

January 2021 ~ Resource #370101

Communicating About COVID-19 Vaccination

(Updated January 26, 2021)

COVID-19 vaccines currently available for use either have an Emergency Use Authorization (EUA; in the U.S.) or an Interim Order (Canada). See our chart, *COVID-19 Vaccines*, for a comparison of available COVID-19 vaccines. The chart below answers common questions your patients may have about COVID-19 vaccination and includes talking points and strategies to address COVID-19 vaccine misconceptions.

Question	Answer/Pertinent Information
<p>COVID-19 vaccines are being approved more rapidly than other vaccines. How can you reassure patients about this expedited approval process?</p>	<ul style="list-style-type: none"> • The COVID vaccine has been developed at a more rapid pace than what is normally seen with other vaccines. But this does NOT mean safety steps have been skipped.³⁴ The vaccine development process has been expedited because of the pandemic (e.g., early funding to ramp up manufacturing, overlapping phases of trials).³⁴ <ul style="list-style-type: none"> ○ Operation Warp Speed^b (U.S.) and International Coalition of Medicines Regulatory Authorities (ICMRA [Canada]) are helping ensure the rapid development process still adheres to safety and efficacy standards.^{11,28} • COVID-19 vaccines are going through the same RIGOROUS approval process as other approved vaccines. Data are reviewed/analyzed by independent experts (i.e., not scientists employed by the manufacturer). The independent reviewer recommendations are then presented to the approving agency (e.g., FDA, Health Canada).⁵⁰ • Reassure patients that COVID-19 vaccine safety is a top priority.^{21,27} COVID-19 vaccines are being studied through phased testing to ensure safety and efficacy before they are made available to the public. <ul style="list-style-type: none"> ○ In addition to phase 1 and 2 trials, phase 3 trials are enrolling between 30,000 and 40,000 participants per trial.²³ Trials are expanding the patient populations being studied. In the initial studies, most participants have been adults, including those with chronic conditions (e.g., diabetes, hypertension, cardiovascular disease, chronic respiratory disease [e.g., asthma, chronic obstructive pulmonary disease (COPD)]).^{17,19} As we get further into the trial process, more trials will be including patients as young as 12 years old.^{23,42} ○ Safety monitoring will continue even after vaccines are authorized or approved for use. Explain that in addition to standard vaccine monitoring (e.g., vaccine adverse event reporting system [VAERS]) additional monitoring will be done. <ul style="list-style-type: none"> ▪ For example, in the U.S., V-SAFE^a is a new smartphone-based healthcare checker to use after vaccination. It will use CDC text messages and web-based surveys to check in with recipients of a COVID-19 vaccine.¹⁷
<p>Which patients were excluded from early COVID-19 vaccine trials?</p>	<ul style="list-style-type: none"> • Some early COVID-19 vaccine trials' exclusion criteria included: <ul style="list-style-type: none"> ○ acutely ill or febrile ○ known history of SARS-CoV-2 infection or use of investigational meds to prevent SARS-CoV-2 infection ○ bleeding disorders involving contraindications to IM injections ○ immunosuppression (e.g., HIV, active hepatitis B or C infection, receiving cytotoxic therapy or systemic steroids for cancer or autoimmune disease)

Question	Answer/Pertinent Information
<p>Some of the COVID vaccines are utilizing new types of technology. How can you reassure patients these newer vaccines are safe?</p>	<p>Many COVID-19 vaccines are a new type of vaccine (e.g., messenger ribonucleic acid [mRNA], viral vectors).^{22,35}</p> <ul style="list-style-type: none"> • Explain to patients how COVID-19 vaccines work.^{22,35} <ul style="list-style-type: none"> ○ mRNA vaccines (e.g., mRNA-1273 [Moderna], BNT162b2 mRNA [Pfizer/BioNTech]) give our cells a blueprint for how to make a piece of a SARS-CoV-2 “spike” protein (note this piece of the SARS-Co-V-2 “spike protein” is harmless to the vaccine recipient). This triggers an immune response. Once the blueprint is delivered, the messenger (mRNA) is broken down. ○ Vector vaccines (e.g., AZD1222 [AstraZeneca], Ad26COVS1 [Johnson & Johnson]) use a weakened version of a different live virus with a viral vector (genetically inserted material from COVID-19). The viral vector teaches the vaccinated person’s body to build cells to fight COVID-19. • Explain that mRNA and viral vector COVID-19 vaccines do NOT contain the SARS-CoV-2 virus.^{22,35} • Reassure patients that mRNA vaccines do NOT affect a person’s genetic material (DNA).²² • Reassure patients that scientists have been studying mRNA vaccines for >15 years.³⁴ Even though COVID-19 vaccines will be the first mRNA vaccines to come to market, it is not new science. Over the years of studying mRNA vaccines (e.g., influenza, Zika, cytomegalovirus, rabies) researchers have been able to solve problems that previously kept these vaccines from coming to market (e.g., vaccine instability, inflammatory outcomes, modest immune response).²²
<p>What are some talking points to use with patients who may be hesitant to get vaccinated for COVID-19?</p> <p><i>Continued...</i></p>	<ul style="list-style-type: none"> • Remind patients about the benefits of COVID-19 vaccination. Vaccination may:¹⁶ <ul style="list-style-type: none"> ○ reduce illness severity if you become infected with COVID-19. ○ protect friends, family, co-workers, and close contacts from getting COVID-19. • Explain that the COVID-19 vaccine is one important tool in the toolbox to end the pandemic.¹⁶ <ul style="list-style-type: none"> ○ Social distancing and masks reduce the chance of exposure to the coronavirus that causes COVID-19.¹⁶ ○ Vaccination gets your immune system ready to fight COVID-19 infection if exposed.¹⁶ ○ Vaccination is also an important step in the development of herd immunity.²⁰ <ul style="list-style-type: none"> ▪ Herd immunity is when it is unlikely that a bacteria or virus can spread and cause disease because a large enough proportion of people are protected or considered immune.² More data are needed to know how many people need to be protected to achieve herd immunity against COVID-19.² Some predict that about 75% to 80% of the U.S. population would need to be vaccinated to achieve herd immunity.³² ▪ Caution patients that relying on natural immunity to achieve herd immunity to COVID-19 would mean hundreds of millions of people would have to recover from COVID-19 and during the time it would take for that many to recover, many more people could experience COVID-19 complications or death.⁵¹ • Encourage vaccination as the safer path toward immunity. <ul style="list-style-type: none"> ○ There is no way to predict how severe a COVID-19 infection will be for anyone, and infections can be fatal.^{4,12,16}

Question	Answer/Pertinent Information
Talking points for patients who are vaccine hesitant, continued	<ul style="list-style-type: none"> ○ COVID-19 infection has been associated with long-term consequences, even in young healthy people (e.g., lung, heart, and memory problems; mood changes; kidney damage).^{4,5} ○ Tell patients that we don't know how long natural immunity (antibodies from exposure to the virus through infection) or vaccine-induced immunity (antibodies from vaccination) lasts.³ But explain that early evidence suggests that natural immunity does NOT last very long,² and with the limited evidence available about vaccines, it appears it may last longer.⁴⁶
What age groups should receive a COVID-19 vaccine?	<ul style="list-style-type: none"> ● The Pfizer/BioNTech vaccine is authorized for ages 16 years and older.^{49,69} ● The Moderna vaccine is authorized for ages 18 years and older.^{49,69} ● Generally, children and adolescents outside of these authorized age groups should not receive a COVID-19 vaccine.^{49,69} In Canada, the Pfizer/BioNTech vaccine may be considered for adolescents between the ages of 12 and 15 years who are at very high risk of severe outcomes (e.g., due to other medical conditions known to increase risk for hospitalization or mortality) and at increased risk of exposure (e.g., living in a congregate care facility).⁶⁹
What are the expected short-term adverse effects with COVID-19 vaccination?	<ul style="list-style-type: none"> ● Be transparent that patients may experience short-term adverse effects after vaccination (i.e., don't sugarcoat or downplay these adverse effects). For other two-dose vaccines, this has been a well-received strategy in ensuring patients returned for their second dose (e.g., <i>Shingrix</i> vaccine).⁵² <ul style="list-style-type: none"> ○ Note that younger patients may be more likely than older patients to experience side effects.⁴¹ ○ Explain that most patients can expect mild to moderate pain or soreness at the injection site, while redness and swelling are significantly less common.^{15,18,33,41} ○ Many patients will experience systemic reactions, within about two days of vaccination. These usually go away within a day or two.³³ This is a normal response to a vaccine and means the body is building antibodies to prevent infection. Systemic adverse effects may be more likely with the second dose.^{7,41,55} Example systemic reactions and frequency over placebo with the BNT162b2 mRNA (Pfizer/BioNTech) and mRNA-1273 (Moderna) COVID-19 vaccines:^{1,41} <ul style="list-style-type: none"> ▪ fatigue/malaise: 10% to 15% (first dose); 35% to 45% (second dose) ▪ headache: less than 10% (first dose); 20% to 40% (second dose) ▪ fever/chills: <10% (first dose); 10% to 20% (fever; second dose); 20% to 42% (chills; second dose) ▪ myalgia/arthralgia: ≤10% (first dose); 15% to 35% (second dose)

Question	Answer/Pertinent Information
<p>What can patients do to minimize expected vaccine adverse effects?</p>	<ul style="list-style-type: none"> • Help patients reduce and prepare for adverse effects. For example: <ul style="list-style-type: none"> ○ Over the years limited data from older pediatric vaccine studies have raised questions about the effect of acetaminophen on vaccine immune response.^{68,75} Some COVID-19 vaccine trials allowed the use of acetaminophen post vaccination.^{1,10,15,41} For example, up to 45% of participants (Pfizer/BioNTech) or 57% (Moderna) used a fever-reducing medication (e.g., acetaminophen) after at least one of the mRNA vaccine doses to treat vaccine-related symptoms.^{1,41} The impact of prophylactic use of acetaminophen was not evaluated in the Pfizer/BioNTech or Moderna vaccine trials. Some of the testing sites for the AZD1222 viral vector (AstraZeneca) vaccine did allow prophylactic acetaminophen use (e.g., 1 gram prior to vaccination and continued every six hours for 24 hours after vaccination).¹⁵ <ul style="list-style-type: none"> ▪ All three studies found reduced adverse effects in those that used acetaminophen.^{1,15,41} ▪ Acetaminophen use with AZD1222 vaccine (AstraZeneca) did not impact immunogenicity.¹⁵ ▪ Currently the CDC supports use of antipyretic or analgesic meds (e.g., acetaminophen, ibuprofen) AFTER VACCINATION TO TREAT SYMPTOMS from an mRNA COVID-19 vaccine. However, routine use of prophylactic acetaminophen before or after vaccination with an mRNA COVID-19 vaccine is not recommended until we know more about the impact on immunogenicity.⁴⁹ ○ Suggest getting vaccinated when they will have a few days to rest and recover (i.e., on a Friday if they don't work weekends). Similarly, healthcare facilities may want to stagger staff vaccinations in order to minimize personnel shortages in case people are unable to work for a day or two after vaccination.²⁹
<p>Have there been serious or unusual adverse effects from COVID-19 vaccination?</p> <p><i>Continued...</i></p>	<ul style="list-style-type: none"> • Serious adverse effects from COVID-19 vaccination seem extremely rare. But it takes time and large numbers of people getting vaccinated before we may know more about possible adverse effects. Safety monitoring will continue even after a COVID-19 vaccine is approved.⁴ <ul style="list-style-type: none"> ○ If a safety issue is identified, it will be evaluated to see if it is related to the vaccine.⁴ For example: <ul style="list-style-type: none"> ▪ Bell's palsy was noted more often in mRNA vaccinated patients than those who received a placebo. The rate of Bell's palsy in vaccinated patients seems similar to the expected rate in the general population. Though, there is no suspected causal relationship, surveillance will continue as vaccine doses are given.^{1,8} ▪ Transverse myelitis was noted in an AZD1222 (viral vector vaccine) trial. Monitoring for neurologic events will continue and will be provided to experts for review.⁴⁴ • There have been reports of severe allergic reactions, including possible anaphylaxis, after receiving COVID-19 vaccine.^{45,47,58,76} Anaphylaxis is a known, but rare side effect with any vaccine.^{45,76} <ul style="list-style-type: none"> ○ Reassure patients that in general anaphylaxis due to a vaccination is rare.⁴⁵ In fact, in the U.S. studies, 0.63% (Pfizer/BioNTech) or 1.5% (Moderna) of vaccinated patients versus 0.51% (Pfizer/BioNTech) or 1.1% (Moderna) of placebo patients reported possible allergic reactions in trials.^{1,8} Initial numbers after authorization in the U.S. show the rate of anaphylaxis with the Pfizer/BioNTech vaccine to be 11.1 per million doses given.⁴⁵ ○ The COVID-19 vaccines are contraindicated in the patients with the following:^{10,38,49,57,58} <ul style="list-style-type: none"> ▪ history of a severe allergic reaction (e.g., anaphylaxis) after the first dose of a COVID-19 vaccine

Question	Answer/Pertinent Information
Serious or unusual adverse effects, continued	<ul style="list-style-type: none"> ▪ history of an immediate allergic reaction of any severity within four hours (e.g., wheezing, hives) to: <ul style="list-style-type: none"> • a previous dose of the COVID-19 vaccine • any component of the vaccine • polyethylene glycol (PEG) • polysorbate (not an ingredient in mRNA COVID-19 vaccines, but this excipient is potentially cross-reactive with PEG). ○ Monitor patients receiving an mRNA COVID-19 vaccine for 30 minutes if they have a history of severe allergic reaction (e.g., anaphylaxis) to anything or an immediate allergic reaction of any severity to a vaccine or injectable medication.⁴⁷ ○ Monitor all other patients for 15 minutes after receiving an mRNA COVID-19 vaccine (including patients with a history of severe allergies to foods, pets, latex, and oral medications [excluding oral meds allergies that are related to polysorbate or PEG]).⁴⁷ ○ A history of Guillain-Barre syndrome (GBS) is NOT a contraindication. As of December 2020, no cases of GBS have been reported after vaccination with an mRNA COVID-19 vaccine in clinical trials.⁷⁰
What are long-term safety concerns with COVID-19 vaccination?	<ul style="list-style-type: none"> • More time and data are needed to assess long-term safety of the COVID-19 vaccines.
What are strategies to encourage patients to return for the second dose of their COVID-19 vaccination? <i>Continued...</i>	<ul style="list-style-type: none"> • Stress the importance of completing the vaccination series with the same vaccine (COVID-19 vaccines are NOT interchangeable),³⁶ if more than one dose is needed (most COVID-19 vaccines currently in development require two doses separated by a few weeks).² <ul style="list-style-type: none"> ○ Give patients vaccine cards with product specific information about the vaccine they received and second-dose reminders/date to return.⁴⁸ ○ Consider searching immunization registries if patients received their first dose somewhere else and they are not sure which vaccine they received. U.S. subscribers can review our <i>Immunization Registry FAQs</i>, to learn more about registry capabilities. ○ In RARE circumstances, if the first-dose vaccine product cannot be determined or is no longer available, any available mRNA COVID-19 vaccine may be given with a minimum interval of 28 days between doses to complete the mRNA COVID-19 vaccination series.⁴⁹ <ul style="list-style-type: none"> ▪ If two doses of DIFFERENT mRNA vaccines are mistakenly given, instead of using the same product for the entire series, no additional doses are currently recommended.^{49,72} • Help patients understand why two doses are used for many vaccines, including most of the COVID-19 vaccines. <ul style="list-style-type: none"> ○ Vaccines work by teaching the body to recognize and fight a specific foreign substance (e.g., virus, bacteria).²⁶ ○ Vaccines do NOT replicate in our bodies like viruses and bacteria do.²⁶

Question	Answer/Pertinent Information
Encouraging patients to return for the second dose, continued	<ul style="list-style-type: none"> ○ Think of the first dose as a primer. The body is starting from scratch to recognize and fight the bacteria or virus.²⁶ ○ Think of the second dose as a booster. It provides the body another opportunity to learn how to respond, and to create even more memory cells against the bacteria or virus.²⁶ ● Consider these tips to improve the likelihood patients will return for second doses: <ul style="list-style-type: none"> ○ Make a strong recommendation to return for second doses. This can be a powerful motivator.²³ ○ Utilize reminder systems within your computer systems.²³ ○ Have patients schedule their appointment for their second dose when they receive their first dose ○ Use technology to remind patients (e.g., apps, texts, emails, phone calls) ● See our toolbox, <i>Medication Adherence Strategies</i>, for other adherence ideas.
What happens if the second COVID-19 vaccine dose is not given on schedule (too soon or too late)?	<ul style="list-style-type: none"> ● To get the most benefit from vaccination, adhere to recommended vaccine dosing intervals.^{53,71} <ul style="list-style-type: none"> ○ In general, when vaccine doses are given too close together, this can lead to a smaller immune response to the vaccine compared to when doses are given according to recommended schedules.⁵³ ○ For some vaccines, the series needs to be restarted if subsequent doses are delayed too long.⁵⁴ ● For COVID-19 vaccines, it is too soon to know how early or late second doses will impact immunity.⁷¹ Follow local health authority guidance for specifics in your area. Generally in: <ul style="list-style-type: none"> ○ U.S.: Schedule the second dose of the Pfizer/BioNTech vaccine 21 days after the first dose or the second dose of the Moderna vaccine 28 days after the first dose. If it is not possible to adhere to these dosing intervals the CDC supports scheduling a second dose for the Pfizer/BioNTech mRNA vaccine between 17 and 42 days after the first dose,⁴⁹ and for the Moderna mRNA vaccine between 24 and 42 days after the first dose.⁴⁹ <ul style="list-style-type: none"> ▪ If a dose is given earlier than day 17 (Pfizer/BioNTech) or 24 (Moderna), it is not necessary to repeat.⁴⁹ ▪ If a dose is given later than day 21 (Pfizer/BioNTech) or 28 (Moderna), give the second dose as soon as possible, preferably within 42 days, as there are limited data beyond 42 days. Even if doses are not given within 42 days, it is not necessary to restart the series.⁴⁹ Explain to patients that the immune system “remembers” the first dose and responds to the second dose (after the minimum dosing interval) when it is given.⁶⁷ ○ Canada: Ideally give second vaccine doses between:⁶⁹ <ul style="list-style-type: none"> ▪ Pfizer/BioNTech: 19 to 28 days after the first dose. ▪ Moderna: 21 to 28 days after the first dose ▪ If second doses are being delayed in your province, try to give second doses within 42 days of the first dose (for both Pfizer/BioNTech and Moderna vaccines). ○ More data are needed before guidance can be given about how to handle early or late second doses of other COVID-19 vaccines being studied.

Question	Answer/Pertinent Information
How long does it take to develop immunity after COVID-19 vaccination and how long does immunity last?	<ul style="list-style-type: none"> • It usually takes a few weeks after any vaccination to develop immunity.³⁵ See our chart, <i>Vaccines for COVID-19</i>, for specific timing to develop immunity for each of the available COVID-19 vaccines. <ul style="list-style-type: none"> ○ Though some protection may be provided with first doses of vaccines that require two doses, maximal protection does not seem to take effect until days to weeks after the second dose.^{10,41} Regardless, after vaccination, safety measures should still be used until we know more about real world protection from COVID-19.^{2,9} • We still don't know how long immunity after vaccination will last.^{12,34} Explain that we only have data for as long as the trials have been going on.⁹ Once we have more data about how long vaccine-induced immunity lasts, it will be possible to determine how often patients may need to be vaccinated against COVID-19 to maintain immunity.¹²
Can a COVID-19 vaccine cause a COVID-19 infection?	<ul style="list-style-type: none"> • No.³⁴ None of the COVID-19 vaccines currently in development use the live SARS-CoV-2 virus.⁶
Will COVID-19 vaccination lead to a positive COVID-19 test?	<ul style="list-style-type: none"> • COVID-19 vaccination may lead to a positive test for COVID-19 antibodies (serology tests).⁶ • COVID-19 vaccination will NOT lead to a positive test for active COVID-19 infection (molecular or polymerase chain reaction [PCR] tests and/or antigen tests).⁶
If vaccine supplies are limited, who will be prioritized for vaccination?	<ul style="list-style-type: none"> • Vaccination may occur in multiple phases. Sub-prioritization within the phases may be needed when vaccine supplies are limited. For example:^{14,25,29} <ul style="list-style-type: none"> ○ Phase 1a: healthcare workers and residents living in long-term care facilities ○ Phase 1b: people 75 years or older and frontline essential workers ○ Phase 1c: people between 65 and 74 years, people 16 to 64 with high-risk conditions (see below), essential workers not vaccinated in phase 1b ○ Phase 2: everyone 16 years and older, not vaccinated during phase 1 • Per ACIP, there are currently four priority groups for COVID-19 vaccination if supply is limited. These priority groups include healthcare workers; essential/critical workers (e.g., law enforcement, first responders, educators, grocery store workers, food manufacturers); people with certain underlying medical conditions that put them at risk for severe COVID-19 illness (e.g., cancer, chronic obstructive pulmonary disease [COPD], heart failure, severe obesity, type 2 diabetes); and people age 65 years and older.¹³

Question	Answer/Pertinent Information
<p>What do we know about COVID-19 vaccines during pregnancy?</p>	<ul style="list-style-type: none"> • Pregnant patients are at higher risk for severe illness from a COVID-19 infection or possibly preterm birth.⁴⁹ • There are currently little to no data available about the safety or efficacy of COVID-19 vaccines during pregnancy.^{1,8,29} The medication and vaccine approval process typically assesses safety and efficacy in healthy women of childbearing age, before testing them in pregnant patients.³⁰ • Though pregnant patients were excluded from initial trials, information about vaccine effects and possible adverse effects are being collected (and will be evaluated) in patients that became pregnant during clinical trials.^{1,8} In addition, there are no safety concerns from animal data with mRNA COVID-19 vaccines.⁴⁹ • Gynecology and obstetrics experts, as well as the CDC, support offering mRNA COVID-19 vaccines to pregnant and lactating patients. As more data become available, updates to these recommendations will be made.^{49,56,59} <ul style="list-style-type: none"> ○ It is NOT necessary to test for pregnancy PRIOR to receiving an authorized COVID-19 vaccine.^{49,59} ○ It is NOT necessary to avoid or delay pregnancy AFTER receiving an authorized COVID-19 vaccine.^{49,59} (In Canada it is suggested to delay pregnancy for at least 28 days after completing the vaccine series.⁶⁹) ○ It is NOT necessary to withhold RhoGAM immune globulin (e.g., <i>Rhogam</i> [U.S.], <i>WinRho S/D</i>). It will NOT interfere with the immune response to an authorized COVID-19 vaccine.⁵⁹ ○ Reassure patients that reproductive experts do NOT expect mRNA COVID-19 vaccines to impact fertility, pregnancy loss, still birth, or congenital abnormalities.⁶⁶ ○ Reassure patients that mRNA vaccines do NOT affect a person's genetic material (DNA).²²
<p>What do we know about safety and efficacy of COVID-19 in immunocompromised patients?</p>	<ul style="list-style-type: none"> • No data available, as patients who are immunocompromised were not included in early COVID-19 vaccine trials. • We know that people who are immunocompromised are at risk for severe illness from COVID-19.³⁷ • We also know that people who are immunocompromised may have a lesser response to vaccinations compared to patients who are immunocompetent.⁴⁰ • Per the CDC, it is acceptable to offer an mRNA COVID-19 vaccine to patients with immunocompromising conditions (e.g., cancer, HIV, taking an immunosuppressant or biologics).^{49,70} These vaccines do not contain a live virus. Be sure to counsel these patients about the lack of data and the potential for a reduced immune response.^{49,70} • For patients who opt not to receive the vaccine, counsel patients to continue to follow recommendations to reduce risk of infection (e.g., social distancing, hand washing) and wait until we have more vaccine data in these patient populations.^{39,49}

Question	Answer/Pertinent Information
Can COVID-19 vaccines be given with other vaccines?	<ul style="list-style-type: none"> • There are no data available about safety or efficacy of coadministration of a COVID-19 vaccine and other vaccines.³¹ • Separate vaccinations whenever possible. This way it is possible to collect “clean adverse effect data” associated with COVID-19 vaccines and specifically linked to individual vaccines.⁶⁹ <ul style="list-style-type: none"> ○ U.S.: For mRNA COVID-19 vaccines, give alone or with a minimum of 14 days before or after other vaccines.⁴⁹ If mRNA COVID-19 vaccines are inadvertently given within 14 days of another vaccine, none of the vaccine doses need to be repeated.⁴⁹ ○ Canada: Ensure a minimum 14 days AFTER receiving other vaccines before a COVID-19 vaccine is given and wait at least 28 days after the COVID-19 vaccine series before giving other vaccines.⁶⁹ An exception to this could be when a vaccine is needed for postexposure prophylaxis.⁶⁹
Should COVID-19 vaccines be avoided in patients taking anticoagulants or antiplatelets?	<ul style="list-style-type: none"> • Taking anticoagulants or antiplatelets are NOT a contraindication to receiving a COVID-19 vaccine (e.g., aspirin, warfarin, enoxaparin, clopidogrel, apixaban).⁶³⁻⁶⁵ • As with all other vaccines given IM, consider the following to minimize bleeding risk:⁶³⁻⁶⁵ <ul style="list-style-type: none"> ○ Use a fine-gauge needle (e.g., 23-gauge, 25-gauge). ○ Apply firm pressure (without rubbing) to the injection site for at least two to three minutes after the injection. • Reassure patients that vaccination benefits outweigh the small risk of bruising. Serious effects are NOT expected. Advise patients to monitor for bleeding or bruising and to report unusual or excessive bleeding or bruising to their healthcare provider.⁶⁵
Should someone who has COVID-19 or who was previously infected get vaccinated?	<ul style="list-style-type: none"> • Previous COVID-19 infection (with or without symptoms) is NOT a contraindication to COVID-19 vaccination.²⁹ • It may be reasonable for people with recent COVID-19 infections to temporarily delay COVID-19 vaccination (especially when vaccine supply is limited), as the risk of reinfection is low in the months after initial infection, but infection risk may increase over time.^{29,49} • Defer vaccination with an mRNA COVID-19 vaccine until patients have recovered from the acute COVID-19 illness and meet criteria to stop isolation (including patients who develop COVID-19 in between doses one and two of the vaccine).⁴⁹ • There is NOT clear guidance on whether or not to give COVID-19 vaccines to someone with an acute illness (other than COVID-19). In general, moderate to severe illness is considered a precaution against vaccination (as vaccination side effects can make it difficult to assess management of the acute illness), while vaccination during a mild illness (with or without fever) is not a precaution.⁴³

Question	Answer/Pertinent Information
Should someone who previously received monoclonal antibodies or convalescent plasma for COVID-19 get vaccinated?	<ul style="list-style-type: none"> • There are no data about the use of mRNA COVID-19 vaccines in patients who received either monoclonal antibody therapy or convalescent plasma.⁴⁹ • To avoid any possibility of lessening a patient’s immune response to an mRNA COVID-19 vaccine, wait at least 90 days before vaccinating a patient who received either monoclonal antibody therapy (e.g., bamlanivimab, casirivimab/imdevimab) or convalescent plasma to treat COVID-19.⁴⁹ Waiting 90 days before vaccinating applies to patients before receiving any dose of a COVID-19 vaccine or who are in the middle of the vaccination series.⁴⁹
Do COVID-19 vaccines contain aborted fetal cells?	<ul style="list-style-type: none"> • Cell lines with remote fetal origins are not used in the production of either the Moderna or Pfizer/BioNTech COVID-19 vaccines.⁶⁰ • Fetal cells (from elective abortions in the 1970s and 1980s) were used to confirm that COVID-19 mRNA vaccines are taken up by cells and used as a blueprint to make a SARS-CoV-2 spike protein.⁶⁰
What should U.S. healthcare providers know about billing for COVID-19 vaccinations?	<ul style="list-style-type: none"> • There will be no charge to patients for the COVID-19 vaccine. COVID-19 vaccines are currently purchased by the government. You will only be billing for the administration fee, not for the vaccine itself.² • To ensure pharmacies are appropriately reimbursed for the administrative fee, it is recommended to enter the following:²⁴ <ul style="list-style-type: none"> ○ Quantity: use the volume to be injected for the specific vaccine being administered ○ Days’ supply: “1” ○ Professional services code: MA ○ Ingredient cost: \$0.00 or \$0.01 depending on the payer ○ Submission clarification code (SCC) (for vaccines requiring two doses): <ul style="list-style-type: none"> ▪ “2” for the first dose (i.e., “other override” defined as, “used when authorized by the payer in business cases not currently addressed by other SCC values,” to indicate giving the first dose of a two-dose vaccine). ▪ “6” for the second dose (i.e., “starter dose” defined as, “the pharmacist is indicating that the previous medication was a starter dose and now additional medication is needed to continue treatment,” to indicate giving the final dose of a two-dose vaccine). • Proposed reimbursement rates for COVID_19 vaccine administration fees:⁶² <ul style="list-style-type: none"> ○ First dose of a two-dose vaccine: \$16.94 ○ Second dose of a two-dose vaccine: \$28.39 ○ Dose of a single-dose vaccine: \$28.39 • COVID-19 vaccine and administrative CPT (current procedural technology) billing codes:⁶¹ <ul style="list-style-type: none"> ○ Pfizer/BioNTech: 91300 (vaccine); 0001A (administering first dose); 0002A (administering second dose) ○ Moderna: 91301 (vaccine); 0011A (administering first dose); 0012A (administering second dose) ○ AstraZeneca: 91302 (vaccine); 0021A (administering first dose); 0022A (administering second dose) <p><i>Continued...</i></p>

Question	Answer/Pertinent Information
Billing for COVID-19 vaccinations in the U.S., continued	<ul style="list-style-type: none"> • For additional medicare billing information (how to submit claims including institutional, professional, and for centralized billing), go to https://www.cms.gov/medicare/covid-19/medicare-billing-covid-19-vaccine-shot-administration. • For additional pharmacist-specific reimbursement information for COVID-19 vaccine administration (e.g., steps to take to ensure eligibility for reimbursement, becoming eligible to give vaccines under Medicare, how to handle uninsured patients), go to https://www.pharmacist.com/sites/default/files/audience/APhACOVID-19ReimbursementforAdmin1120_web.pdf.
Are safety precautions (e.g., masks, social distancing) still necessary after COVID-19 vaccination?	<ul style="list-style-type: none"> • Yes.³⁴ Until more is known about “real world” protection provided by COVID-19 vaccines, advise patients to:² <ul style="list-style-type: none"> ○ socially distance (stay at least six feet apart from other people) ○ practice good hand hygiene (e.g., hand washing/sanitizing) ○ wear a mask/face covering • It is too soon to know if COVID-19 vaccines will stop a person from spreading the virus, even people who are asymptomatic. For example, it may be possible that if someone was vaccinated and then exposed to the virus, though they might not get sick, they could still spread the virus to others.⁹ • Implementation of safety precautions may change over time as we learn more about the protection provided by COVID-19 vaccination. The number of people who get vaccinated and virus spread in local communities may also play a role in determining this.²

- a. For more information about the V-SAFE monitoring system go to <https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-09/COVID-03-Shimabukuro.pdf>.
- b. Operation Warp Speed is comprised of Department of Health and Human Services (HHS), including the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), and the Biomedical Advanced Research and Development Authority (BARDA), and the Department of Defense (DoD).

Users of this resource are cautioned to use their own professional judgment and consult any other necessary or appropriate sources prior to making clinical judgments based on the content of this document. Our editors have researched the information with input from experts, government agencies, and national organizations. Information and internet links in this article were current as of the date of publication.

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References

1. FDA. Vaccines and related biological products advisory committee meeting December 17, 2020. FDA briefing document. Moderna COVID-19 vaccine. <https://www.fda.gov/media/144434/download>. (Accessed January 20, 2021).
2. CDC. Coronavirus Disease 2019 (COVID-19). Frequently asked questions about COVID-19 vaccination. Updated December 13, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/faq.html>. (Accessed December 15, 2020).
3. CDC. Vaccines & immunizations: immunity types. March 10, 2017. <https://www.cdc.gov/vaccines/vac-gen/immunity-types.htm>. (Accessed December 15, 2020).
4. CDC. Vaccines & immunizations: answering patients' questions. November 2, 2020. https://www.cdc.gov/vaccines/covid-19/hcp/answering-questions.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fvaccines%2Fhcp%2F-covid-conversations%2Fanswering-questions.html. (Accessed December 15, 2020).
5. CDC. Coronavirus disease 2019 (COVID-19). Long-term effects of COVID-19. November 13, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html#:~:text=The%20most%20commonly%20reported%20long,Cough>. (Accessed December 15, 2020).
6. CDC. Coronavirus disease 2019 (COVID-19). Facts about COVID-19 vaccines. December 13, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits/facts.html>. (Accessed December 15, 2020).
7. Anderson EJ, Roupheal NG, Widge AT, et al. Safety and immunogenicity of SARS-CoV-2 mRNA-1273 vaccine in older adults. *N Engl J Med* 2020;383:2427-38.
8. FDA. Vaccines and related biological products advisory committee meeting December 10, 2020. FDA briefing document. Pfizer/BioNTech COVID-19 vaccine. <https://www.fda.gov/media/144245/download>. (Accessed January 20, 2021).
9. Children's Hospital of Philadelphia. Questions and answers about COVID-19 vaccines. December 15, 2020. <https://www.chop.edu/centers-programs/vaccine-education-center/making-vaccines/prevent-covid>. (Accessed December 15, 2020).
10. Product monograph for Pfizer-BioNTech COVID-19 vaccine. Kirkland, QC H9J 2M5. December 2020.
11. U.S. Department of Health and Human Services. Coronavirus. Fact sheet: explaining operation warp speed. December 2020. <https://www.hhs.gov/coronavirus/explaining-operation-warp-speed/index.html>. (Accessed December 15, 2020).
12. CDC. Coronavirus disease 2019 (COVID-19). Frequently asked questions. December 11, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/faq.html#Spread>. (Accessed December 15, 2020).
13. CDC. Coronavirus disease 2019 (COVID-19). How CDC is making COVID-19 vaccine recommendations. December 13, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations-process.html>. (Accessed December 15, 2020).
14. The National Academies of Sciences Engineering Medicine. Framework for equitable allocation of COVID-19 vaccine. 2020. <https://www.nap.edu/download/25917#>. (Accessed December 1, 2020).
15. Folegatti PM, Ewer KJ, Aley PK, et al. Safety and immunogenicity of the ChAdOx1 nCoV-19 vaccine against SARS-CoV-2: a preliminary report of a phase 1/2, single-blind, randomised controlled trial. *Lancet* 2020;396:467-78.
16. CDC. Coronavirus disease 2019 (COVID-19): benefits of getting a COVID-19 vaccine. November 24, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/vaccine-benefits.html>. (Accessed December 15, 2020).
17. CDC. Coronavirus disease 2019 (COVID-19). Ensuring the safety of COVID-19 vaccines in the United States. December 10, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety.html>. (Accessed December 15, 2020).
18. Walsh EE, Frenck RW Jr, Falsey AR, et al. Safety and immunogenicity of two RNA-based COVID-19 vaccine candidates. *N Engl J Med* 2020;383:2439-50.
19. Ramasamy MN, Minassian AM, Ewer KJ, et al. Safety and immunogenicity of ChAdOx1 nCoV-19 vaccine administered in a prime-boost regimen in young and old adults (COV002): a single-blind, randomised, controlled, phase 2/3 trial. *Lancet* 2020 Nov 18. doi: 10.1016/S0140-6736(20)32466-1.
20. U.S. Department of Health and Human Services. Vaccines protect your community. February 2020. <https://www.vaccines.gov/basics/work/protection>. (Accessed December 3, 2020).
21. CDC. COVID-19 (Coronavirus disease). 8 things to know about the U.S. COVID-19 vaccination program. January 5, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/8-things.html>. (Accessed January 20, 2021).
22. CDC. Vaccines & Immunizations. Understanding and explaining mRNA COVID-19 vaccines. November 24, 2020. <https://www.cdc.gov/vaccines/covid-19/hcp/mrna-vaccine-basics.html>. (Accessed January 20, 2020).

23. CDC. ACIP COVID-19 vaccines work group. November 23, 2020. <https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-11/COVID-01-Bell.pdf>. (Accessed December 15, 2020).
24. National Community Pharmacists Association. COVID-19 vaccine billing and reimbursement. December 10, 2020. https://ncpa.org/sites/default/files/2020-12/COVID-19_vaccine_billing_for_NCPA_Members_12.10.2020.pdf. (Accessed January 20, 2021).
25. ACIP COVID-19 Vaccines work Group, Dooling K. Phased allocation of COVID-19 vaccines. ACIP meeting. December 20, 2020. <https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-12/slides-12-20/02-COVID-Dooling.pdf>. (Accessed December 21, 2020).
26. Sanchez, K. The first COVID-19 vaccines will likely require two shots. November 20, 2020. <https://www.theverge.com/2020/11/20/21587664/pfizer-moderna-covid-19-coronavirus-vaccine-two-doses-shots>. (Accessed December 15, 2020).
27. Government of Canada. Drugs and vaccines for COVID-19. December 9, 2020. <https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/drugs-vaccines-treatments/about.html>. (Accessed December 15, 2020).
28. Government of Canada. Health Canada's regulatory response to COVID-19: International engagement. December 8, 2020. <https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/engaging-international-partners.html>. (Accessed December 15, 2020).
29. CDC. Vaccine recommendations and guidelines of the ACIP. Interim considerations for COVID-19 vaccination of healthcare personnel and long-term care facility residents. December 3, 2020. <https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19/clinical-considerations.html>. (Accessed January 20, 2021).
30. Faden R, Karron R, Krubiner C. Will Coronavirus vaccines be safe for pregnant women? August 21, 2020. <https://www.jhsph.edu/covid-19/articles/will-coronavirus-vaccines-be-safe-for-pregnant-women.html>. (Accessed January 20, 2021).
31. American Medical Association. AMA COVID-19 daily video update: get the latest on vaccines that have entered phase 3 trials. September 25, 2020. <https://www.ama-assn.org/delivering-care/public-health/ama-covid-19-daily-video-update-get-latest-vaccines-have-entered>. (Accessed December 15, 2020).
32. Harvard Gazette. Health and Medicine. Fauci says herd immunity possible by fall, 'normality' by end of 2021. December 10, 2020. <https://news.harvard.edu/gazette/story/2020/12/anthony-fauci-offers-a-timeline-for-ending-covid-19-pandemic/>. (Accessed December 15, 2020).
33. Sadoff J, Le Gars M, Shukarev G, et al. Safety and immunogenicity of the Ad26.COV2.S COVID-19 vaccine candidate: interim results of a phase 1/2a, double-blind, randomized, placebo-controlled trial. <https://www.medrxiv.org/content/10.1101/2020.09.23.20199604v1.full.pdf>. (Accessed December 15, 2020).
34. American Pharmacists Association. APhA COVID-19 resources: know the facts. Key points about COVID-19 vaccines. December 11, 2020. https://www.pharmacist.com/sites/default/files/audience/APhACovidKeyPointsHandout_1220_web.pdf. (Accessed December 15, 2020).
35. CDC. Coronavirus disease 2019 (COVID-19). Understanding how COVID-19 vaccines work. November 2, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/how-they-work.html>. (Accessed December 15, 2020).
36. CDC. COVID-19 vaccination program interim playbook for jurisdiction operations. October 29, 2020. https://www.cdc.gov/vaccines/imz-managers/downloads/COVID-19-Vaccination-Program-Interim_Playbook.pdf. (Accessed December 15, 2020).
37. CDC. COVID-19. People with certain medical conditions. December 29, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html>. (Accessed January 20, 2020).
38. FDA. Fact sheet for healthcare providers administering vaccine (vaccination providers). Emergency use authorization (EUA) of the Moderna COVID-19 vaccine to prevent coronavirus disease 2019 (COVID-19). December 2020. <https://www.fda.gov/media/144637/download>. (Accessed January 120, 2021).
39. NHS. Independent report: Joint Committee on Vaccination and Immunisation: advice on priority groups for COVID-19 vaccination, 30 December 2020. Updated January 6, 2021. <https://www.gov.uk/government/publications/priority-groups-for-coronavirus-covid-19-vaccination-advice-from-the-jcvi-30-december-2020/joint-committee-on-vaccination-and-immunisation-advice-on-priority-groups-for-covid-19-vaccination-30-december-2020>. (Accessed January 20, 2021).
40. American Society of Hematology. ASH-ASTCT COVID-19 and vaccines: frequently asked questions. December 23, 2020. <https://www.hematology.org/covid-19/ash-astct-covid-19-and-vaccines>. (Accessed January 20, 2021).
41. Polack FP, Thomas SJ, Kitchin N, et al. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine. *N Engl J Med* 2020 Dec 10. doi: 10.1056/NEJMoa2034577.
42. Moderna. Press releases: Moderna announces first participants dosed in phase 2/3 study of COVID-19 vaccine candidate in adolescents. December 10, 2020. <https://investors.modernatx.com/news-releases/news-release-details/moderna-announces-first-participants-dosed-phase-23-study-covid>. (Accessed December 15, 2020).

43. Immunization Action Coalition. Ask the experts: contraindications and precautions. September 1, 2020. <https://www.immunize.org/askexperts/contraindications-precautions.asp>. (Accessed January 20, 2021).
44. Voysey M, Clemens SAC, Madhi SA, et al. Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK. *Lancet* 2021;397:99-111.
45. CDC. Morbidity and Mortality Weekly Report (MMWR). Allergic reactions including anaphylaxis after receipt of the first dose of Pfizer-BioNTech COVID-19 vaccine – United States, December 14 – 23, 2020. January 15, 2021. <https://www.cdc.gov/mmwr/volumes/70/wr/mm7002e1.htm>. (Accessed January 20, 2021).
46. Widge AT, Roupheal NG, Jackson LA, et al. Durability of responses after SARS-CoV-2 mRNA-1273 vaccination. *N Engl J Med* 2021;384:80-2.
47. CDC. COVID-19. COVID-19 vaccines and allergic reactions. January 22, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/allergic-reaction.html>. (Accessed January 26, 2021).
48. National Public Radio. The coronavirus crisis. Vaccine cards and second-dose reminders are part of warp speed's immunization plan. December 3, 2020. <https://www.npr.org/2020/12/03/942294593/vaccine-cards-and-second-dose-reminders-are-part-of-warp-speeds-immunization-pla>. (Accessed December 15, 2020).
49. CDC. Vaccines & immunizations. Interim clinical considerations for use of mRNA COVID-19 vaccines currently authorized in the United States. January 21, 2021. <https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html>. (Accessed January 22, 2021).
50. FDA. FDA statement: Coronavirus (COVID-19) updated: FDA holds advisory committee meeting to discuss authorization of COVID-19 vaccine candidate as part of agency's review of safety and effectiveness data. December 10, 2020. <https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-holds-advisory-committee-meeting-discuss-authorization-covid-19>. (Accessed December 15, 2020).
51. Mayo Clinic. Herd immunity and COVID-19 (coronavirus): what you need to know. December 15, 2020. <https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/herd-immunity-and-coronavirus/art-20486808>. (Accessed December 15, 2020).
52. Chiu A. 'Absolutely normal': COVID vaccine side effects are no reason to avoid the shots, doctors say. December 3, 2020. https://www.washingtonpost.com/lifestyle/wellness/vaccine-side-effects-covid/2020/12/02/55bebac0-342c-11eb-8d38-6aea1adb3839_story.html. (Accessed December 15, 2020).
53. CDC. Vaccine recommendations and guidelines of the ACIP. Timing and spacing of immunobiologics. November 17, 2020. <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html>. (Accessed December 15, 2020).
54. World Health Organization. Table 3: recommendations for interrupted or delayed routine immunization – summary of WHO position papers. Updated September 2020. https://www.who.int/immunization/policy/Immunization_routine_table3.pdf. (Accessed December 15, 2020).
55. FDA. Coronavirus disease 2019 (COVID-19). Pfizer/BioNTech COVID-19 vaccine. December 18, 2020. <https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/pfizer-biontech-covid-19-vaccine>. (Accessed December 21, 2020).
56. Society for Maternal and Fetal Medicine. Experts in high-risk pregnancy respond to the FDA's decision to offer the newly approved COVID-19 vaccine to pregnant and lactating people. December 11, 2020. https://s3.amazonaws.com/cdn.smfm.org/media/2632/FDA_final.pdf. (Accessed January 20, 2021).
57. FDA. Fact sheet for healthcare providers administering vaccine (vaccination providers). Emergency use authorization (EUA) of the Pfizer-BioNTech COVID-19 vaccine to prevent coronavirus disease 2019 (COVID-19). <https://www.fda.gov/media/144413/download>. (Accessed January 20, 2021).
58. Government of Canada. Pfizer-BioNTech COVID-19 vaccine: Health Canada recommendations for people with serious allergies. December 16, 2020. <https://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2020/74543a-eng.php#:~:text=In%20Canada%2C%20all%20vaccines%20carry,currentl%20cautioned%20against%20receiving%20it.> (Accessed January 20, 2021).
59. American College of Obstetricians and Gynecologists. Practice advisory: vaccinating pregnant and lactating patients against COVID-19. December 21, 2020. <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/12/vaccinating-pregnant-and-lactating-patients-against-covid-19>. (Accessed January 20, 2021).
60. North Dakota Health. COVID-19 vaccines & fetal cell lines. <https://www.health.nd.gov/sites/www/files/documents/COVID%20Vaccine%20Page/COVID-19%20Vaccine%20Fetal%20Cell%20Handout.pdf>. (Accessed January 20, 2021).
61. American Medical Association. Appendix Q: severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) vaccines. January 2021. <https://www.ama-assn.org/system/files/2021-01/covid-19-immunizations-appendix-q-table.pdf>. (Accessed January 20, 2021).
62. Centers for Medicare & Medicaid Services. COVID-19 vaccines and monoclonal antibodies. January 19,

2021. <https://www.cms.gov/medicare/medicare-part-b-drug-average-sales-price/covid-19-vaccines-and-mono-clonal-antibodies>. (Accessed January 20, 2021).
63. CDC. Prevacination checklist for COVID-19 vaccines. January 5, 2021. <https://www.cdc.gov/vaccines/covid-19/downloads/pre-vaccination-screening-form.pdf>. (Accessed January 20, 2021).
64. North American Thrombosis Forum. COVID-19 vaccine update. December 22, 2020. <https://natfonline.org/2020/12/covid-19-vaccine-update/#:~:text=If%20you're%20on%20anticoagulant,as%20determined%20by%20your%20doctor>. (Accessed January 20, 2021).
65. Thrombosis Canada. Thrombosis Canada encourages patients on anticoagulation to get the COVID-19 vaccine. December 22, 2020. <https://thrombosiscanada.ca/wp-uploads/uploads/2020/12/National-Release-VACCINES-Final-Dec-22.pdf>. (Accessed January 20, 2021).
66. American Society for Reproductive Medicine. American Society for Reproductive Medicine (ASRM) patient management and clinical recommendations during the coronavirus (COVID-19) pandemic. Update no. 11 – COVID-19 vaccination. December 16, 2020. <https://www.asrm.org/globalassets/asrm/asrm-content/news-and-publications/covid-19/covidtaskforceupdate11.pdf>. (Accessed January 20, 2021).
67. Iacobucci G, Mahase E. COVID-19 vaccination: what's the evidence for extending the dosing interval? January 6, 2021. <https://www.bmj.com/content/372/bmj.n18>. (Accessed January 20, 2021).
68. Li-Kim-Moy J, Wood N, Jones C, et al. Impact of fever and antipyretic use on influenza vaccine immune responses in children. *Pediatr Infect Dis J* 2018;37:971-5.
69. Health Canada. National Advisory Committee on Immunization (NACI): statements and publications. Recommendations on the use of COVID-19 vaccines. January 12, 2021. <https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-covid-19-vaccines.html>. (Accessed January 20, 2021).
70. CDC. COVID-19. Vaccination considerations for persons with underlying medical conditions. December 29, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/underlying-conditions.html>. (Accessed January 20, 2021).
71. FDA. FDA statement on following authorized dosing schedules for COVID-19 vaccines. January 4, 2021. <https://www.fda.gov/news-events/press-announcements/fda-statement-following-authorized-dosing-schedules-covid-19-vaccines>. (Accessed January 20, 2021).
72. American Pharmacists Association. Addressing the COVID-19 crisis: an open forum webinar series for pharmacy. January 14, 2021. <https://www.pharmacist.com/sites/default/files/audience/Week37PresentationCOVID19WebinarSeriesHandout.pdf>. (Accessed January 21, 2021).
73. Moderna. A phase 3, randomized, stratified, observer-blind, placebo-controlled study to evaluate the efficacy, safety, and immunogenicity of mRNA-1273 SARS-CoV-2 vaccine in adults aged 18 years and older. August 20, 2020. <https://www.modernatx.com/sites/default/files/mRNA-1273-P301-Protocol.pdf>. (Accessed January 21, 2021).
74. Pfizer. A phase 1/2/3, placebo-controlled, randomized, observer-blind, dose-finding study to evaluate the safety, tolerability, immunogenicity, and efficacy of SARS-CoV-2 RNA vaccine candidates against COVID-19 in healthy individuals. https://pfizer.com/d8-prod.s3.amazonaws.com/2020-09/C4591001_Clinical_Protocol.pdf. (Accessed January 21, 2021).
75. Prymula R, Siegrist CA, Chlibek R, et al. Effect of prophylactic paracetamol administration at time of vaccination on febrile reactions and antibody responses in children: two open-label, randomized controlled trials. *Lancet* 2009;9698:1339-50.
76. Shimabukuro T, Nair N. Allergic reactions including anaphylaxis after receipt of the first dose of Pfizer-BioNTech COVID-19 vaccine. *JAMA* 2021 Jan 21. doi: 10.1001/jama.2021.0600.

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