ASORN is here to support our members and the entire Ophthalmic team during this novel coronavirus (COVID-19) pandemic which is presenting situations many have never encountered.

Below are several resources that may be helpful for the ophthalmic team and other frontline healthcare workers to keep themselves and their patients safe. ASORN is committed to assisting you and your patients by providing these resources and to support your team move toward reducing the risks associated with COVID-19.

**CMS QSO-20-20-ALL Survey guidelines for Re-opening**

During health emergencies, WHO works to support development of tools necessary during outbreaks
[World Health Organization (WHO)](https://www.who.int)

Please visit the CDC’s coronavirus resource page for the latest updates and prevention information.
[Centers for Disease Control and Prevention (CDC)](https://www.cdc.gov)

See the CDC’s strategies for optimizing the use of eye protection, isolation gowns, face masks and N95 respirators.
[CDC Special Guidance on PPE](https://www.cdc.gov)

**American Academy of Ophthalmology resources on COVID-19 and Ophthalmology**
[https://www.aao.org/coronavirus](https://www.aao.org/coronavirus)

Also check with your State’s Department of Health for local and regional information.
There are several types of vaccines currently under development for COVID-19, each with different potential strengths and weaknesses.

### NUCLEIC ACID VACCINES
- New type of vaccine that uses fragments of mRNA or DNA to produce an adaptive immune response through the host cells, producing copies of that target antigen
- Elicits both antibody and cytotoxic T-lymphocyte responses
- Can scale up and produce quickly
- Expensive & booster doses likely needed
- >90% efficacy in initial phase 3 data from Moderna, Pfizer

**Vaccines in development**
- Moderna
- Pfizer
- Inovio
- CureVac
- Sanofi/Translate Bio

### VIRAL VECTOR
- Uses modified non-coronaviruses (adenoviruses, vesicular stomatitis virus) expressing SARS-CoV-2 spike protein
- Elicits both antibody and cytotoxic T-lymphocyte responses
- Potential safety concerns in immunocompromised patients
- Host immunity to the viral vector may reduce vaccine efficacy
- Single dose possible
- Can quickly produce

**Vaccines in development**
- Johnson & Johnson
- CanSinoBIO
- AstraZeneca
- Merck

### INACTIVATED VACCINES
- Uses a killed version of the virus to generate immunity
- Elicits neutralizing antibodies without a cell-mediated response
- Can be safely given to immunocompromised patients
- Proven vaccine technology already in use for several diseases (hepatitis A, influenza, polio, rabies)
- Booster doses likely needed

**Vaccines in development**
- Chinese Academy of Medical Sciences
- Wuhan Institute of Biologic Projects
- Sinovac

### PROTEIN
- Uses recombinant viral proteins to induce immune response
- Elicits neutralizing antibodies without a cell-mediated response
- Can be safely given to immunocompromised patients
- Proven vaccine technology already in use for many diseases (e.g., hepatitis B, HPV, pertussis, herpes zoster)
- Booster doses likely needed

**Vaccines in development**
- Sanofi/GSK
- Novavax
- Walter Reed Army Institute of Research (WRAIR)

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