Understanding COVID-19 Vaccines

Pfizer-BioNTech, Moderna, and Johnson & Johnson (J&J) have developed safe, effective vaccines protecting against severe COVID-19 illness. All three vaccines received Emergency Use Authorization (EUA) from the Food and Drug Administration last winter. Pfizer is approved for those 5 years of age and older. Moderna and J&J are approved for those 18 years of age and older.

- **Technology –** The Moderna and Pfizer vaccines are based on mRNA technology, which shows our bodies how to make the spike protein found in the SARS-CoV-2 virus. If infected with the actual virus, the immune system produces antibodies to prevent illness. The J&J vaccine accomplishes the same thing, but with a harmless adenovirus delivering the instructions. None of these vaccines contain the live virus that causes COVID-19.
- **Efficacy –** All three vaccines are extremely effective at preventing severe illness, hospitalizations, and deaths. The Pfizer and Moderna vaccines are approximately 95% effective in preventing COVID-19 illness. The J&J vaccine is slightly less effective against mild and moderate cases, but only requires a single dose.
- **Safety –** All three vaccines have proven tolerable, safe, and effective. A very small number of cases of myocarditis and pericarditis have been linked to the Moderna and Pfizer vaccines. Nearly all these cases have been in males ages 30 and younger after receiving the second dose. A small risk also has been found between the J&J vaccine and a rare brain blood clot in women under 50 years old. Guillain-Barré syndrome, a neurological disorder, has also occurred in a very small percentage of people who have received the J&J vaccine (approximately 100 of the 13 million doses administered to date).
- **Side effects –** Approximately 80% of people may develop a mild local symptom (pain at injection site) after receiving one of the three vaccines. Some patients may develop more systemic symptoms (fatigue, body aches, chills, fever, etc.) that subside after approximately 24 hours.
- **Second dose –** Both Moderna and Pfizer vaccines require two doses to be fully vaccinated. The Pfizer second dose is at 21 days, and the Moderna second dose is at 28 days. The J&J vaccine is a single shot which does not require a second dose for full protection.
- **Immunocompromised patients–** Immunocompromised patients require a third dose to complete their primary vaccine series and is approved for individuals ages 5 and older. For individuals ages 12 and older two additional boosters have been approved following a third dose of Pfizer or Moderna. The initial booster is approved three months following the third dose. A second booster dose is approved four months following the first booster. Children 5-11 years old are not approved to receive a vaccine booster. The specific immunocompromised criteria for can be found at https://www.uwmedicine.org/coronavirus/vaccine..
- **Booster doses –** For individuals ages 12 and older, initial booster doses are approved five months after second dose of Pfizer, Moderna, or any WHO approved vaccine series. Individuals 50 and older are approved to receive a second booster at least four months from the first booster. Johnson and Johnson is approved for booster two months following initial vaccination. Eligible individuals may choose which vaccine they receive as a booster. Children 5-11 years old are not approved to receive a vaccine booster.
- **Full vaccination status –** Patients are fully vaccinated two weeks after receiving the second dose of the Moderna or Pfizer vaccines, or two weeks after receiving the single-dose J&J vaccine.
- **Guillain-Barré Syndrome (GBS) or Bell's Palsy –** No cases of GBS were reported with either the Moderna or Pfizer vaccines in clinical trials. GBS has occurred in some people who have received the J&J vaccine. In most of these people, symptoms began within 42 days following receipt of the vaccine. The chance of having this occur is very low. Per CDC guidance, people with a history of GBS may receive a COVID-19 vaccine. There have not been cases of Bell's Palsy reported higher than baseline rates among unvaccinated individuals.