



Public Health and Epidemiology of COVID-19 for Doctors of Optometry

Updated January 30, 2021

One Year Narrative

The American Optometric Association (AOA) Health Policy Institute (HPI) is providing information relevant to the eye health and vision care community regarding the novel coronavirus (SARS-CoV-2) and COVID-19.ⁱ Every doctor of optometry should understand the risks associated with this outbreak to ensure continued ability to care for patients.

COVID-19 in the United States:

The post-holiday surge of COVID-19 that thrust the U.S. into its darkest days of the pandemic, with cases rising in nearly every state, has begun to decrease by 31% over the last week. The country reported 155,677 new cases and 1,796 deaths on 1/25/2021.ⁱⁱ On January 10, 2021 the U.S. recorded 35% of all worldwide cases that day. On January 25, 2021 the U.S. recorded 30% of all worldwide cases that day, a drop of 5% of all worldwide cases over a two-week period.

According to a January 28, 2021 New York Times data base, 25.6 million+ people across every state, plus Washington, D.C., and three U.S. territories, have tested positive for COVID-19, and at least 429,312 people with the virus have died (a -1% 14-day change). In California, the state currently with the most known cases, more than 3,252,716 people have had COVID-19 and 23,197 of those were in the last seven days. Florida, which now has 1,676,163 COVID-19 cases, has passed New York, which has 1,369,329 cases. You can find nationally where cases are rising the fastest here.

Historical Background:

On Jan. 30, 2020, the World Health Organization (WHO) declared COVID-19 (then known as 2019 nCoV) as a global health emergency. The U.S. Secretary of Health and Human Services (HHS) declared a public health emergency on Jan. 31, 2020, under section 319 of the Public Health Service Act (42 U.S.C. 247d), in response to COVID-19.^{iii iv}

Early in the pandemic, beginning January 30, 2020, HPI asserted its lead on COVID-19 for the profession of optometry, publishing 27 policy briefs (and updates), six news articles, three national provider surveys and responding to hundreds of inquiries from doctors of optometry serving patients throughout the U.S.

“ALL HEALTH CARE PROVIDERS, INCLUDING DOCTORS OF OPTOMETRY, SHOULD BE ON THE LOOKOUT FOR VIRAL SYMPTOMS, INCLUDING FEVER, COUGH AND SHORTNESS OF BREATH. IF A PERSON PRESENTS WITH FEVER AND ACUTE RESPIRATORY ILLNESS, IT IS CRITICAL TO OBTAIN A DETAILED TRAVEL HISTORY TO ESTABLISH A MEDICAL RISK PROFILE.” (HPI: JANUARY 30, 2020)

January 30, 2020: HPI reports 2019-nCoV is of high concern because it is a novel virus, meaning it has never occurred before in humans and that 20% of those infected are experiencing severe illness and a death rate of 2%. The death rate for seasonal influenza is 0.1 percent, warning that 2019-nCoV is at least 20 times more virulent.

“WHILE A PROPERLY FITTED N95 FACE MASK MAY PROTECT AGAINST THE VIRUS, IT MAY NOT BE EFFECTIVE WITHOUT CONCURRENT EYE PROTECTION” (HPI: FEBRUARY 12, 2020)

(13 confirmed cases in the United States)

February 12, 2020: HPI warns doctors that the conjunctiva should be considered an alleged route of SARS-CoV-2 exposure. Further reports note that ocular discharge and tears are a potential source of contamination. HPI stresses to doctors to make note of reports of the death rate rising from 2.0% to 2.5% (*Based on China data*) and reveals that the Rate of Secondary transmission (R0) of COVID-19 has been reported as high as 4.08. In addition, HPI:

- Provides an example, such that on average every case of COVID-19 would create three to four new cases.
- Warns that proactive infection control is necessary and reinforces the need for thorough handwashing, using gloves, eye protection, appropriate face mask, and disinfecting equipment with doctors and staff, no matter the size of the office setting.
- Reports to doctors that symptoms of COVID-19 may appear in as few as two days or as long as 14 days, with median estimates of 5-6 days after exposure.

After attending U.S. Centers for Disease Control and Prevention (CDC) and White House briefings on February 11, 2020, the HPI warned doctors of optometry that their lives and practices may be affected by necessary social distancing, school closures, tele-learning, tele-work and tele-socializing with decreased mass gatherings (e.g. conferences, concerts, etc.).

(12 travel-related and 2 person-to-person spread confirmed cases in the United States.)

“WIDESPREAD TRANSMISSION OF COVID-19 IN THE UNITED STATES WILL TRANSLATE INTO LARGE NUMBERS OF PEOPLE NEEDING MEDICAL CARE AT THE SAME TIME AND THAT PUBLIC HEALTH AND HEALTHCARE SYSTEMS MAY BECOME OVERLOADED, WITH ELEVATED RATES OF HOSPITALIZATIONS AND DEATHS.” *(HPI: FEBRUARY 24, 2020)*

February 24, 2020: HPI further reports that CDC guidance states that standard and transmission-based precautions (i.e. contact and airborne precautions with eye protection) should be used for persons with laboratory-confirmed 2019-nCoV infection.

(80,239 confirmed cases globally in 33 countries)

“THE CONTAINMENT MEASURES OF QUARANTINE SIMPLY SLOW THE INTRODUCTION OF THE VIRUS INTO THE U.S. AND DOCTORS HAVE WEEKS TO PREPARE.” *(HPI FEBRUARY 26, 2020)*

February 26, 2020: HPI reports that COVID-19 is expected to spread in the U.S and that disruption may be severe even though, to date, there are very few COVID-19 cases in the U.S. and no community spread (*i.e. the CDC doesn't anticipate that lasting for long*). HPI explains to doctors that as frontline health care personnel, they should be prepared to evaluate patients for COVID-19 and they should also know that they, themselves, will have a greater risk of infection and to cross-train key staff members so that one person's absence will not derail the practice and to add stock to necessary medical office supplies.

On [March 30, 2020](#), the WHO reported that the rapidly increasing demand on health facilities and health workers threatens to leave health systems worldwide overstretched and unable to operate effectively. The focused message was that physical distancing measures are necessary to slow the transmission of the virus to aid the health care system and mitigate the risk of systems collapse. Adding, "to suppress and control COVID-19 epidemics, countries must isolate, test, treat and trace. If they don't, transmission chains can continue at a low level, then resurge once physical distancing measures are lifted. Don't assume your community won't be affected. Prepare as if it will be. Don't assume you won't be infected. Prepare as if you will be."^v At the same time the CDC stressed that COVID-19 can result in severe disease, including hospitalization, admission to an intensive care unit and death, especially among older adults (ages 55 and over) and adults with certain underlying health conditions. Everyone can take actions, such as social distancing and staying home, to help slow the spread of COVID-19 and protect older adults from severe illness.^{vi}

Latest COVID-19 Developments:

The coronavirus has thousands of variants that have been identified. But several, including the U.K., South Africa and Brazil variants, are highly transmissible (*e.g. alterations are found on the virus's spike protein, which binds the virus to a cell*) and have sparked concerns that vaccines may be less effective against them. This has added urgency to the country's [vaccine rollout](https://www.washingtonpost.com/health/interactive/2021/01/25/covid-variants/), which has gotten off to a slow start.

Brazil variant (P.1)

On Jan. 25, Minnesota health officials confirmed the first U.S. case of the Brazil variant in a resident with recent travel history to Brazil. There is also some early evidence that antibodies might not recognize the P.1 variant, which could lead to reinfection and impact the current COVID-19 vaccines' effectiveness.

The U.K. variant (B.1.1.7)

This variant has been spreading rapidly in Britain, Denmark, and Ireland since December 2020. The CDC released a model forecast in early January that indicated the variant could become the dominant strain in the U.S. by some point in March 2021. Reported cases of the B.1.1.7 variant of SARS-CoV-2 have been confirmed in at least eight states in the U.S. The variant was first found in Colorado, then later in California, Florida, Georgia, New York, Texas, Pennsylvania, and Connecticut.^{vii} Biotechnology companies Pfizer and Moderna have said their vaccines appear to work against this variant.

The South Africa variant (501Y.V2)

This mutation, also referred to as B1.351, was found in South Africa in early October and announced in December, when the country's health minister said the strain seemed to affect young people more than previous strains. This mutation has been identified in more than two dozen countries, including Canada, Australia and Israel, but not in the U.S. While not more lethal, this variant might be more resistant to antibody therapies. Moderna has said its vaccine protects against the South Africa variant, with an important caveat: The vaccine-elicited antibodies were also less effective at neutralizing this mutation in a laboratory dish. Moderna has begun developing a new vaccine against the South African variant as a precaution: <https://www.washingtonpost.com/health/2021/01/25/covid-vaccine-virus-variant/>.

California variant — CAL.20C

One of the new variants, CAL.20C, was found in California by researchers in both Los Angeles and in the Bay Area. CAL.20C accounted for more than half of the virus genome samples collected in Los Angeles laboratories on January 13, according to a new study that has not yet been published. There's no evidence that CAL.20C is more lethal than other variants and scientists are conducting more research to determine whether CAL.20C is in fact more contagious than other forms of the virus.

Travel Restrictions Due to New Variants:

Governments around the world—including the U.S., Britain and New Zealand—are moving to impose stricter travel limitations in a bid to slow the spread of new coronavirus variants that experts warn are more contagious.

President Biden confirmed January 25, 2021 that he would extend a ban on travelers from Brazil, the United Kingdom, Ireland and 26 other European countries. Visitors from South Africa will be banned from entering the U.S. starting January 30, 2021.

Infection Control:

With substantial community transmission the use of eye protection in addition to N95 masks for infection control is now recommended for doctors of optometry and their staff working in close proximity of

patients, as part of PPE. ^{viii} During August 2–September 5, 2020, weekly COVID-19 cases among persons aged 18–22 years increased 55% nationally. Increases were greatest in the Northeast (144%) and Midwest (123%). Increases in cases were not solely attributable to increased testing. ^{ix}

Vaccines:

Two COVID-19 vaccine candidates have been approved in the U.S. including Pfizer-BioNTech and Moderna vaccines and there are currently 20 vaccines in Phase 3 testing and 8 vaccines in early or limited use according to the New York Times Vaccine Tracker. More vaccines will go to states beginning February 1, 2021, with companies now on track to deliver pledged doses. Production of 12 to 18 million doses per week are expected by the end of March 2021.

As of January 26, 2021, approximately 19.9 million people have received at least one dose of a COVID-19 vaccine, a goal federal officials set before the end of December 2020. At least 3.5 million people in the United States have been fully vaccinated, according to a New York Times survey of all 50 states. Doctors of optometry in many states are receiving vaccinations as part of the CDC recommended (1a) initial role out. In many states doctors of optometry have requested to be included as COVID-19 vaccine providers in their state. ^x

COVID-19 Medical Products:

Testing

[Coronavirus Disease 2019 Testing Basics](#) provides general information about the types of available tests for SARS-CoV-2, the virus that causes COVID-19, and may be helpful for your patients to understand what they are being tested for, how they will be tested and what their result means.

For more detailed information about testing, including links to additional information, see this [link](#).

To find community-based testing sites for COVID-19, see this [link](#).

Drug Products

The FDA has [approved one drug](#) to treat COVID-19 in certain populations and has issued [EUAs](#) for drugs that may be used to treat COVID-19. Each EUA has factsheets for health care providers and patients/caregivers and information on how to obtain the drug and currently available data.

For EUA FAQs on Remdesivir see this [link](#).

Doctors of optometry can help support the development of new potential treatments for COVID-19 through participating in crowdsourcing of medical information. The [CURE ID app](#) allows clinicians to quickly and easily report their experiences treating COVID-19 patients and patients with other difficult-to-treat diseases.

Investigational COVID-19 Convalescent Plasma Under EUA and IND

Convalescent plasma from individuals who have recovered from COVID-19 has not been approved for use by the FDA, so it is regulated as an investigational product. This product may also be used in hospitalized COVID-19 patients under an [Emergency Use Authorization](#). [Recommendations for Investigational COVID-](#)

[19 Convalescent Plasma](#) describes other pathways health professionals can use for investigational COVID-19 convalescent plasma.

To access a toolkit see this [link](#).

Investigational Use of Antivirals

In addition to Veklury (remdesivir), other antiviral products are being tested in clinical trials for safety and efficacy against COVID-19.

Ventilators and Other Medical Devices

FDA has authorized [emergency use](#) of ventilators and other medical products during COVID-19. FDA has also issued [recommendations for health care providers](#) to help increase availability of ventilators.

Fraudulent Products

FDA is actively monitoring the market for any individuals and companies selling products with fraudulent claims to diagnose, treat, prevent or cure COVID-19. Help protect patients and find out how to [report a fraudulent product](#) or [view warning letters](#) sent to sellers.

The Impact of COVID-19 on the Eyes: *Currently recruiting*

To characterize eye symptoms related to COVID-19 the National Institutes of Health/National Eye Institute (NIH/NEI) is currently soliciting individuals over age 18 who have been diagnosed with COVID-19 to take an online survey. The survey responses are designed to allow researchers to learn more about eye symptoms in COVID-19 infection, including how common they are and how they relate to other COVID-19 associated symptoms. <https://content.govdelivery.com/accounts/USNIHCC/bulletins/2b05221>

Neurologic abnormalities in those who recovered from acute COVID-19: *Currently recruiting*

To characterize ongoing neurologic abnormalities in those who recovered from acute COVID-19 infection yet have persistent neurologic symptoms, the NIH is recruiting individuals for a new study entitled; *An Observational Study of Neurologic Function After COVID-19 Infection*.

Despite clinical recovery from the acute infection, some individuals continue to experience ongoing symptoms, at times several months after recovery, and many of these symptoms are neurologic. The NIH Clinical Center provides the breadth of expertise and resources to best investigate this patient group. This study will collect a broad array of specialized neurologic testing in this group who, despite recovering from the acute SARSCoV-2 infection, continue to experience neurological symptoms. It is hypothesized that this group will have abnormalities on neurologic testing that may identify discrete phenotypes of COVID-19 sequelae.

<https://clinicaltrials.gov/ct2/show/NCT04564287?cond=COVID-19&fund=01&draw=2&rank=4>

Immune response in patients with current or prior COVID-19 infection: *Currently recruiting*

To characterize immune response in patients with current or prior COVID-19 infection the NIH is recruiting individuals for a new prospective observational study entitled; *Investigation of the B- and T-cell Repertoire and Immune Response in Patients With Acute and Resolved COVID-19 Infection*.

Patients infected with COVID-19 have an unpredictable risk to worsen and die, making it difficult to decide who can quarantine at home and who should be monitored for respiratory failure as an inpatient. This risk may be related in part to the patient's immune response which can be characterized with respect to the B- and T-cell repertoire. Determining patterns of immune response which correlate with clinically effective immunity may help in determining risk. Furthermore, in patients with hematologic malignancies, it is not known if they should be steered away more from treatments which harm B-cell immunity or steered away from treatments which harm T-cell immunity. Characterizing the immune response in COVID-19 patients will quickly answer this question.

<https://clinicaltrials.gov/ct2/show/NCT04362865?cond=COVID-19&fund=01&draw=2&rank=10>

Longitudinal Study of COVID-19 Sequelae and Immunity: Currently recruiting

Since COVID-19 is a new disease, very little is known about possible clinical sequelae that may persist after resolution of the acute infection. In addition, the characteristics of the initial cellular immune and antibody response to SARS-CoV-2 (the virus that causes COVID-19) have not been fully defined and it is not known if the immune responses generated by infection provides long-term protective immunity. The purpose of this study is to establish a longitudinal cohort that has recovered from COVID-19 and characterize the clinical sequelae of acute infection, characterize the immune response to the virus, and follow the evolution of the immune response over time and determine the extent to which natural immunity is protective against re-infection.

<https://clinicaltrials.gov/ct2/show/NCT04411147?cond=COVID-19&fund=01&draw=3&rank=11>

Surveillance of Individuals Following SARS-CoV-2 Exposure: Currently recruiting

People who have had contact with a person with a known SARS-CoV-2 infection are being told to self-quarantine for 14 days. This is done to avoid potential virus spread. But the actual time it takes for a person to develop an infection after being exposed to the virus is not well known. The proper quarantine time could be less or more than 2 weeks.

The NIH is now soliciting individuals for a prospective longitudinal cohort study of contacts of individuals with exposure to severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The aim is to correlate results of reverse transcription polymerase chain reaction (RT-PCR) using various sample types, assays, and culture. We will perform serial screenings of NIH employees who have had contact with reported, suspected, or known cases. We will also enroll individuals with previous or current infection who are asymptomatic at enrollment. The serial screenings will be done at multiple timepoints over 2 days using (RT-PCR) tests of nasopharyngeal (NP) swabs, saliva samples, midturbinate swabs, antibody assays, and culture. Researchers hope this study can be used to help improve public health guidelines for quarantines, social distancing, and returning to work after a possible SARS-CoV-2 exposure.

<https://clinicaltrials.gov/ct2/show/NCT04383444?cond=COVID-19&fund=01&draw=4&rank=28>

Natural History of Post-Coronavirus Disease 19 Convalescence at the National Institutes of Health. Currently recruiting

People who get COVID-19 have a wide range of symptoms. They also recover from COVID-19 in different ways. This study is intended to learn more about the range and timing of symptoms that people have

before, during, and after COVID-19 infection. In this study, researchers will use survey data to describe the different ways people experience and recover from COVID-19. They will also use the data to help create future studies to understand why some people do not fully recover.

<https://clinicaltrials.gov/ct2/show/NCT04573062?cond=COVID-19&fund=01&draw=14&rank=130>

Disease Transmission:

COVID-19 is of high concern because it is a novel virus, meaning it has never occurred before in humans. It is important to note that the virus is transmitted person-to-person through either direct contact or an exchange of bodily fluids. A [study published in the New England Journal of Medicine on March 17, 2020](#) found that viable virus could be detected up to three hours later in the air, up to four hours on copper, up to 24 hours on cardboard and up to two to three days on plastic and stainless steel. With airborne transmission still not, to date, fully incorporated into public health directives, 239 scientists in 32 countries [have outlined the evidence showing that smaller airborne particles can float in the air and infect people](#), and are calling for the WHO to revise its recommendations which accepted the evidence on July 7, 2020.^{xi} This evidence shows that SARS-CoV-2 can stay in the air longer and travel farther in tinier bits, called aerosols, and that these aerosols can be generated by people talking, breathing or singing. This SARS-CoV-2 aerosolization combined with staying indoors in colder months can produce much higher rates of infection in the fall and winter. According to January 22, 2021 projections from the University of Washington's Institute for Health Metrics and Evaluation, 3,349,426 COVID-19 deaths are expected globally with 568,806 COVID-19 deaths in the U.S. by May 1, 2021.^{xii}

On June 3, 2020, it was reported in the Annals of Internal Medicine that asymptomatic persons account for approximately 40% to 45% of SARS-CoV-2 infections.^{xiii} This highlights the necessity of assuming all people as possibly being carriers. Dr. Thomas Frieden, chief executive at [Resolve to Save Lives](#), an initiative of Vital Strategies to prevent epidemics and cardiovascular disease, and former director of the CDC, adds that superspreading events may involve people with symptoms that linger but who are not sick enough to stay home. The secondary attack rate of transmission of a virus is therefore an important number to monitor. This number (R_0 , pronounced R-nought or r-zero) serves as an indicator of how easy the disease spreads from person-to-person, as indicated by its reproductive number, which represents the average number of people who will catch the disease from a single infected person. An outbreak with a reproductive number of below 1.0 will gradually disappear. Early in the pandemic the R_0 of COVID-19 has been reported as high as 4.08 while other studies estimating the R_0 to be between 1.5 and 3.5.^{xiv xv xvi xvii} Based on these numbers, on average every case of COVID-19 would create three to four new cases. Recent reports now present state-by-state estimates of R_0 and confirm in New York State the $R_0 = 6.4$, explaining what is known about COVID-19, that it has the potential to spread rapidly, especially in urban areas. Estimates of R_0 reveal potential challenges for vaccination campaigns: using the rule of thumb that a proportion $1 - 1/R_0$ of a population needs to be vaccinated, vaccination coverage will have to be roughly 60% on average among the states. However, when the R_0 variation among states is considered, the $R_0 = 6.4$ for New York state suggests a vaccination coverage rate of 85%.^{xviii}

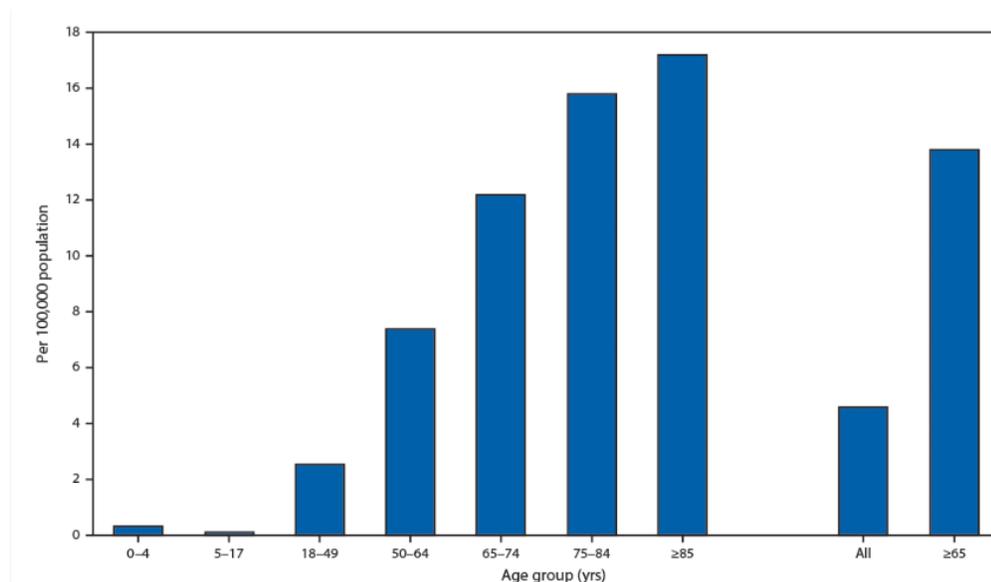
On September 24, 2020, the CDC reported that from June through August, the incidence of COVID-19 was highest among adults age 20-29 years old with young adults now accounting for more than 20% of all

confirmed cases. The CDC study confirms that these infected young adults seeded waves of new infections among the middle-aged, and then in older Americans.^{xix} The storming of the U.S. Capital on January 6, 2021 and defiance of common precautions known to spread the disease is now thought to become a COVID-19 superspreader event, which will be impossible to track, according to the Washington Post.^{xx}

Morbidity and Mortality

The CDC believes that symptoms of COVID-19 may appear in as few as two days or as long as 14 days, with median estimates of five to six days after exposure. American adults of all ages—not just those in their 70s, 80s and 90s—are being seriously sickened by the coronavirus. On April 8, 2020, the CDC released [Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020](#).^{xxi} On January 8, 2021 a new study found that most (76%) of COVID-19 patients still have at least one symptom six months after first falling ill. Fatigue or muscle weakness is the most common symptom, with sleep difficulties and anxiety or depression also frequently reported. Lower antibodies against COVID-19 in patients six months after becoming ill compared with during acute infection raises concerns about the possibility of re-infection.^{xxii}

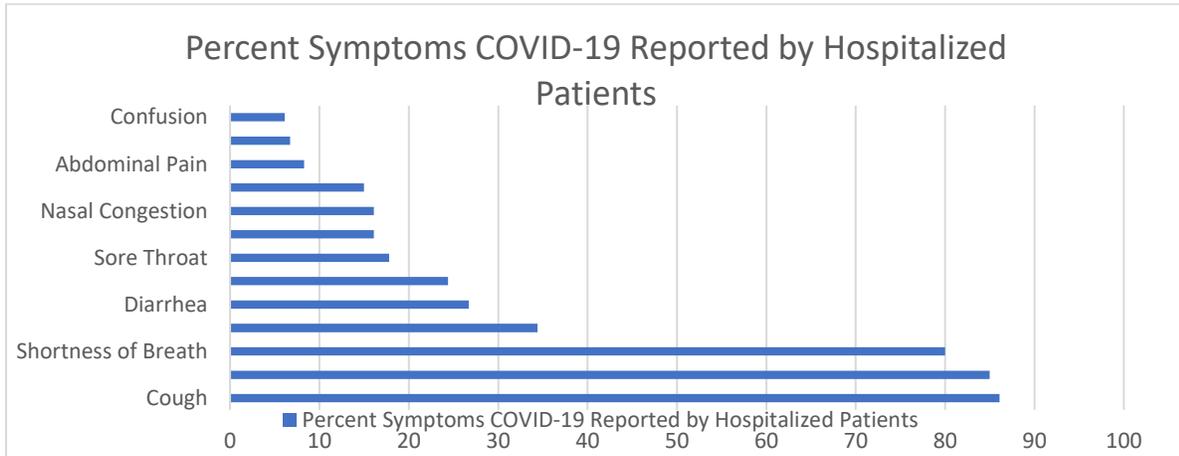
Figure 1. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019—COVID-NET, 14 States, March 1–30, 2020



Abbreviation: COVID-NET = Coronavirus Disease 2019–Associated Hospitalization Surveillance Network.

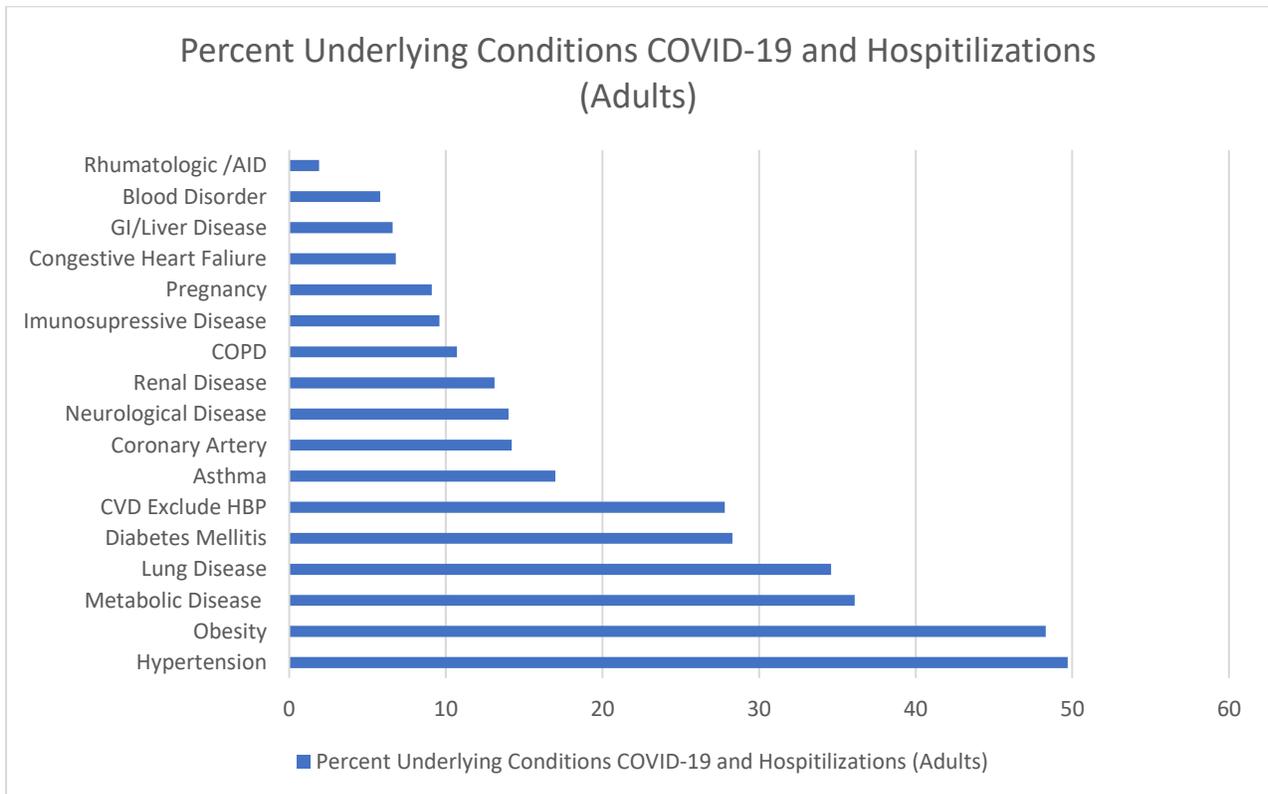
* Number of patients hospitalized with COVID-19 per 100,000 population.

Figure 2. Underlying symptoms among adults aged ≥18 years with coronavirus disease 2019 (COVID-19)–associated hospitalizations—COVID-NET, 14 states,* March 1–30, 2020. (Adapted by HPI)



COVID-19–associated hospitalizations in the United States are highest among older adults, and nearly 90% of persons hospitalized have one or more underlying medical conditions. [Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020](#) ^{xxiii}

Figure 3. Underlying conditions among adults aged ≥18 years with coronavirus disease 2019 (COVID-19)–associated hospitalizations—COVID-NET, 14 states,* March 1–30, 2020. (Adapted by HPI)



From the beginning of the spread of the coronavirus, public health officials have repeatedly warned that health complications of COVID-19 are more severe among people with underlying health conditions, of which diabetes, cardiovascular disease and obesity are prominent. New data from CDC researchers showed that people with underlying health conditions were 6 times more likely to be hospitalized than those with no such conditions (45.4% versus 7.6%) and deaths were 12 times higher (19.5% versus 1.6%).^{xxiv}

Analysis of COVID-19 cases by race and ethnicity showed incidence out of proportion to percent of the overall U.S. population for Hispanic (33% COVID-19 vs. 18% population), Black (22% COVID-19 vs. 13% population), and American Indian/Alaskan Native populations (1.3% COVID-19 vs. 0.7% population).^{xxv} Among those aged 65 years or older, a population at higher risk for death from COVID-19, 26.8% have DM. Hypertension and severe obesity are present in 68.4% and 15.5% of individuals diagnosed with DM.^{xxvi} Among people with diabetes with COVID-19, it is possible that higher BMI and A1c levels are linked to worse outcomes.^{xxvii} Also, researchers believe that disruptions caused by the pandemic, including increased stress and changes to care, diet and physical activity routines, could contribute to worse outcomes for people with diabetes, and could exacerbate health disparities.^{xxviii}

New research also suggests that COVID-19 and diabetes may be a two-way street. Not only do people with diabetes and COVID-19 suffer disproportionately higher rates of severe outcomes, it is also possible that COVID-19 is triggering new cases of type 1 and type 2 diabetes or a new type of diabetes, and among people with existing diabetes, it may be triggering severe metabolic complications, such as diabetic ketoacidosis.^{xxix} Other new studies show that nearly half of hospitalized COVID-19 patients without a prior diabetes diagnosis have hyperglycemia, and the latter is an independent predictor of mortality at 28 days.^{xxx}

To help assess this bi-directional hypothesis, a new global registry to track COVID-19-related diabetes, called CoviDiab, has been started by Kings College London and Monash University.^{xxxi}

On October 16, 2020, CMS reported new survey data on Medicare and dual eligible beneficiaries and COVID-19. Survey findings indicate that 21% of Medicare beneficiaries report forgoing non-coronavirus (COVID-19) disease care due to the pandemic.

CMS COVID-19 Billing Data

Here is the most recently reported CMS billing data (*Services January 1 to November 21, 2020, Received by December 18, 2020*). Key highlights:

- More than 1,929,014 Medicare beneficiaries have been diagnosed with COVID-19 this year through November 21, 2020, translating to 3,018 cases per 100,000 beneficiaries in urban areas and 2,801,254 per 100,000 beneficiaries in rural areas.^{xxxii} This shows a 2.2X COVID-19 increase in rural areas compared to a 1.5X increase in urban areas among beneficiaries.
- The 493,167 Medicare beneficiaries hospitalized with a COVID-19 diagnosis this year through November 21, 2020 translates to 782 hospitalizations per 100,000 beneficiaries in urban areas and 692 hospitalizations per 100,000 beneficiaries in rural areas. Among those hospitalized with COVID-19, the five most prevalent chronic conditions for Medicare fee-for-service beneficiaries

were: hypertension (80%); hyperlipidemia (62%); chronic kidney disease (51%); anemia (48%); and diabetes (50%).^{xxxiii}

- Medicare COVID-19 Data Snapshot: Only 35% of hospital discharges of beneficiaries were able to return home unaided; 19% expired at the hospital. The remainder required skilled nursing at a facility (20%), other facility (12%) or at home (15%). Average cost of hospitalization (at discharge) per beneficiary was \$23,558. Total Medicare payment for COVID-19 hospitalizations was \$7.4 Billion.
- Medicare COVID-19 Data Snapshot: Medicare hospitalization rates for Black beneficiaries were approximately 2.6X higher than for white beneficiaries. Medicare hospitalization rates for Hispanic beneficiaries were 2X higher than for white beneficiaries.^{xxxiv} COVID-19 Hospitalizations per 100K by Beneficiary Characteristics reveal disparities with White at 592 hospitalizations per 100,000, Black at 1,569 hospitalizations per 100,000 and Hispanic at 1,258 hospitalizations per 100,000.

Conclusion:

Global concern has escalated due to the rapid spread of the disease internationally including alarmingly high numbers of cases identified and presenting in the U.S. Evolving information from the CDC on the outbreak can be found at [cdc.gov/coronavirus/2019-ncov/about/index.html](https://www.cdc.gov/coronavirus/2019-ncov/about/index.html).

As discussed above, this information is evolving as public health organizations track and learn more about the spreading COVID-19 coronavirus. It is important to monitor for changes in information from the [CDC](https://www.cdc.gov) and [WHO](https://www.who.int) to best protect against infection.

ⁱ On Feb. 11, 2020 the WHO renamed 2019-nCoV to COVID-19.

ⁱⁱ <https://www.nytimes.com/live/2021/01/11/world/covid-19-coronavirus>

ⁱⁱⁱ [whitehouse.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/](https://www.whitehouse.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/)

^{iv} [who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov))

^v [who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---18-march-2020](https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---18-march-2020)

^{vi} <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ambulatory-care-settings.html>

^{vii} <https://www.newsweek.com/infectious-uk-covid-variant-eight-states-1560001>

^{viii} <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control.html>

^{ix} https://www.cdc.gov/mmwr/volumes/69/wr/mm6939e4.htm?s_cid=mm6939e4_w

^x <https://www.cnn.com/2021/01/08/health/non-traditional-covid-vaccinators/index.html>

^{xi} <https://www.nytimes.com/2020/07/04/health/239-experts-with-one-big-claim-the-coronavirus-is-airborne.html>

^{xii} <https://covid19.healthdata.org/global?view=total-deaths&tab=trend>

-
- ^{xiii} Oran D: Prevalence of Asymptomatic SARS-CoV-2 Infection, A Narrative Review, *Annals of Internal Medicine*, June 3, 2020 <https://doi.org/10.7326/M20-3012>
- ^{xiv} Estimating the effective reproduction number of the 2019-nCoV in China - Zhidong Cao et al., Jan. 29, 2020 Mandl, Harvard University - Computational Health Informatics Program - Posted: 24 Jan 2020 Last revised: 27 Jan 2020
- ^{xv} Novel coronavirus 2019-nCoV: early estimation of epidemiological parameters and epidemic prediction - Jonathan M. Read et al, Jan. 23,2020.
- ^{xvi} Early Transmissibility Assessment of a Novel Coronavirus in Wuhan, China - Maimuna Majumder and Kenneth D.
- ^{xvii} Report 3: Transmissibility of 2019-nCoV - 25 January 2020 - Imperial College London
- ^{xviii} <https://www.medrxiv.org/content/10.1101/2020.05.17.20104653v3.full.pdf>
- ^{xix} <https://www.nytimes.com/2020/09/24/world/covid-19-coronavirus.html#link-7f8a5627>
- ^{xx} <https://www.washingtonpost.com/health/2021/01/08/capitol-coronavirus/>
- ^{xxi} https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm?s_cid=mm6915e3_e
- ^{xxii} https://www.eurekalert.org/pub_releases/2021-01/tl-pss010721.php
- ^{xxiii} https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm?s_cid=mm6915e3_e
- ^{xxiv} Stokes EK, Zambrano LD, Anderson KN, et al. Coronavirus disease 2019 case surveillance – United States – January 22—May 30, 2020. *MMWR*. June 15, 2020. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e2.htm>.
- ^{xxv} Stokes EK, Zambrano LD, Anderson KN, et al. Coronavirus disease 2019 case surveillance – United States – January 22—May 30, 2020. *MMWR*. June 15, 2020. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e2.htm>
- ^{xxvi} Muniyappa R, Gubbi S; COVID-19 pandemic, coronaviruses, and diabetes mellitus, *Am J Physiol Endocrinol Metab*. 2020 May 1; 318(5): E736–E741.
- ^{xxvii} Hartmann-Boyce J, Morris E, Goyder C, et al. Diabetes and COVID-19: risks, management, and learnings from other natural disasters. *Diabetes Care*. June 16, 2020. <https://doi.org/10.2337/dc20-1192>.
- ^{xxviii} Hartmann-Boyce J, Morris E, Goyder C, et al. Diabetes and COVID-19: risks, management, and learnings from other natural disasters. *Diabetes Care*. June 16, 2020. <https://doi.org/10.2337/dc20-1192>.
- ^{xxix} Rubino F, Amiel, SA, Zimmet P, et al. New-onset diabetes in COVID-19. *NEJM*. June 12, 2020. <https://doi.org/10.1056/NEJMc2018688>.
- ^{xxx} <https://link.springer.com/article/10.1007/s00125-020-05209-1>
- ^{xxxi} <http://covid diab.e-dendrite.com/>
- ^{xxxii} <https://www.cms.gov/files/document/medicare-covid-19-data-snapshot-fact-sheet.pdf>
- ^{xxxiii} <https://www.cms.gov/files/document/medicare-covid-19-data-snapshot-fact-sheet.pdf>
- ^{xxxiv} <https://www.cms.gov/files/document/medicare-covid-19-data-snapshot-fact-sheet.pdf>