UPMC LIFE CHANGING MEDICINE

UPMC Prehospital Care Medical Memo

Nov 10, 2020
For Distribution

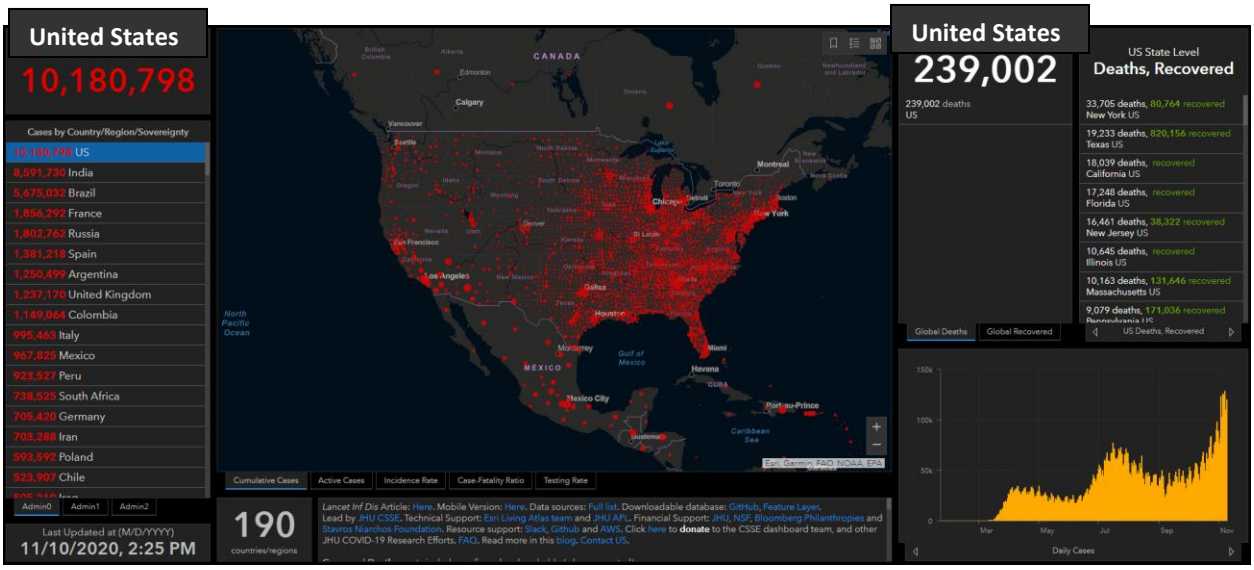
COVID-19 Update for EMS Personnel

Current Incidence of COVID-19 Cases

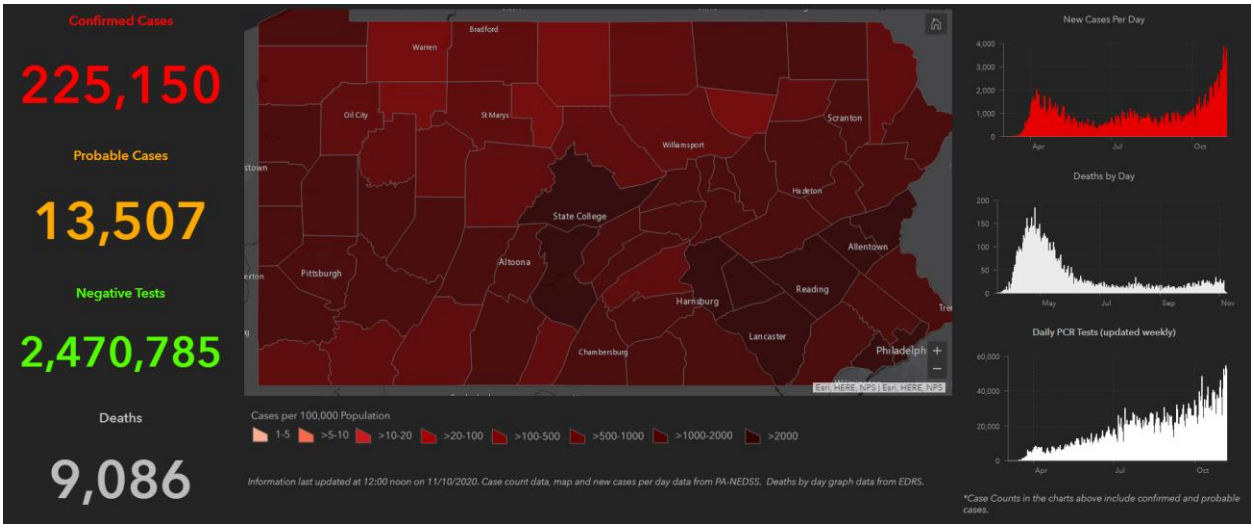
At the end of October and early November we have seen an increase in daily cases of COVID-19 reported. This is an increase not only of asymptomatic or mildly symptomatic cases, but also an increase in patients requiring hospitalization. Number of cases hospitalized in the UPMC system is at an all-time high, but we maintain the capability to treat additional patients and specifically have adequate resources of ICU beds and ventilators to treat the most severe cases.

Data from the Johns Hopkins University COVID-19 Dashboard as of November 10, 2020:

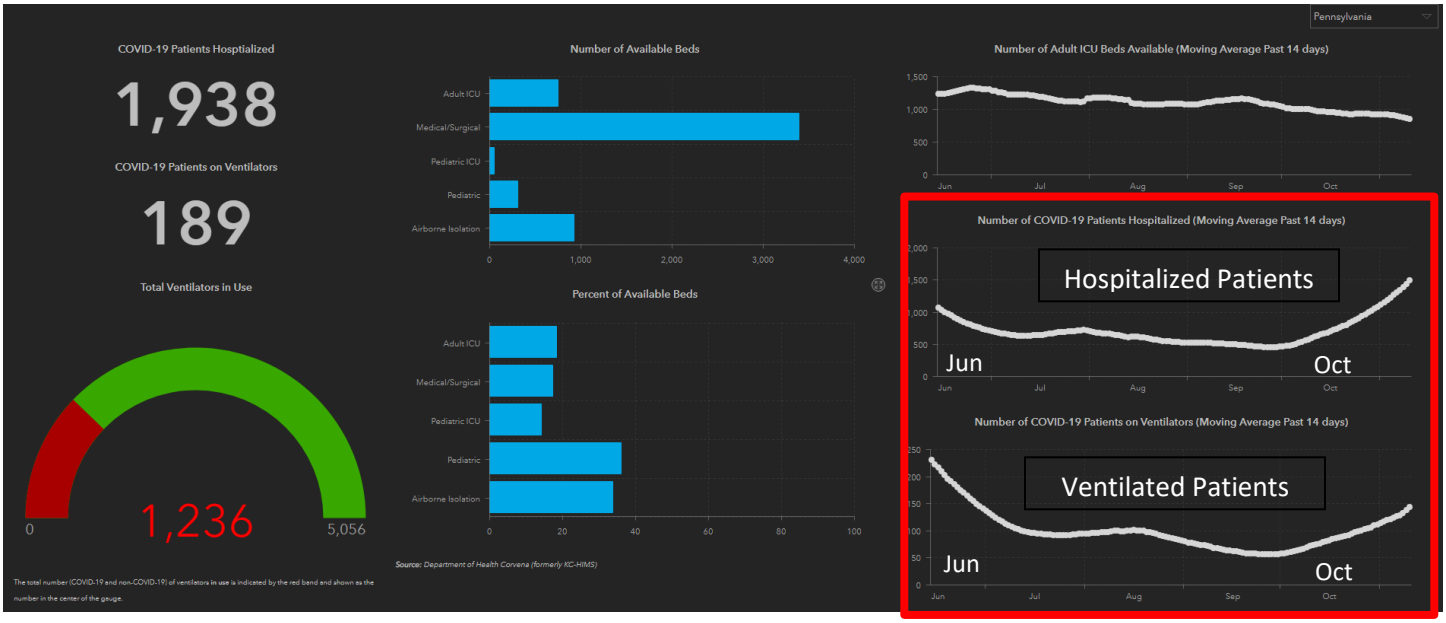
United States – Cases have increased above 120,000 per day



Pennsylvania – Cases have increased to over 4,000 in a single day

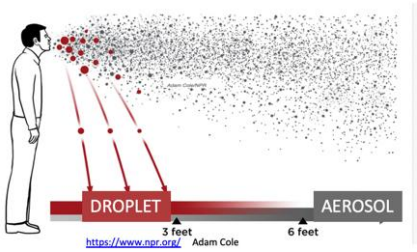


In Pennsylvania, we maintain hospital capabilities, but are seeing an increasing number of hospitalized and mechanically ventilated patients.



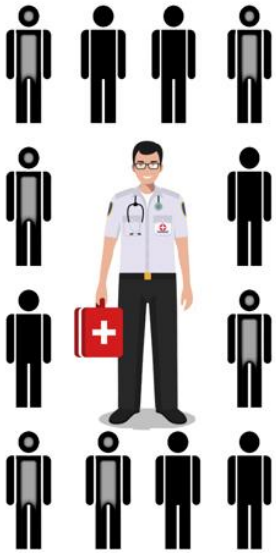
How is the virus spread?

We know the virus is most commonly spread from person to person via the air. When an infected person coughs, sneezes, talks, or sings, the virus flies out into the air. Scientists originally thought the virus traveled exclusively in droplets that travel about 6 feet. We know now that the virus can also be spread by the airborne route. This means that the virus can travel more than 6 feet and remain in the air for some period of time. In a closed area where someone is talking loudly or yelling (e.g., duty room in a station), six-foot distancing without a mask is inadequate protection.



Should prehospital care providers be concerned about the rise in community COVID-19?

Yes, for several reasons. First, your risk of contracting COVID-19 either in the community or at work is now markedly increased. You now have more opportunities to come in contact with a COVID-19 positive person. Second, hospitals in some regions of the country have exceeded their ICU bed capacity. In this area, hospitals currently have capacity and equipment and are closely watching the surge from this third wave. Finally, increased provider exposures will result in quarantines and infections requiring isolations. This loss of personnel has the potential to cause significant personnel shortages and service cuts. We saw this regionally during the first wave of COVID-19.



Can people without symptoms transmit COVID-19?

People with COVID-19 can shed virus 2 days before they develop symptoms. These pre-symptomatic and asymptomatic patients may account for >50% of virus transmissions. Patients with COVID-19 are most infectious during the first week of their illness.

Prevention of COVID-19

What is now considered an exposure?

The current definition of an exposure to COVID-19 per the CDC is being in proximity (<6 feet) for 15 minutes over the course of 24 hours. For example, 5 minutes at lunch, 7 min in an ambulance, and 5 min in a supply room without masks (17 min total) would be an exposure if the other person develops symptoms within 48 hours and test positive for COVID-19. An exposure may also occur with a more limited contact if there is direct face-to-face contact, active coughing, or performance of an aerosol-generating procedure without adequate PPE.

What does wearing a mask mean to you?

Consider this: **Who were you around in the past 48 hours for more than 15 min in a day? If any of those individuals develop symptoms now and are diagnosed with COVID-19, would you now be on a 14-day quarantine?**
If you were both wearing masks* → No
If either was not wearing masks → Yes

Beyond a mortality rate or risk of serious illness, <u>your ability to work/gain income, maintain the station staffed, and protect your family</u> is dependent on whether you wear a mask around other people who may get COVID-19 at any time, including at the station.

The single best method for preventing exposures and COVID-19 is dual masking (you and anyone around you). This has been proven by multiple studies despite confusing lay media coverage. Other keys to prevention are **social distancing, hand washing, and disinfection of surfaces**. Note that while social distancing (>6 feet) can be effective in open (outdoor) settings, it has limited benefit in an enclosed space where respiratory droplets may linger in the air. Therefore, being in a closed room with someone who is 6 feet away is not likely substantially preventative if not wearing masks and larger distances or ventilation should be used in these settings whenever possible.

Pre-shift Assessment

Another important prevention method is assessing yourself for any symptoms that would suggest COVID-19 before you start a shift. Tell your manager immediately if you experience:

1. *Fever or feeling feverish*
2. *New onset cough or shortness of breath*
3. *Recent contact with a known COVID+ individual without proper PPE*

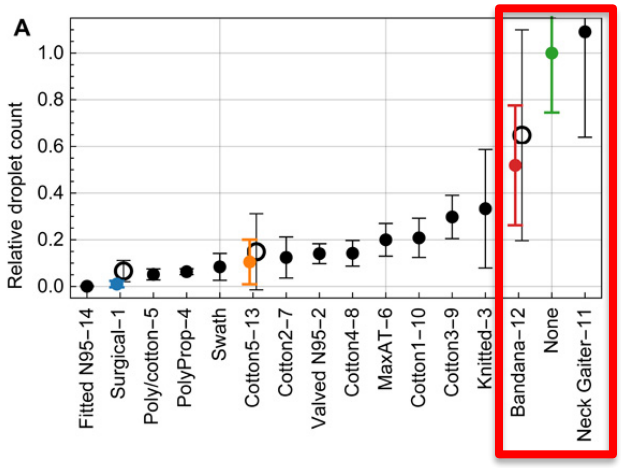
Consider a temperature assessment at the beginning of each shift based on agency policy.

What types of masks are beneficial?

Simple multi-layer surgical or cloth masks are sufficient for everyday use including at a station or when in an ambulance without a patient. Surgical masks should be used when with any patient (make sure the patient has a mask too) along with gloves. For patients with high risk of COVID-19 or when needing to perform aerosolizing procedures, upgrade to N95 mask or respirator, wrap around eye protection, and gown. <u>Follow agency-specific policies that differ from these recommendations</u>, which are considered a base minimum level of protection for patient encounters and at stations.

Are there masks that are not effective?

Single layer bandanas or neck gaiters have been demonstrated to not be beneficial and may increase spread by breaking up large droplets to small droplets such as during coughing or sneezing.



From: *Fischer et al. Science Advances 2020;6(36)*

Relative droplet count:
0.0 = No droplets
1.0 = Same as no mask

Clinical Presentation of COVID-19

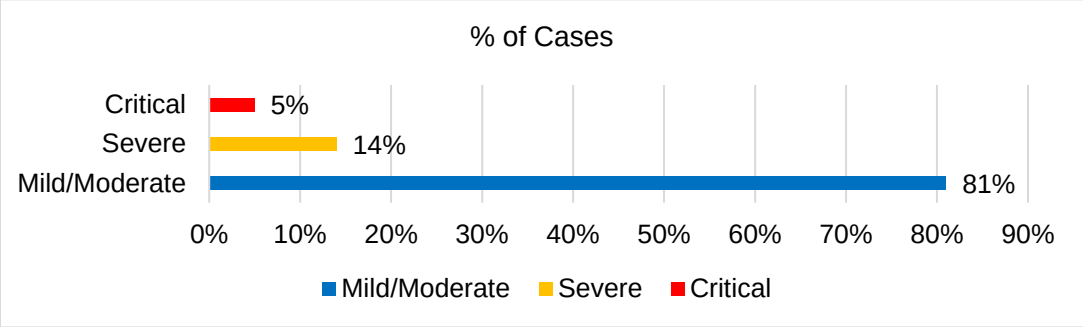
Our current understanding of COVID-19 includes clinical presentations with any of the following symptoms.

Symptom	Proportion of Cases
Fever	83-99% *
Cough	59-82%
Fatigue	44-70%
Anorexia	40-84%
Shortness of breath	31-40%
Myalgias	11-35%

* Fever is often present at some point in the disease but may be a presenting symptom (when someone first gets sick) in only 50% of cases.

Other non-specific symptoms may include sore throat, nasal congestion, headache, diarrhea, nausea, vomiting, loss of smell/taste.

While the mortality rate is likely around 1-2%, a large proportion of patients (up to 20%) have severe or critical disease, resulting in a need for hospitalization, symptoms that last several weeks, or other conditions.



Common medical conditions associated with COVID-19 include neurological disorders (including excess fatigue), hyperinflammation, acute respiratory distress syndrome, cardiac dysfunction (including cardiomyopathy), hypercoagulability (increased incidence of myocardial infarction, stroke, or pulmonary embolism), acute kidney injury, and multisystem inflammatory syndrome in children.

Therapeutics for COVID-19

Medical Treatment

Only two medications have been shown to be beneficial to patients with COVID-19 in rigorous clinical trials:

- **Remdesivir** (antiviral) – Hospitalized patients given this medication recovered faster (median 10 days versus 15 days). There is no benefit demonstrated on mortality. This medication is not routinely beneficial in patients with minor symptoms that do not require hospitalization and is not being used as part of routine outpatient treatment.
- **Dexamethasone** (steroid) – In a randomized trial of 6,428 patients, this medication reduced 28-day mortality by 36% in ventilated patients and by 18% in other patients receiving oxygen. There was no benefit in patients not receiving respiratory support. This medication is not shown to be beneficial in patients with mild symptoms that do not require oxygen therapy.

Vaccines

Several vaccine candidates are in phase 3 clinical trials, which involve approximately 30,000 patients. It is anticipated that effectiveness and safety data will be available by December 2020. Distribution to some higher risk individuals (e.g. healthcare personnel and the elderly) will likely occur in late winter or early spring 2021. It is likely that widespread distribution will not occur until mid-2021. There may additionally be distribution challenges due to some vaccination candidates requiring sub-zero freezer storage and a need to ramp up production beyond what is already being prepared while the trials are ongoing.

SARS-CoV-2 Testing for Healthcare Personnel

When should I get a COVID test?

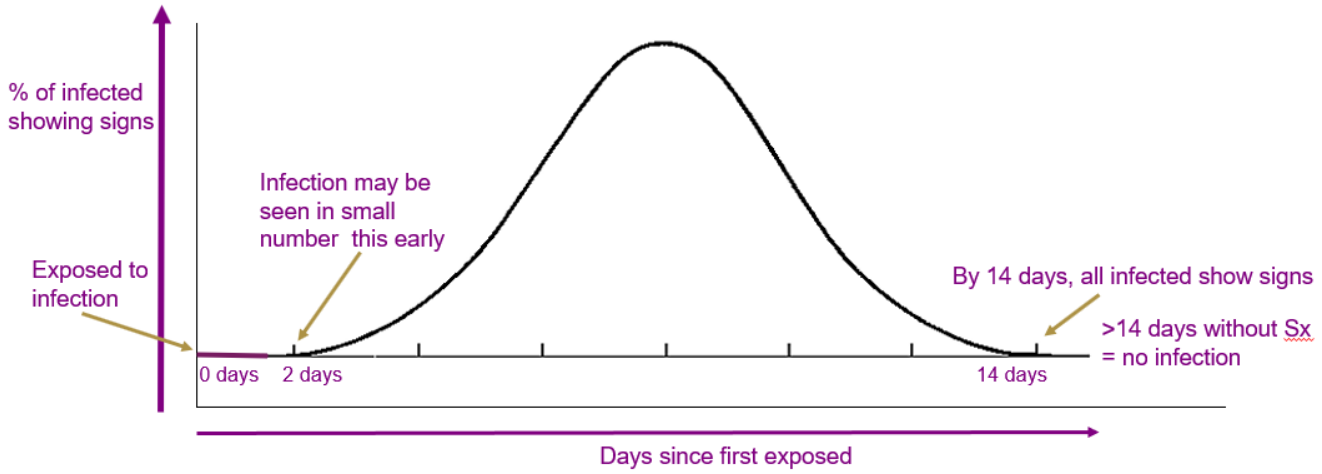
Considering ongoing limitations in the number of tests that can be performed every day, most health systems including UPMC are continuing to focus on the testing of symptomatic individuals. Therefore, if you develop any symptoms compatible with COVID-19, you should contact your PCP or occupational healthcare provider and seek referral for COVID testing including a prescription. Information on UPMC COVID testing sites is here.

Should asymptomatic healthcare personnel be tested after a known exposure?

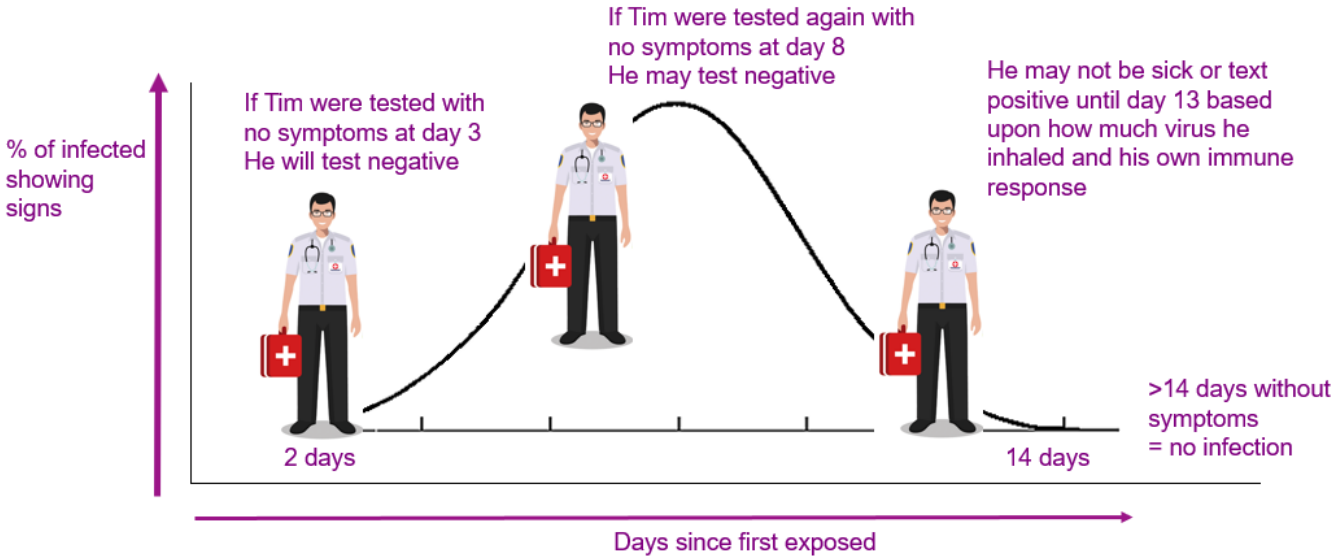
Known exposure to a patient with COVID-19 when not wearing appropriate PPE requires quarantine for 14 days. Testing of asymptomatic personnel is not recommended as a means of avoiding this quarantine as it may lead to a false negative result. In some areas, county health departments may recommend testing for surveillance in these cases of asymptomatic exposure to facilitate contact tracing and better inform community isolation efforts as well as numbers of cases with transmission. However, regardless of the result, the individual should remain in quarantine. If asymptomatic testing is recommended by your local health department or occupational healthcare provider, refer to community-based testing sites. **Allegheny County Community-Based Testing Site phone number: (412) 209-2262.**

If I've been exposed and I get a negative COVID-19 test, why can't I return to work?

A negative test at any point in the 14 days after an exposure may be falsely negative because not enough viral particles have developed. In fact, testing asymptomatic individuals may give a false sense of security when the disease and symptoms may still develop at any point along those 14 days.



For example, consider Paramedic Tim has an exposure on Day 0 but has no symptoms. He could test negative at any point during the 14-day quarantine but still develop symptoms and become infectious up until the end of the 14 days.



Types of SARS-CoV-2 Testing

Several types of diagnostic tests for SARS-CoV-2 (the virus that causes COVID-19) are currently being used. These tests have variable accuracy and time for results to be obtained.

Type	Molecular Tests (e.g. PCR)	Antigen Test	Antibody Test
Description	Detect the virus's genetic material. Considered the gold standard.	Detect specific proteins from the virus.	Detect antibodies formed from an immune response to the virus.
How sample is taken	Nasopharyngeal (most tests). Saliva (a few tests).	Nasopharyngeal (most tests).	Finger stick or blood draw.
Time to results	Some same day, others 1-7 days.	15-30 minutes.	Some same day, others 1-3 days.
Accuracy	Considered highly accurate and usually don't need to be repeated.	Positive results typically highly accurate but may have false positives; negative results may need to be confirmed with a molecular test.	May need a second antibody test for accurate results (may have cross-reactivity for antibodies to other coronaviruses providing a false positive test).
What it shows	Diagnoses active coronavirus infection.	Diagnoses active coronavirus infection.	Shows if you've been infected by coronavirus in the past.
What it cannot do	Cannot show if you ever had COVID-19 or were infected with the virus that causes COVID-19 in the past.	May not be able to rule out infection. Antigen tests are more likely to miss an active COVID-19 infection compared to molecular tests. A molecular test may be needed after a negative result based on clinical symptoms.	Cannot diagnose COVID-19 at the time of the test or show that you do not have COVID-19.

For more information on testing:
https://www.fda.gov/consumers/consumer-updates/coronavirus-disease-2019-testing-basics