL!
• Everyone is counting on us!

#HealthCareHeroes
Other COVID-19 Tips:

• Uniform communication messaging wherever possible

• Limiting access to hospitals—No or very limited visitor policies

• Self-monitoring for symptoms—keeping those sick away from work

• Recognizing stress/anxiety for patients, staff, and MDs
  • Exacerbation of underlying anxiety and mental illness—all ramped up by severe limitations on “usual” activities
  • Uncertainty how long this will last

TAKE ACTION NOW!

Urge Congress to act now to protect our health care community during the COVID-19 pandemic

The coronavirus is impacting the entire health care community, including specialty physicians and researchers like us. There has been an outcry for more congressional support to protect health care professionals on the frontlines managing this deadly outbreak.

• Increasing funding for and access to personal protective equipment (PPE)
• Easing prior authorization and Medicare reporting requirements
• Providing financial safeguards for health care professionals and practices
• Providing coverage for telehealth and phone calls

We are in this together and we will get through it together!