### Type of test

#### Molecular
- Description: Molecular testing detects the presence of the SARS-CoV-2 virus RNA. If the test comes back positive, it can be an indicator that the patient has an active COVID infection.

#### Antigen
- Description: Antigen testing detects the presence of the SARS-CoV-2 virus particles. If the test comes back positive, it can be an indicator that the patient has an active COVID infection.

#### Antibody
- Description: Antibody/Serology testing detects antibodies to the SARS-CoV-2 virus. If the test comes back positive, it can be an indicator that the patient has mounted an immune response to the virus.

#### Sample collection
- Molecular: A deep nasal swab collects virus particles.
- Antigen: A deep nasal swab collects virus particles.
- Antibody: A blood draw collects antibodies produced by immune cells.

#### Infection and how testing works
- Molecular: The virus infects the patient. When tested, the RNA derived from sample is transcribed into DNA and amplified.
- Antigen: As the infection progresses, viral particles can be measured using immunoassay techniques.
- Antibody: After two days, IgM antibodies are produced to attack the virus. After 9-11 days, tailored antibodies called IgG are produced. These antibodies are then measured using immunoassay techniques.

#### Advantages
- Molecular: - Tells you if you are infected now - Can detect early infections - Provides highly sensitive and specific results
- Antigen: - Tells you if you are infected now - Can detect early infections - Simple designs lead to rapid results and are more suited to test large numbers of people
- Antibody: - Reliably detects an immune response to the virus - Simple designs lead to rapid results and are more suited to test large numbers of people

#### Limitations
- Molecular: - Cannot detect those who’ve been infected and later recovered - Possibility of false negatives if patient has been recently infected
- Antigen: - Cannot detect those who’ve been infected and later recovered - Possibility of false negatives if patient has been recently infected
- Antibody: - Cannot distinguish if patient is contagious or infection is still present - Possibility of false negatives if patient has been recently infected or has a delayed immune response - Unknown if presence of antibody confers immunity