The American Optometric Association’s Health Policy Institute (HPI) is providing information relevant to the eye health and vision care community regarding the novel coronavirus COVID-19, previously referred to as "2019-nCoV" or the "Wuhan coronavirus." Every doctor of optometry should understand the risks associated with this outbreak to ensure continued ability to care for our patients. On Jan. 30, 2020, the World Health Organization (WHO) declared COVID-19 (then known as 2019 nCoV) as a global health emergency, acknowledging that the disease now represents a risk beyond China, where it emerged in December 2019.ii

As of Feb. 10, 2020, information had emerged identifying the conjunctiva as an alleged route of exposure. COVID-19 may enter the body through the eyes and then spread to the whole body through the superficial blood vessels within the conjunctiva. All frontline medical staff should pay attention to eye protection. While a properly fitted N95 face mask may protect against the virus, it may not be effective without concurrent eye protection.

As of Feb. 12, 2020, there are 13 confirmed cases in the United States, while in China there are 44,653 reported cases, including 1,113 reported deaths, representing a death rate rising from 2.0% to 2.5%. On Feb. 11, 2020, the AOA Health Policy Institute attended a conference featuring updates by representatives of the White House, Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH). NIH expressed caution that death rates might be overestimated, due to the possibility that people infected with the virus but experiencing only mild symptoms might not be reported and measured. The death rate for seasonal influenza is 0.1 percent while the global death rate for the catastrophic 1918 Spanish flu was 3-6 percent. The HPI also learned:

- CDC is in planning stage for a pandemic. These plans, if implemented, would include “social distancing.” Although children appear less susceptible in China, they may only have less severe disease symptoms and still have the disease. Schools may have to close, and individuals may have to prepare for tele-learning, tele-work and tele-socializing with decreased mass gatherings (e.g., conferences, concerts, etc.).

- Personal protection equipment (PPE)(e.g., face masks) should be reserved now for health care providers and for individuals sickened.

- Individuals incoming to U.S. facilities deemed at risk are being quarantined in a way that makes a 14-day stay protective to the public health.

- There are currently no U.S. drug shortages for drugs being repurposed for COVID-19 treatments.
• Preparation for COVID-19 should include government collaboration with professional organizations, hospitals and manufacturers.

What doctors of optometry need to know:

• Apart from the death rate, the secondary attack rate of transmission of a virus is 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. As of Feb. 10, 2020, the $R_0$ of COVID-19 has been reported as high as 4.08.⁹ Preliminary studies had estimated $R_0$ to be between 1.5 and 3.5.⁴⁵⁶ Based on these numbers, on average every case of COVID-19 would create three to four new cases.

• Although viral conjunctival infection is usually caused by adenovirus, COVID-19 may cause ocular signs and symptoms, including photophobia, irritation, conjunctival injection and watery discharge. These are predominantly self-limited but may require supportive care. Ocular discharge and tears are a potential source of contamination and the eye is also a route of exposure, so personal protection is required for the patient and care team.

When dealing with a patient with an infectious virus, doctors of optometry need to have a clear understanding of the proper protocols to prevent the spread of infection. Vigilance and good hygiene—thorough handwashing, using gloves, eye protection, appropriate face mask, disinfecting equipment and other recommendations provided by the CDC—in the office when in contact with bodily fluids, such as tears, can help prevent infection. It is important to proactively reinforce such infection mitigation techniques with doctors and staff, no matter the size of the office setting.⁸ⅵⅸ

Be mindful of potential coronavirus activity in the community or region, and a doctor in any of the areas currently affected can minimize the risk of exposure by encouraging patients to stay home if they have symptoms of cold, flu or respiratory infections. CDC releases information regarding the number of cases and people under investigation, updated regularly on Mondays, Wednesdays and Fridays. Doctors of optometry should routinely track the progression in the number of suspected and confirmed cases in their state. WHO recommends that the follow-up of contacts of confirmed cases is 14 days.

COVID-19 is of high concern because it is a novel virus, meaning it has never occurred before in humans. Therefore, the oral or injectable vaccine (flu shot) individuals receive each year as part of a plan of protection from influenza (the flu) will not be protective against COVID-19. It is important to note that the virus is transmitted person to person through either direct contact or an exchange of bodily fluids.

Global concern has escalated due to the rapid spread of the disease internationally including cases now identified and presenting in the U.S. The CDC believes at this time 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. Evolving information from the CDC on the outbreak can be found here:

Better understanding of the transmissibility and severity of the virus is urgently required to guide other countries on appropriate response measures. The *Lancet* reports that of the original cohort of 41, 2019-nCoV-infected patients, 49 percent were 25–49 years of age, and 34 percent were age 50–64 years of age, and 32 percent were admitted to the ICU because they required high-flow nasal cannula or higher-level oxygen support measures to correct hypoxaemia. Most of the infected patients were men (73 percent); less than half had underlying diseases (32 percent), including diabetes (20 percent), hypertension (15 percent), and cardiovascular disease (15 percent).

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. Guidance for health care professionals can be found here:


In addition, the WHO has advice on how individuals can protect themselves and those around them from contracting the virus. Information can be found here:


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 these organizations to best protect against infection.


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


iii Estimating the effective reproduction number of the 2019-nCoV in China - Zhidong Cao et al., Jan. 29, 2020


v Early Transmissibility Assessment of a Novel Coronavirus in Wuhan, China - Maimuna Majumder and Kenneth D. Mandl, Harvard University - Computational Health Informatics Program - Posted: 24 Jan 2020 Last revised: 27 Jan 2020

vi Report 3: Transmissibility of 2019-nCoV - 25 January 2020 - Imperial College London


viii https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30183-5/fulltext