Dear Colleague

COVID-19 Updates

New York City Department of Health and Mental Hygiene
Updated guidance and scientific literature on COVID-19

Week of May 17-23, 2020

An illustration shows the influenza epidemic of 1918, the “Spanish Flu,” in the form of a devil rising from pools of saliva on the ground and reaching out to attack a well-dressed man. Courtesy of the Special Collections Research Center, Temple University Libraries, Philadelphia, PA.

If you are a certified health care worker, or a local provider in need of additional staff, learn how you can apply for or receive surge staffing during the COVID-19 outbreak.

Looking to make a donation of personal protective equipment (PPE)?

Now you can do so online.
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Updated Guidance and Data


Recent NYC Guidance

- **Health Alert #14:** Updated NYC Health Department COVID-19 Recommendations (May 14)
- **Health Alert #13:** Pediatric Multi-System Inflammatory Syndrome Potentially Associated with COVID-19 (May 4)
- **Health Alert #12:** New York City Public Health Laboratory Now Accepting Nasal Swabs and Saliva Specimens for COVID-19 Testing (April 27)
- **Health Alert #11:** Current Status of SARS-CoV-2 Serologic Testing (April 22)

Recent COVID-19 Treatment Guidance

- [National Institutes of Health COVID-19 Treatment Guidelines](https://www.nih.gov/site/covid-19) (April 21)
- [Infectious Diseases Society of America Guidelines on the Treatment and Management of Patients with COVID-19](https://www.idsociety.org/site/covid-19) (April 11)

Sign up to receive [NYC health alerts](https://www.nyc.gov/site/doh/covid-19.page) and join the [City Health Information network](https://www.nyc.gov/site/doh/covid-19.page) to receive this newsletter regularly by email.

Emerging Medical Issue

**Silent Hypoxemia**

Over a nine-day period in January during the early stages of the COVID-19 epidemic in Wuhan, China, 168 patients died from complications of COVID-19 pneumonia in 21 hospitals. Investigators reported that all were on oxygen therapy when they died. Of interest, 27% received oxygen only by nasal cannula or face mask before they died and 43% were treated with non-invasive ventilation. Only 20% of patients were intubated and mechanically ventilated during their hospital course. The authors did not know whether the hospitals were experiencing ventilator shortages during that time period or if non-intensivists might have been caring for the patients and did not recognize when the patients needed to be intubated. However, the authors suggested another possible explanation is that early in the pandemic, providers did not recognize that patients with COVID-19 pneumonia could have severe hypoxemia without expected respiratory symptoms such as shortness of breath or dyspnea. This condition has been called “silent hypoxemia.”

Similar scenes have been reported from NYC emergency rooms. In a recent *New York Times* column, a highly experienced emergency room physician volunteering at Bellevue Hospital Center described patients with other serious ailments being diagnosed incidentally with unknown COVID-19 pneumonia and others with severe hypoxemia who were talking on cell phones and appeared unbothered. He called COVID-19 pneumonia “insidious” because of the gradual onset of hypoxemia without it eliciting dyspnea or shortness of breath, so that by the time many arrived to the emergency room with limited respiratory complaints, their lung injuries were already severe and respiratory failure often was sudden. It is possible that some of the many New Yorkers who have died at home with probable COVID-19 also may have had silent hypoxemia and did not consider seeking medical attention before suddenly experiencing respiratory distress.
Scientific Literature

The summaries below include a review of thrombosis in patients hospitalized with COVID-19; reports about neurologic manifestations of COVID-19; early descriptions of COVID-19 epidemiology in the United States and NYC; outbreak investigations in homeless shelters and skilled nursing facilities; and evidence that asymptomatic hospital patients and facility residents may contribute to transmission.

**Review: Thrombosis and COVID-19**

Elevated d-dimers are common in persons with severe infection and may predict mortality according to the current guidance on management of COVID-19-associated coagulopathy (Barrett 2020). D-dimer, prothrombin time, platelets and fibrinogen should be monitored in all hospitalized COVID-19 patients. The limited data (mostly observational case series) on risk of thrombotic events show that COVID-19 patients who died have a higher prevalence of elevated coagulation markers (Tang 2020a), and patients with d-dimer > 1 μg/mL were significantly more likely to die (odds ratio, 18.4; 95% CI, 2.6-128.6) in the hospital than those with normal concentrations (Zhou 2020).

Most experts also recommend pharmacologic venous thromboembolism prophylaxis with low-molecular weight heparin in hospitalized patients with COVID-19. Small observational studies have reported a lower prevalence of thrombotic events in patients who received prophylactic anticoagulation (Klok 2020; Llitjos 2020). Tang and colleagues (Tang 2020b) found 28-day mortality was lower with heparin use among a subgroup of patients with SIC score ≥ 4 (40.0% vs. 64.2%, P = 0.029), or D-dimer > 6-fold of the upper limit of normal (32.8% vs. 52.4%, P = 0.017). The SIC score system includes prothrombin time, platelet count and sequential organ failure assessment. However, they found no difference in overall 28-day mortality between those treated with heparin and those who did not receive heparin.

Although these studies suggest that some patients with COVID-19 may benefit from anticoagulation, further systematic research is needed to evaluate this association.
Other Publications on COVID-19


Analyzing data from the 2017 Behavioral Risk Factor Surveillance System, the authors estimated that 45% of U.S. adults are at increased risk for complications from COVID-19 due to preexisting cardiovascular disease, diabetes, respiratory disease, hypertension, and cancer.


All residents of a skilled nursing facility were tested for SARS-CoV-2 23 days after a single resident was diagnosed with COVID-19. Of the 63% of residents who tested positive, 56% were asymptomatic. Infection prevention and control strategies in this facility that focused solely on symptomatic residents were not sufficient to control the outbreak.


Two NYC hospitals adopted universal SARS-CoV-2 screening of patients on admission to labor and delivery units. Among patients who tested positive with a molecular-based diagnostic test, 33% were asymptomatic and 71% of these asymptomatic patients subsequently developed symptomatic COVID-19. Universal hospital screening of women admitted to labor and delivery units can protect health care workers, patients and their families from nosocomial SARS-CoV-2 exposure.


A retrospective study of patients with COVID-19 admitted to two NYC hospitals found that one-third ultimately required mechanical ventilation. The majority of those who required mechanical ventilation were male and obese; many required vasopressor support and renal replacement therapy; and one-third had not required supplemental oxygen on admission.

Among 214 patients at three hospitals, 36% (n=78) experienced neurologic symptoms, including central nervous system manifestations such as dizziness or headache (n=53); and peripheral nervous system manifestations such as anosmia or ageusia (n=19). Skeletal muscular injury, reflected by elevated creatine kinase levels, also was observed (n=23). Patients with more severe COVID-19 had a higher prevalence of neurologic manifestations and often without fever or respiratory symptoms. Neurologic symptoms presented early in the illness — often one or two days before admission — and may be early indicators of severe COVID-19.


One long-term care facility (LTCF) in Washington confirmed 167 cases of COVID-19 among residents, personnel and visitors from February 8, to March 18. In response, the state’s governor mandated screening of all residents of LTCFs and strict restrictions on visitors. This outbreak demonstrated that once it is introduced into a LTCF, COVID-19 can spread rapidly and be extremely difficult to control. Proactive steps are needed by LTCFs to prevent introductions of COVID-19 and nosocomial transmission.


Residents and staff at 19 homeless shelters in Seattle, Boston, Atlanta and San Francisco were tested for SARS-CoV-2. When testing followed identification of an outbreak, positive cases among residents ranged from 17% to 66%. To protect shelter residents and staff, the Centers for Disease Control and Prevention recommends several infection prevention strategies and suggests that homeless shelters might consider instituting periodic testing of residents and staff.


Of 16,201 patients screened for SARS-CoV-2 in a regional integrated health care system in California, 8% tested positive. Of these patients, 29% were admitted (of whom 16% died) and 9% were treated in intensive care (of whom 50% died).

Hypertension, obesity and diabetes were the most prevalent comorbidities among 5,700 COVID-19 patients in a single health care network. Among the 12% of patients who required mechanical ventilation, 88% died, including 92% of ventilated patients older than age 65 years. The absence of data available to the authors on clinical outcomes of patients who remained hospitalized at the final study date may have biased the findings, including the high mortality rate of patients older than age 65 years who received mechanical ventilation.


Repeat testing and enhanced surveillance during outbreaks at three Seattle homeless shelters detected COVID-19 cases among 35 residents and five staff members. The authors describe strategies to address the complex challenge of preventing transmission in shelters.


Neurologic symptoms of COVID-19 vary from those of SARS-CoV and MERS-CoV despite these viruses’ genetic similarity. Symptoms of COVID-19 include headache, epilepsy, consciousness disorder, paresthesia, anosmia, and dysgeusia, and they may result from viral encephalitis, infectious toxic encephalopathy, and acute cerebrovascular disease. Detection of viral genetic material in tissue samples suggest that the virus that causes COVID-19 may enter the nervous system through peripheral circulation or the infection of nerve endings (e.g., olfactory neurons).

*See also COVID-19 research compiled by Johns Hopkins University and the World Health Organization.*