NH DIVISION OF Public Health Services
Department of Health and Human Services

Bureau of Infectious Disease Control

COVID-19 Frequently Asked Questions for Healthcare Providers and Public Health Partner

Last Updated: May 28, 2021

PLEASE NOTE: New or updated information appears in orange text.

The purpose of this document is to offer healthcare providers and facilities with frequently asked questions and answers that may be used to assist in responding to inquiries from their communities. All COVID-19 HAN messages can be found on the COVID-19 Healthcare Providers webpage. To sign up to receive HANs via email, contact Health.Alert@nh.gov.

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TESTING

Who should be tested for COVID-19 using RT-PCR?
Any person who is experiencing even mild symptoms of COVID-19 should be tested. These symptoms include, fever, cough, congestion, shortness of breath, muscle aches, chills, new significant fatigue, or loss of taste or smell. In addition anyone over the age of 60, healthcare workers, those with underlying health conditions, household members of vulnerable populations listed previously, child care staff, or employees who cannot avoid prolonged close contact with peers or the general public may be tested. Asymptomatic individuals may also be tested. Anyone tested for COVID-19 should isolate pending test results.

People who have mild symptoms of COVID-19, even if not tested, should stay home until:

At least 10 days have passed since symptoms first appeared	**AND**	At least 1 day (24 hours) has passed since recovery*

**Recovery is defined as a resolution of fever without the use of fever-reducing medications and improvement in respiratory symptoms.*

People who do not have symptoms but have been notified that they may have been exposed:

→ through close contact with a person with COVID-19 or a person likely to have COVID-19 (without testing); or,
→ any persons who have traveled outside of NH, ME, VT, MA, RI or CT:
- Stay home (self-quarantine) for 10 days from the last day of potential exposure.
- It can take up to 14 days from the time someone is exposed to develop symptoms of COVID-19.
- May be tested for COVID-19, however, a negative test result will not change the need for a person to self-quarantine.

What testing resources are available in NH?
For testing resources and options please visit our Testing Guidance page.

To submit specimens to the NH PHL for COVID-19 testing:

1. Complete a NH PHL Requisition. For shorter turnaround times, consider creating a PHL LabOnline account and filling out the on-line requisition. For more information, email PHL_LIMS_Group@dhhs.nh.gov
2. To send specimens to the NH PHL, collect NP/NS/OP swab and put into *viral transport media (VTM) or sterile saline.*

CDC Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons Under Investigation (PUIs) for Coronavirus Disease 2019 (COVID-19)

How do I get test results from specimens submitted for testing by the NH Public Health Laboratories?
The NH PHL will not release any test results over the phone. All results will be faxed to the facility indicated in the Submitter Information section of the NH PHL Requisition as soon as they are finalized. Individuals should contact the healthcare provider who ordered the test to receive their results.

How are COVID-19 tests paid for?
NH has issued an order that requires health insurers to cover services associated with testing for COVID-19. Health insurance companies must provide coverage, prior to application of any deductible and without cost sharing, for the initial healthcare provider visit and test for their members who meet the CDC criteria for testing, as determined by the insured's healthcare provider. For more information visit https://www.nh.gov/insurance/consumers/health-insurance-coronavirus-faq.htm

What about point-of-care antigen testing?
NH DPHS recommends that outpatient and ambulatory care facilities look to bring on point-of-care antigen testing for SARS-CoV-2 in order to facilitate rapid testing of patients with symptoms of COVID-19, preferably with the more sensitive test platform (i.e., the Quidel Sofia SARS Antigen test).

There are currently two point-of-care SARS-CoV-2 antigen tests that have received FDA Emergency Use Authorization (EUA) and are able to provide rapid results (within 15 minutes) when testing a symptomatic person for COVID-19:

- Quidel Sofia SARS Antigen FIA
- BD Veritor System

To report antigen test results, utilize this online form. For additional information on point-of-care antigen testing read our Health Alert Network Coronavirus Disease 2019 (COVID-19) Outbreak, Update #20: *Recommendations on Anitgen Testing*

CLEANING AND DISINFECTING

How do I clean and disinfect in a healthcare setting?
CDC provides Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic and Healthcare Infection Prevention and Control FAQs for COVID-19.

- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly.
- Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for SARS-CoV-2 in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.
- Refer to EPA-registered disinfectants that have qualified under EPA's emerging viral pathogens program for use against SARS-CoV-2.

How long does an examination room need to remain vacant after being occupied by a patient with confirmed or suspected COVID-19?
In short, the length the room should stay vacant depends on whether or not the COVID-19 patient was coughing, sneezing, or undergoing aerosol generating procedures. For a patient who was not coughing or sneezing and was only in the room for a few minutes, the risk likely dissipates in a few minutes. For more details, see CDC's Infection Control FAQs pasted below:

- "The amount of time that the air inside an examination room remains potentially infectious is not known and may depend on a number of factors including the size of the room, the number of air changes per hour, how long the patient was in the room, if the patient was coughing or sneezing, and if an aerosol-generating procedure was performed. Facilities will need to consider these factors when deciding when the vacated room can be entered by someone who is not wearing PPE.
- For a patient who was not coughing or sneezing, did not undergo an aerosol-generating procedure, and occupied the room for a short period of time (e.g., a few minutes), any risk to HCP and subsequent patients likely dissipates over a matter of minutes. However, for a patient who was coughing and remained in the room for a longer period of time or underwent an aerosol-generating procedure, the risk period is likely longer.
- For these higher risk scenarios, it is reasonable to apply a similar time period as that used for pathogens spread by the airborne route (e.g., measles, tuberculosis) and to restrict HCP and patients without PPE from entering the room until sufficient time has elapsed for enough air changes to remove potentially infectious particles.
- General guidance on clearance rates under differing ventilation conditions is available."
    - For example, a typical patient room may have 6 air changes per hour (ACH), which means after a patient undergoes an aerosol generating procedure or is coughing or sneezing, the room should remain vacant for 69 minutes before someone enters the room without proper PPE.

RISK-RELATED CONCERNS

What should healthcare personnel (HCP) do if they had a potential exposure to COVID-19?
The CDC offers Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease (COVID-19). This interim guidance is intended to assist with assessment of risk, monitoring, and work restriction decisions for healthcare personnel with potential exposure to COVID-19.

What is Multisystem Inflammatory Syndrome in Children (MIS-C)?
Multisystem Inflammatory Syndrome in Children (MIS-C) is a condition that causes inflammation in many parts of the body. Many children with MIS-C have had the virus that causes COVID-19. Protect your child from COVID-19 by taking preventative actions such as washing or sanitizing hands often, avoiding those who are sick, practicing social distancing, having children over the age of 2 wear a cloth face covering in public settings, and frequently cleaning and disinfecting high-touch surfaces. For more information on MIS-C, visit the CDC's "Information for Healthcare Providers about Multisystem Inflammatory Syndrome in Children (MIS-C)" webpage: https://www.cdc.gov/mis-c/hcp/

TRAVEL-RELATED CONCERNS

Healthcare providers should:

- Advise patients to defer all cruise ship travel, including river cruises, worldwide.
- Explain that their return travel to the United States may be impacted, and formal quarantine procedures may be implemented if confirmed cases are identified on board.
- Explain that appropriate medical care or medical evacuation may not be available internationally.
- Explain that some countries may refuse docking or disembarkation if there are known or suspected cases on board.
- For patients who still intend to cruise, advise them to
    - Stay in their cabin and notify the onboard medical center immediately if they get sick with fever, new or worsening cough, or trouble breathing during their cruise.
    - Stay home for 10 days after returning from travel, practice social distancing, and monitor their health both during travel and after they return. Social distancing means staying out of crowded places, avoiding group gatherings, and maintaining distance (approximately 6 feet or 2 meters) from others, when possible.
- Advise patients that any travel outside of New England (NH, MA, ME, VT, RI, CT) will be required to quarantine for 10 days upon return.
- Travelers now have the option to shorten their travel-related quarantine if all the following apply:
    - They get a PCR test on day 7 of quarantine or later (antigen testing is not appropriate for testing out of travel quarantine)
    - The PCR test is negative
    - The person is asymptomatic
    - There is no known "close contact" to a person with COVID-19
- For more information see Employer Travel, Screening, and Exclusion Guidance

HEALTHCARE FACILITIES

How should visitors and staff be screened and protected upon entering a healthcare facility?
DHHS recommends that all visitors and staff entering a healthcare facility be screened for symptoms and be provided with a washable (reusable) cloth face covering to wear in order to reduce asymptomatic/pre-symptomatic transmission of COVID-19 while in the facility.

What type of PPE should a healthcare worker wear when caring for a patient with suspect/confirmed COVID-19?
The healthcare worker caring for a patient with suspect/confirmed COVID-19 should:

1. Remove their cloth mask.
2. Secure the cloth mask in a plastic bag.
3. Conduct hand hygiene.
4. Don usual COVID-19 PPE which includes (at a minimum): surgical face mask; eye protection; gown; and, gloves.
5. An N95 or higher level respirator should be used for patients undergoing aerosol-generating procedures.

For additional information on PPE recommendations please reference Health Alert Network #18.

What personal protective equipment (PPE) should be worn by environmental services (EVS) personnel who clean and disinfect rooms of hospitalized patients with SARS-CoV-2 infection?
In general, only essential personnel should enter the room of patients with SARS-CoV-2 infection. Healthcare facilities should consider assigning daily cleaning and disinfection of high-touch surfaces to nursing personnel who will already be in the room providing care to the patient. If this responsibility is assigned to EVS personnel, they should wear all recommended PPE when in the room. PPE should be removed upon leaving the room, immediately followed by performance of hand hygiene.

After discharge, terminal cleaning can be performed by EVS personnel. They should delay entry into the room until time has elapsed for enough air changes to remove potentially infectious particles. After this time has elapsed, EVS personnel can enter the room and should wear a facemask (for source control) along with a gown and gloves when performing terminal cleaning. Eye protection should be added if splashes or sprays during cleaning and disinfection activities are anticipated or otherwise required based on the selected cleaning products. Shoe covers are not recommended at this time for personnel caring for patients with SARS-CoV-2 infection." (Source: CDC's Infection Control FAQs)

How should I report positive COVID-19 test results?
All healthcare facilities and laboratories should be reporting positive test results to the New Hampshire Division of Public Health Services. Information on how to report is located here: https://www.dhhs.nh.gov/dphs/cdcs/covid19/covid19-reporting-form.pdf. Report antigen test results using this online form.

NH DHHS, DIVISION OF PUBLIC HEALTH SERVICES (DPHS) RESPONSE

We care deeply about the health and wellbeing of the people of NH. We are committed to sharing accurate information with the public to ensure the optimal health and wellbeing of all NH residents while also ensuring we uphold the highest privacy standards for individual patients. As an organization we rely on the best available science and evidence-based practices. In rapidly evolving situations such as this we will provide updated information as it becomes available.

NH DPHS has been working closely with the CDC since the first case of COVID-19 was detected in the United States. We are working very closely with our healthcare and public health partners. Visit our website for our full case investigation and contact tracing plan.

In outbreaks such as this, public health recommendations may change. We encourage you to check these key resources frequently for updates:

- U.S. Centers for Disease Control and Prevention (CDC)

- NH Department of Health and Human Services (NH DHHS)
- NH DHHS Educational Institution Novel Coronavirus 2019 (COVID-19) Frequently Asked Questions (FAQ)
- NH DHHS Novel Coronavirus 2019 (COVID-19) Frequently Asked Questions (FAQ)
- New Hampshire COVID-19 Vaccination Information

COVID-19 VACCINES

What is an mRNA vaccine?

The Pfizer-BioNTech and Moderna vaccines were the first vaccines available and authorized for use to protect people from COVID-19. These two vaccines use messenger RNA (mRNA) to create an immune response and protect a person from future infection with SARS-CoV-2 (the coronavirus which causes COVID-19).

mRNA is the genetic recipe that all organisms, including humans, use to make proteins. These mRNA vaccines are a new approach that modify the SARS-CoV-2's mRNA so that our muscle cells can use the recipe to make a protein called the "spike protein". The spike protein is found on the surface of the SARS-CoV-2 virus and is harmless by itself. The spike protein is then seen by your immune system which in turn makes antibodies against SARS-CoV-2 to protect you from natural infection. After your muscle cells use the mRNA recipe, they quickly break it down and get rid of it. The mRNA vaccines do NOT contain live virus, and the mRNA never enters the nucleus of a person's cells where your DNA (genetic material) is kept, so the vaccine cannot cause any changes or damage to your DNA.

More information can be found at the CDC website about Understanding mRNA COVID-19 Vaccines.

What is an adenovirus vector vaccine?

The Janssen (also called the Johnson & Johnson) COVID-19 vaccine uses an inactivated ("replication-incompetent") cold virus called adenovirus serotype 26 (Ad26). The Ad26 virus has been modified to carry the genetic code so your muscle cells can make the SARS-CoV-2 virus "spike protein". After your muscle cells use the genetic code delivered by the Ad26 vaccine, they quickly break it down and get rid of it; the vaccine does not cause any changes or damage to your own DNA. The spike protein is harmless by itself, and serves to cause your immune system to make antibodies against the SARS-CoV-2 virus to protect you against future infection. Viral vector vaccines like Ad26 cannot cause COVID-19 infection.

More information about the different vaccines can be found on CDC's website about Understanding Viral Vector COVID-19 Vaccines.

Are the new COVID-19 vaccines safe? Have they been rushed into use?

The new COVID-19 vaccines are safe, and have been subject to the same rigorous scientific studies as other vaccines, and the vaccines have undergone scientific review by the FDA and CDC science and medical expert advisory committees to ensure that these vaccines are both safe and effective. The vaccine trials have been held to the same scientific standards as other vaccines that have been licensed for use, and the U.S. Food and Drug Administration (FDA) has not lowered their standards for these vaccines. First, a science advisory committee to the FDA (the Vaccine and Related Biological Products Advisory Committee, or VRBPAC) reviews all the trial data and makes a recommendation to the FDA to authorize the vaccine for use (i.e., Emergency Use Authorization). Then a medical advisory committee to the U.S. Centers for Disease Control and Prevention (the Advisory Committee on Immunization Practices, or ACIP) provides recommendations on how to safely use any authorized vaccine.

Therefore, while we do not yet have data on the long-term protection and outcomes after vaccination, the vaccines have been appropriately studied to ensure they are effective and safe to use now, and the safety of the vaccines will continue

to be monitored as they are used to vaccinate the public. So far, based on the vaccine trials and real-world use, there have been no concerning safety issues identified with the different COVID-19 vaccines. Scientists and researchers will continue to actively monitor the vaccines for any long-term safety concerns and to better understand how long protection lasts.

What is in the new COVID-19 vaccines?

The Pfizer-BioNTech vaccine contains the viral mRNA recipe for our cells to make the SARS-CoV-2 spike protein. The vaccine also includes the following ingredients:

- Lipids:
  - (4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate)
  - 2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide
  - 1,2-distearoyl-sn-glycero-3-phosphocholine
  - Cholesterol
- Potassium chloride
- Monobasic potassium phosphate
- Sodium chloride
- Dibasic sodium phosphate dihydrate
- Sucrose

The Moderna vaccine contains the viral mRNA recipe for our cells to make the SARS-CoV-2 spike protein. The vaccine also includes the following ingredients:

- Lipids:
  - SM-102 (proprietary to Moderna)
  - Polyethylene glycol [PEG] 2000 dimyristoyl glycerol [DMG]
  - 1,2-distearoyl-sn-glycero-3-phosphocholine [DSPC]
  - Cholesterol
- Tromethamine
- Tromethamine hydrochloride
- Acetic acid
- Sodium acetate
- Sucrose

The Janssen vaccine contains the modified inactivated ("replication-incompetent") adenovirus particles that carrying the genetic instructions to our cells to produce and express the SARS-CoV-2 spike protein. The vaccine also includes the following ingredients:

- Citric acid monohydrate
- Trisodium citrate dihydrate
- Ethanol
- 2-hydroxypropyl-β-cyclodextrin (HBCD)
- Polysorbate-80
- Sodium chloride
- Each dose may also contain some residual amounts of cell proteins and/or DNA from cells that were used to grow the adenovirus vector (PER.C6 TetR cells)

Both the Pfizer-BioNTech and Moderna mRNA vaccines contain polyethylene glycol (PEG), which is an inactive ingredient in many medications. The Janssen vaccine contains polysorbate, which is another inactive ingredient also frequently used

in many medications and vaccine products. Both PEG and polysorbate are structurally similar and are used to improve water solubility of medications and vaccines.

None of the vaccines contains any chemicals used as preservatives, like thimerosol. The vial stoppers from all brands/manufacturers are NOT made with natural rubber latex. There is also no egg used in the manufacturing.

How is the Pfizer-BioNTech vaccine prepared and administered?

The Pfizer-BioNTech vaccine is supplied in multi-dose vials, and should be stored frozen between -80°C to -60°C. Vials may be stored at -25°C to -15°C for up to 2 weeks cumulative time. Undiluted vials can be stored in the refrigerator (2°C to 8°C) for up to 5 days (120 hours); undiluted vials may be stored at room temperature (up to 25°C) for no more than 2 hours. Thawed vials cannot be re-frozen.

To use the vaccine, first the vaccine is thawed from the ultra-low storage temperatures to room temperature. After the vial reaches room temperature, it is then diluted in its original vial with 1.8 mL of sterile 0.9% Sodium Chloride Injection, USP (use ONLY this formulation of Sodium Chloride as a diluent). After dilution, the vial contains about 5-6 doses of vaccine (0.3 mL per dose) and must be stored between 2°C to 25°C and administered within 6 hours from the time of dilution. Unused vaccine must be discarded after 6 hours and cannot be refrozen. Whether a 6th dose can be obtained from a vial depends on the type of syringe used – syringes/needles with lower dead-space volume produce less vaccine wastage and allow for a possible 6th dose; if standard syringes or needles are used, 6 doses may not be able to be extracted from a single vial. If the amount of vaccine remaining in a vial cannot provide a full dose of 0.3 mL, discard the vial and any excess volume; do NOT pool excess vaccine from multiple vials.

The Pfizer-BioNTech vaccine is administered intramuscularly (IM) as a series of two 30 mcg doses (0.3 mL each after dilution) given 21 days apart. Both doses are necessary for full protection. If the second dose of the vaccine is given 17-21 days after the first dose, it is still considered valid (i.e., there is a 4-day "grace period"). Doses inadvertently administered earlier than the grace period should not be repeated. If more than 21 days has gone by since the first dose, then the second should be given as soon as possible, but no doses need to be repeated.

Providers should refer to the FDA's Fact Sheet for Healthcare Providers Administering Vaccine (for Pfizer-BioNTech) for the most updated guidance and information about vaccine storage, handling, and administration. See also CDC's summary of vaccine preparation and administration for the Pfizer-BioNTech COVID-19 Vaccine.

How is the Moderna vaccine prepared and administered?

The Moderna vaccine is supplied frozen between -25°C to -15°C in multi-dose vials (do NOT store on dry ice or below -40°C). Vials can be stored refrigerated between 2°C to 8°C for up to 30 days before vials are punctured. Unpunctured vials may be stored between 8°C to 25°C for up to 12 hours. Do NOT refreeze once thawed.

To use the vaccine, the vial must first be thawed and reach room temperature. Do NOT dilute the vaccine; vaccine should be gently swirled after thawing and between each withdrawal (do NOT shake). The vial contains about 10 doses of vaccine (0.5 mL per dose). After the first dose has been withdrawn, the vial should be held between 2°C to 25°C and the vial (and any unused vaccine) must be discarded after 6 hours. Do NOT refreeze.

The Moderna vaccine is administered intramuscularly (IM) as a series of two 100 mcg doses (0.5 mL each) given 28 days apart. Both doses are necessary for full protection. If the second dose of the vaccine is given 24-28 days after the first dose, it is still considered valid (i.e., there is a 4-day "grace period"). Doses inadvertently administered earlier than the

grace period should not be repeated. If more than 28 days has gone by since the first dose, then the second should be given as soon as possible, but no doses need to be repeated.

Providers should refer to the FDA's Fact Sheet for Healthcare Providers Administering Vaccine (for Moderna) for detailed guidance and information about vaccine storage, handling, and administration. See also CDC's summary of vaccine preparation and administration for the Moderna COVID-19 Vaccine.

How is the Janssen Biotech vaccine prepared and administered?

The Janssen vaccine is supplied as a suspension in multi-dose vials and should be stored between 2°C to 8°C and protected from light; the vials should NOT be stored frozen (they are initially frozen by the manufacturer and then shipped at temperatures of 2°C to 8°C, and they should NOT be re-frozen once they are shipped from the manufacturer). Unpunctured vials may be stored between 9°C to 25°C for up to 12 hours.

There is NO dilution required. Each vial contains 5 doses per vial (0.5mL per dose). The contents of the multi-dose vials should be carefully mixed before withdrawing each dose of vaccine by gently swirling the vial in an upright position for 10 seconds; do NOT shake the vials. After the first dose has been withdrawn, the vial should be held between 2°C to 8°C for up to 6 hours, or at room temperature (maximally 25°C) for up to 2 hours. Vials should be discarded if the vaccine is not used within these times.

The vaccine is administered as a single intramuscular injection of 0.5 mL.

Providers should refer to the FDA's Fact Sheet for Healthcare Providers Administering Vaccine (for Janssen) for detailed guidance and information about vaccine storage, handling, and administration. See also CDC's summary of vaccine preparation and administration (pending document publication) for the Janssen COVID-19 Vaccine.

Can the different COVID-19 vaccines be mixed or substituted for each other to complete a vaccination series?

COVID-19 vaccines are not interchangeable. The safety and efficacy of a mixed series of COVID-19 vaccines has not been studied. A person that starts a 2-dose series with one of the mRNA vaccines (Pfizer-BioNTech or Moderna), must complete the series with the same COVID-19 vaccine manufacturer.

A person, however, who has received one dose of an mRNA COVID-19 vaccine but has an allergic reaction which prevents that person from receiving the second dose of the mRNA vaccine may be given the single-dose Janssen COVID-19 vaccine after at least 28 days have passed from receipt of the mRNA vaccine in order to be considered fully vaccinated against COVID-19. CDC recommends that in such situations a risk assessment first be performed by a clinician and referral to an allergist-immunologist be considered (see CDC recommendations on COVID-19 vaccine contraindications and precautions for more information).

Can the COVID-19 vaccines be given with non-COVID vaccines?

No. The COVID-19 vaccines should be administered alone with at least 14 days of separation before or after any other vaccine is given. This is because there is no information on the safety and efficacy of the COVID-19 vaccines when administered at the same time with other vaccines. However, if one of the COVID-19 vaccines is administered within 14 days of another vaccine, there is no need for either vaccine to be repeated.

How effective are the COVID-19 vaccines?

All currently authorized COVID-19 vaccines are effective at preventing symptomatic disease, severe COVID-19, and hospitalizations and deaths related to COVID-19. The different vaccines were studied using different study protocols and in different settings, so direct comparison of vaccine efficacy between studies is difficult.

After two doses of vaccine, both the Pfizer-BioNTech and Moderna vaccines prevented symptomatic confirmed COVID-19 about 94-95% of the time. A single dose of the Janssen COVID-19 vaccine prevented symptomatic confirmed moderate-to-severe COVID-19 about 66% of the time starting 28 days after vaccination (similar vaccine efficacy was reported for symptomatic confirmed COVID-19 of any severity); however, vaccine efficacy was higher when evaluating just study participants in the U.S. because of SARS-CoV-2 "variants of concern" in other countries that contributed to lower overall vaccine efficacy (the Janssen vaccine study was conducted in multiple different countries, including the U.S., Brazil, and South Africa). In the U.S. vaccine study population, the Janssen vaccine reduced symptomatic confirmed moderate-to-severe COVID-19 by about 72%.

Similar high vaccine efficacy was observed across age groups, race/ethnicities and in people chronic medical conditions in the different COVID-19 vaccine studies. The vaccines, however, have not been studied in young children to know if the vaccines are effective in the younger pediatric age population. The vaccine studies did include older adults, and between 20%-25% of study participants in each of the three vaccine studies included adults 65 years of age or older. Vaccine efficacy in this older population in each vaccine study showed similar efficacy to the overall study population. No overall differences in safety or efficacy were observed in older adults compared to younger study participants in the vaccine studies.

How effective are the COVID-19 vaccines at preventing severe disease, including hospitalizations and deaths?

All COVID-19 vaccines have high efficacy at preventing severe disease, hospitalizations, and deaths from COVID-19. The new Janssen COVID-19 vaccine study data showed an 85% reduction in severe COVID-19 in participants who got a single dose of the Janssen vaccine compared to those who got a placebo (5 cases vs. 34 cases, respectively). The vaccine study also reported a vaccine efficacy of 100% at preventing both hospitalizations (0 hospitalizations due to COVID-19 in the vaccine group vs. 16 in the placebo group) and deaths (0 deaths due to COVID-19 in the vaccine group vs. 7 in the placebo group).

The Moderna vaccine study reported 100% vaccine efficacy at preventing severe COVID-19 (zero people who got the 2-dose vaccine series developed severe COVID-19 compared to 30 people who got the placebo). The number of people in the Pfizer-BioNTech vaccine study that developed severe COVID-19 was too small to calculate reliable vaccine efficacy for preventing severe disease. There was also limited data in the Moderna and Pfizer-BioNTech vaccine trials about vaccine efficacy at preventing COVID-19 hospitalizations. But similar to the Janssen vaccine, the Pfizer-BioNTech and Moderna vaccine trials reported zero deaths in people who received the COVID-19 vaccine, but a limited number of deaths in the placebo groups prevented calculation of vaccine efficacy for the mRNA vaccines at preventing death from COVID-19. Due to the very high vaccine efficacy, however, we expect both the Pfizer-BioNTech and Moderna vaccines to similarly have high efficacy at preventing COVID-19 hospitalizations and deaths.

A recent study published in the New England Journal of Medicine evaluated the efficacy of the Pfizer-BioNTech vaccine in a nationwide (Israel) mass vaccination setting and estimated that the Pfizer-BioNTech vaccine was 92% effective at preventing severe disease, 87% effective at preventing hospitalizations, and 84% effective at preventing deaths from COVID-19; efficacy for preventing deaths after the recommended two doses is not yet reported.

Do the vaccines prevent asymptomatic infection and spread of COVID-19 from one person to another?

We don't yet know how effective the vaccines are at preventing asymptomatic infection or transmission of SARS-CoV-2 from individuals who were vaccinated but develop infection anyway. Given the high vaccine efficacy of all COVID-19 vaccines at preventing symptomatic disease, hospitalizations, and deaths, they likely will also help prevent asymptomatic infection and transmission, but we don't yet have reliable numbers. The Janssen COVID-19 vaccine study did report some early preliminary estimates of vaccine efficacy at preventing asymptomatic infection based on seroconversion in participants without previous symptoms of COVID-19, and they estimated a vaccine efficacy of 74% at preventing asymptomatic infection (10 people without previous symptoms seroconverted in the vaccine group vs. 37 in the placebo group), but given the small numbers and limited follow-up, the FDA notes that "there is uncertainty about the interpretation of these data and definitive conclusions cannot be drawn at this time."

In addition, the role of vaccine in preventing transmission is still unclear. It is possible that people who have been vaccinated can still get asymptomatic infection and spread COVID-19, but we need more studies about how much the vaccines prevent transmission, especially in people who develop asymptomatic infection. Until we have a high level of population vaccination, it remains important for everybody (even people fully vaccinated) to continue to follow recommended mitigation measures to prevent spread of COVID-19, including social distancing, face mask, use, avoiding social/group gatherings, and limiting unnecessary travel.

Do the vaccines provide long-term protection and immunity?

We don't know yet how long a person's protection lasts after vaccination. The Pfizer-BioNTech, Moderna, and Janssen COVID-19 vaccine studies are following participants for up to 2 years after vaccination so we can learn more about long-term protection.

Can I choose which vaccine I receive?

People will not have a choice of which vaccine they receive when they arrive at a vaccination clinic. New Hampshire will offer persons who are scheduled further out a choice to move their vaccination appointment earlier to receive the Janssen vaccine through dedicated clinics being set up to vaccinate individuals more quickly. It is more important for people to be vaccinated with the first available vaccine rather than wait for a specific formulation or manufacturer.

Is there one vaccine that is better? Which one should I choose?

The CDC and their Advisory Committee on Immunization Practices (ACIP) do not recommend one vaccine over another. All currently available COVID-19 vaccines have been shown to be effective at preventing COVID-19, and all vaccines are highly effective at preventing severe disease, hospitalizations, and deaths from COVID-19. It is more important for people to be vaccinated with the first available vaccine rather than wait for a specific formulation or manufacturer.

There are individuals, however, who may need to receive one brand of the vaccine over another. A person who is prioritized for vaccination but is 16-17 years of age is only able to receive the Pfizer-BioNTech vaccine at this time. If someone has an allergy to one vaccine or component of a vaccine, they may need to receive a different brand/formulation. Also, because the Janssen vaccine only requires a single dose to complete vaccination against COVID-19, the Janssen vaccine may be more appropriate for people who are unable to commit to returning for a second dose of the vaccine and for those interested in more quickly completing their vaccination series.

Given the limited supply of the vaccine, should we only be giving one dose of the mRNA vaccines (instead of the recommended two doses) to people to maximize the number of people with at least some level of protection?

No. People should get 2 doses of either the Pfizer-BioNTech or Moderna vaccine (the vaccines are not interchangeable). The Pfizer-BioNTech vaccine study showed that after a single dose of vaccine (but before the second dose was given) the vaccine reduced the number of infections by about 52% – far less than the 95% after two doses. The Moderna vaccine study found that one dose of their vaccine reduced the number of infections by about 80% but there was only a short median follow-up time of 28 days. However, neither mRNA vaccine study was designed to only evaluate the effectiveness of a single dose of the vaccine. So while there is some protection after one dose of an mRNA vaccine, it is less than after two doses and may not last as long. Therefore, people should receive two doses of the same mRNA vaccine with doses appropriately spaced apart.

What are the most common symptoms I might experience after receiving the vaccine?

The Pfizer-BioNTech vaccine was studied in more than 43,000 people (including more than 21,000 people who got the vaccine and more than 21,000 people who got a placebo). The Moderna vaccine was studied in more than 30,000 people (including more than 15,000 people who got the vaccine and more than 15,000 people who got a placebo). The Janssen Biotech vaccine was studied in more than 43,000 people (including more than 21,000 people who got the vaccine and more than 21,000 people who got a placebo).

The most common adverse reactions in the Pfizer-BioNTech vaccine study were:

- Localized injection site reactions, including pain (84.1%), swelling (10.5%), and redness (9.5%).
- Systemic reactions including fatigue (62.9%), headache (55.1%), muscle pain (38.3%), chills (31.9%), joint pain (23.6%), fever (14.2%)

The most common adverse reactions in the Moderna vaccine study were:

- Localized injection site reactions, including pain (92.0%), swelling (14.7%), and redness (10.0%). There was also a significant number who developed arm pit (axillary) swelling and tenderness in the vaccination arm (19.8%).
- Systemic reactions including fatigue (70.0%), headache (64.7%), muscle pain (61.5%), joint pain (46.4%), chills (45.4%), nausea/vomiting (23.0%), and fever (15.5%).

The most common adverse reactions in the Janssen vaccine study were:

- Localized injection site reactions, including pain (48.6%), redness (7.3%), and swelling (5.3%).
- Systemic reactions including headache (38.9%), fatigue (38.2%), muscle pain (33.2%), nausea (14.2%), and fever (9.0%).

For all vaccines, both localized and systemic reactions were more common in the younger participants compared to older individuals, and were more common after the second dose of the vaccine with the mRNA vaccines. Localized and systemic reactions were mostly mild-to-moderate in severity and usually occurred within 1 to 2 days after vaccination, and then quickly resolved on their own.

About 20% of participants who got the Moderna vaccine also experienced axillary (arm pit) swelling and tenderness in the vaccination arm and more nausea/vomiting after vaccination. Lymph node swelling (lymphadenopathy) was also seen in vaccine recipients in the Pfizer-BioNTech vaccine study (reported in 64 vaccine recipients vs. 6 individuals in the placebo group). Bell's Palsy was rarely observed in vaccine studies (reported in 4 vaccine recipients vs. none in the placebo group in the Pfizer-BioNTech study, and in 3 vaccine recipients vs. 1 in the placebo group in the Moderna study), although the rate of Bell's palsy in the vaccine groups were similar to the expected background rate in the general population, so it is not clear that the mRNA vaccines caused the very small number of Bell's palsy cases. In the Janssen vaccine study there was no difference in occurrence of Bell's palsy with 2 cases in the vaccine group, and 2 cases in the placebo group.

In the Janssen vaccine study, compared to those who got a placebo, there was a slightly higher number of thromboembolic events in people receiving the vaccine, including deep vein thrombosis (6 events vs. 2 events), pulmonary embolism (4 events vs. 1 event), and transverse sinus thrombosis (1 event vs. 0 events). There were 4 seizure events in people receiving the vaccine vs. 1 seizure in a person who got the placebo. There were also 6 reports of tinnitus (ringing in the ears) reported in vaccine recipients compared to 0 reports in people who received the placebo. Numbers related to these events in the vaccine and placebo groups were very small, and it is unclear if the vaccine might have contributed to the slightly higher number of events in people who received the vaccine because some people had underlying medical conditions that might have predisposed them to experiencing these events.

There were no specific safety concerns identified in any of the vaccine studies. There is currently insufficient data to make conclusions about the safety of the vaccine in certain groups, such as children less than 16 years of age, pregnant and lactating women, and severely immunocompromised individuals.

Did people who got the vaccines have serious adverse reactions?

The frequency of serious adverse events overall was low (~0.5% in the Pfizer-BioNTech study, 1.0% in the Moderna study, 0.4% in the Janssen study) without significant differences between people who did and didn't get the vaccine. People who got the vaccines were also NOT more likely to die compared to those who didn't get the vaccine.

Do the COVID-19 vaccines cause serious allergic reactions?

Any medicine or vaccine can cause an allergic reaction, including severe reactions like anaphylaxis. The rate of overall allergic reactions in the vaccine studies were low for people that got the vaccine, although slightly higher than compared to the group that didn't receive the vaccine (0.63% of people who got the Pfizer-BioNTech vaccine had an allergic reaction compared to 0.51% in the placebo group; 1.5% of people who got the Moderna vaccine had an allergic reaction compared to 1.1% in the placebo group). Rates of overall allergic reactions was not reported in the Janssen vaccine study, however, there was a single case of anaphylaxis following vaccination with the Janssen vaccine in the vaccine study, and another individual with a serious hypersensitivity reaction (not classified as anaphylaxis) following vaccination. Additionally, episodes of non-serious urticaria (hives) were reported in 5 Janssen vaccine recipients compared to 1 placebo recipients within seven days of vaccination.

There have been rare reports of severe allergic reactions in people receiving the mRNA COVID-19 vaccines during mass vaccination events outside of clinical trials, but CDC has estimated the rate of anaphylaxis after receipt of the Pfizer-BioNTech or Moderna vaccines to be about 4.5 cases per million doses of vaccine administered, which is within the range reported for other commonly used vaccines (see MMWR publication).

To be cautious, everybody who receives one of the COVID-19 vaccines should be monitored for at least 15 minutes after vaccination, and certain people with other allergy histories should be monitored for 30 minutes after being vaccinated. See CDC's Interim Clinical Considerations for Use COVID-19 Vaccines for more details on vaccine contraindications and precautions.

Is it possible that people who get the vaccine can get more severe COVID-19 if infected later after vaccination ("vaccine-enhanced disease")?

Available data do NOT indicate a risk of vaccine-enhanced disease. Rather, data suggests the vaccines are effective at preventing severe disease.

If I have symptoms that I think might be a vaccine reaction, do I need COVID-19 testing?

If you develop symptoms after receiving a COVID-19 vaccine, you should consider contacting your healthcare provider for further evaluation, and report those symptoms through CDC's "v-safe" program. V-safe is a new smartphone-based tool that uses text messaging and web surveys to check in with vaccinated individuals for adverse events after a COVID-19 vaccination.

It is certainly possible for a person to be vaccinated and then develop COVID-19 from natural infection (from an exposure either before or soon after receiving the vaccine, before it has had a chance to work). The only way to tell the difference between symptoms from a vaccine reaction from symptoms of COVID-19 is to be tested. Any localized injection site reactions (redness, pain, swelling at the site of vaccination) that resolve on their own does not need further medical evaluation nor testing for COVID-19 because such localized symptoms are not consistent with COVID-19. However, if you develop systemic symptoms after vaccination (e.g., fatigue, headache, muscle pains, fever, chills), you should discuss with your healthcare provider whether you might need testing for COVID-19.

If a person's symptoms are the typical ones associated with the vaccine, occur within 1-2 days after vaccination, quickly resolve without medical intervention, and the person doesn't have any identified high-risk COVID-19 exposures in the previous 14 days, then the person may not need further testing for COVID-19 (note: respiratory symptoms or loss of taste and smell are NOT related to a vaccine reaction). But that person should not return to work until they are fever-free for at least 24 hours (off any fever reducing medications) and other symptoms are improving. If, however, a person's symptoms are severe, persist, or progress, then the symptomatic person should be tested for COVID-19. Also, any person who has had an identified exposure to somebody with COVID-19 in the previous 14 days but still receives the vaccine and then develops symptoms of COVID-19 should be excluded from work, isolate at home, and be tested for COVID-19.

If it is unclear whether symptoms might be related to a vaccine reaction vs. COVID-19, then providers and employers should err on the side of caution and test the symptomatic person, especially if that person works with vulnerable patients/populations or works in a congregate living setting. Antigen testing can be used in these situations to provide rapid turn-around of results and minimize duration a person is out of work. Even with a negative test, however, a person should not return to work until they are fever free for at least 24 hours (off any fever reducing medications) and other symptoms are improving.

Will the COVID-19 vaccines cause me to test positive for SARS-CoV-2 infection (by PCR or antigen testing) even if I'm not really infected?

No, the COVID-19 vaccines will not cause a person to test positive for active SARS-CoV-2 infection by either PCR or antigen tests.

If I recently received an antibody therapy as treatment for COVID-19, when can I be vaccinated?

CDC recommends that a COVID-19 vaccine should not be given for at least 90 days after a person receives antibody therapy as treatment for COVID-19 (i.e., convalescent plasma or monoclonal antibodies) to avoid the possibility that the COVID-19 specific antibody therapy might interfere with the body's immune response to the vaccine; this recommendation is based on the half-life of antibody therapies and evidence suggesting that re-infection is uncommon within 90 days after an initial infection. For other types of antibody therapies not related to treating COVID-19 (e.g., intravenous immunoglobulin or RhoGAM), there is no recommendation to delay COVID-19 vaccination after a person receives these non-COVID-19 antibody therapies.

If I have previously been diagnosed with COVID-19, should I still get the vaccine?

Yes. We know that people who have been previously infected with the SARS-CoV-2 coronavirus can be infected again. Previously infected individuals may receive additional protection from receiving the vaccine. Vaccination should not be given until a person recovers from COVID-19 (i.e., meets criteria for discontinuing isolation), but otherwise there is no minimum interval recommended between infection and vaccination. Additionally, if someone gets one dose of the COVID-19 vaccine and then naturally develops SARS-CoV-2 infection before their scheduled second dose, that person should still get the second dose of the vaccine at the appropriate time once they have met criteria for discontinuing isolation; if a person misses their scheduled second dose because they are on isolation (or quarantine), they should get the dose as soon as possible after coming off isolation (or quarantine).

Why can't I get the vaccine if I'm having symptoms of COVID-19?

Anybody who has any new or unexplained symptoms of COVID-19, even mild upper respiratory symptoms of a cold, needs to isolate themselves at home, and seek testing for COVID-19 (and only go out for testing or necessary medical care). It is not appropriate for a person who might have COVID-19 to go into public locations and potentially expose other people to the virus, such as the COVID-19 vaccination clinic staff.

Additionally, people who are sick are typically recommended to defer any vaccination until they feel better in case the person has an adverse reaction to the vaccine, and so that symptoms can be clearly attributed to infection vs. vaccination.

Why shouldn't I get the vaccine if I don't have symptoms of COVID-19, but I'm supposed to be quarantining (from travel or exposure to another person with COVID-19)?

About 40-50% of people infected with the SARS-CoV-2 virus will be asymptomatic (infected but not showing symptoms of COVID-19), but they are still able to spread their infection to others. In order to protect the public and the vaccination clinic staff, people with a risk factor for COVID-19 who are supposed to be staying home and out of public places should not put others at risk by breaking quarantine to receive the COVID-19 vaccine (unless allowed to work under public health critical infrastructure worker guidance).

Additionally, if someone does develop symptoms of COVID-19, that person will need to be tested for COVID-19, and it is important to not confuse symptoms of COVID-19 with a potential vaccine reaction. A person, for example, with COVID-19 who thinks their symptoms are because of a vaccine reaction may go on to spread infection to others, and reduce public confidence in the vaccine.

In contrast, residents of long-term care facilities (LTCFs) or other congregate living settings experiencing outbreaks may be vaccinated. This is because the vaccine will offer protection to this vulnerable population, and the vaccination campaign can be done in a controlled way that is unlikely to result in additional exposures, as long as vaccination staff use appropriate infection prevention and control measures, including PPE recommended in outbreak settings.

Who are these vaccines recommended for?

The Pfizer-BioNTech vaccine is authorized to be used in people 16 years of age and older who have no contraindication to vaccination. The Moderna and Janssen vaccines are authorized to be used in people 18 years of age and older who have no contraindication to vaccination. See CDC's Interim Clinical Considerations for Use of COVID-19 Vaccines for more details on vaccine contraindications.

Who is NOT able to get the vaccine?

There are some people who should not be vaccinated with certain COVID-19 vaccines because of specific allergy histories (person has a "contraindication" to vaccination). Other persons may be able to be vaccinated for COVID-19 but have allergies which require the person be evaluated by their primary care provider, or an allergy-immunology provider, before

being vaccinated so that a risk assessment can be performed and the person and their provider can discuss risks and benefits of vaccination (person has a "precaution" to vaccination). CDC has routinely updated their guidance about vaccine contraindications and precautions, so please see CDC's Interim Clinical Considerations for Use of COVID-19 Vaccines for more details about who should not get a COVID-19 vaccine and who might need to take additional precautions before vaccination (see also Appendix B). Everybody will need to be observed for at least 15 minutes after vaccination to monitor for vaccine allergic reactions. Anybody who has a history of either anaphylaxis due to any cause, or a history of any immediate allergic reaction to another vaccine or injectable therapy (which doesn't meet criteria as a contraindication to COVID-19 vaccination) will need to be observed for 30 minutes after vaccination, just to be safe.

Can pregnant or breastfeeding women be vaccinated?

Yes. Either the Pfizer-BioNTech, Moderna, or Janssen COVID-19 vaccines can be administered to women who are pregnant or breastfeeding as long as the woman does not have another reason that they cannot be vaccinated (see above), and they are included in the populations prioritized for vaccination. Pregnant women, however, are encouraged to first discuss any questions or concerns and the risks and benefits of vaccination with their primary pregnancy providers. The American College of Obstetricians and Gynecologists (ACOG) has also released a Practice Advisory about vaccinating pregnant and lactating women against COVID-19, and the CDC has released COVID-19 vaccination considerations for people who are pregnant or breastfeeding.

There is limited data on the safety of COVID-19 vaccines in pregnant and lactating women because the vaccines were not studied in these women. However, the currently authorized COVID-19 vaccines are NOT live virus vaccines, and the viral mRNA quickly breaks down after use, so there is not a clear biological reason why a developing fetus or breastfed baby would be harmed by the vaccine. Additionally, the Pfizer-BioNTech, Moderna, and Janssen vaccines have undergone animal studies which have not shown any female reproductive or fetal, embryonal, or postnatal development safety concerns. The adenovirus vector vaccine platform used in the Janssen COVID-19 vaccine has also been studied in other vaccines, including in a large-scale Ebola vaccine trial which did not find any adverse pregnancy-related outcomes related to vaccination.

We do know, however, that pregnant women are at increased risk of severe COVID-19, and natural infection might increase risk of adverse pregnancy outcomes due to COVID-19. So the benefit of COVID-19 vaccination in pregnant and breastfeeding women is expected to outweigh any potential risks from the vaccine, but pregnant and breastfeeding women who have questions or concerns should discuss those concerns with their pregnancy providers and/or pediatricians.

Pregnant women who are vaccinated and experience a fever after vaccination can be advised to take acetaminophen (if medically appropriate) because fever has been associated with adverse pregnancy outcomes.

Routine testing for pregnancy prior to COVID-19 vaccination is not recommended.

KEY CONTACTS

Topic/Inquiry	Contact	Phone/Email
▪ General Informationwww.nh.gov/covid19 ▪ Patients without a primary care provider seeking assessment for COVID-19 testing	2-1-1 New Hampshire	1-866-444-4211 TTY: 603-634-3388
▪ Clinical Questions	Division of Public Health Services Bureau of Infectious Disease Control	603-271-4496
▪ Media Inquiries ▪ Requests for Media Support	State of NH Joint Information Center	603-223-6169 JIC@dos.nh.gov
▪ Laboratory Courier Service	NH Public Health Laboratories	603-271-0305
▪ Sampling Supplies	NH Public Health Laboratories	603-271-4605 PHLClinicalKitOrders@dhhs.nh.gov
▪ Physician ordered testing for any patient with COVID-19 symptoms	NH DHHS COVID-19 Coordinating Office	Fax requisition to 603-271-3001 or email covidtesting@dhhs.nh.gov