SARS-CoV-2 Virus (COVID-19) mRNA Vaccine (All Populations Monograph)

Indications/Dosage

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Labeled

- prevention of coronavirus disease 2019 (COVID-19)

General Dosing Information

- The Pfizer-BioNTech COVID-19 vaccine (Comirnaty) is FDA-approved for the 2-dose regimen in patients 16 years and older; use in patients 12 to 15 years and the recommended third dose for immunocompromised patients is covered under an Emergency Use Authorization (EUA).[66080][66904] The Moderna COVID-19 vaccine is not an FDA-approved vaccine, but has been authorized under an EUA for use in patients 18 years of age and older.[66120]
- There is no data available on the interchangeability of the COVID-19 vaccines to complete the vaccination series. Patients who have received 1 dose of Pfizer-BioNTech COVID-19 or Moderna COVID-19 vaccine should receive a second dose of the same vaccine to complete the vaccination series.[66080][66120] In exceptional situations (e.g., first dose of vaccine product cannot be determined or is no longer available), any available mRNA COVID-19 vaccine may be administered at a minimum interval of 28 days between doses. In situations where the same mRNA COVID-19 vaccine is temporarily unavailable, it is recommended to delay the second dose up to 6 weeks to receive the same product. If 2 doses of different COVID-19 vaccine products are administered in these situations or inadvertently administered, no additional doses of either product are recommended.[66175]
- Administer the second dose as close to the recommended interval as possible; do not schedule the second dose appointment earlier than the recommended dosing interval. Second doses administered within a grace period of 4 days or less from the recommended date are considered valid. However, second doses administered earlier do not need to be repeated. When necessary, the second mRNA COVID-19 vaccine dose may be scheduled for administration up to 6 weeks (42 days) after the first dose. If the second dose is administered after 6 weeks, there is no need to restart the series.[66175]
- A third dose of the same mRNA vaccine may be administered at least 28 days after the 2-dose regimen in individuals who have undergone solid organ transplantation, or who are diagnosed with a condition that is considered to have an equivalent level of immunocompromise.[66080][66120]
- The COVID-19 vaccine may be administered with other vaccines without regard to timing. It is unknown whether reactogenicity is increased with coadministration of COVID-19 vaccines and other vaccines in the same day, as well as coadministration with other vaccines known to be more reactogenic, such as adjuvanted or live vaccines. When deciding whether to coadminister another vaccine with COVID-19 vaccines, consider if the patient is behind or at risk of becoming behind on recommended vaccines, their risk of vaccine-preventable disease, and the reactogenicity profile of the vaccines. If multiple vaccines are given at a single visit, administer each injection in a different injection site; separate injection sites by 1 inch or more, if possible. Administer the COVID-19 vaccines and vaccines that may be more likely to cause a local reaction (e.g., tetanus-toxoid-containing and adjuvanted vaccines) in different limbs, if possible.
- Do not delay the mRNA COVID-19 vaccine because of testing for tuberculosis (TB) infection. Testing for TB infection, using the tuberculin skin test (TST) or interfero-gamma release assay (IGRA) can be done before or during the same visit as vaccine administration. If TB testing can not be done at the same time, testing should be delayed by 4 weeks or more after the completion of mRNA COVID-19 vaccination. Patients who have active TB disease or an illness that is being evaluated as active TB disease can receive a mRNA COVID-19 vaccine.[66175]

Vaccination in cases of SARS-CoV-2 infection or exposure

- Prior receipt of a mRNA COVID-19 vaccine should not affect treatment decisions (including use of monoclonal antibodies, convalescent plasma, antiviral treatment, or corticosteroid administration) or timing of treatments if patients subsequently develop COVID-19. Administration of an antiviral drug at any interval before or after vaccination is unlikely to impair the development of a protective antibody response.
- Offer vaccination regardless of history of prior symptomatic or asymptomatic SARS-CoV-2 infection. Defer vaccination of patients with known SARS-CoV-2 infection until acute illness has resolved and criteria for discontinuing isolation have been met. This applies to patients with known SARS-CoV-2 infection before receiving any vaccine as well as those with known infection after the first dose but before the second dose, in which case the second dose should be deferred until acute illness has resolved and criteria for discontinuing isolation have been met.
- Patients with a history of multisystem inflammatory syndrome in children (MIS-C) or in adults (MIS-A) may choose to be vaccinated. Considerations for vaccination may include clinical recovery from MIS-C or MIS-A, including return to normal cardiac function; personal risk of severe acute COVID-19; level of COVID-19 community transmission and personal risk of reinfection; lack of safety data of COVID-19 vaccines after these illnesses; and timing of any immunomodulatory therapies. Patients with a history of MIS-C or MIS-A should consider delaying vaccination until they have recovered from their illness and for 90 days after the date of diagnosis. Consider referring patients who develop MIS-C or MIS-A that is associated with a confirmed SARS-CoV-2 infection, but occurs after COVID-19 vaccine administration, to a specialist in infectious disease, rheumatology, or cardiology.
- For patients who received monoclonal antibodies or convalescent plasma for COVID-19 treatment, defer vaccination for at least 90 days. This applies to patients who receive passive antibody therapy before receiving any vaccine as well as those who receive passive antibody therapy after the first dose but before the second dose, in which case the second dose should be deferred for at least 90 days after antibody therapy.
- Receipt of passive antibody therapy in the past 90 days is not a contraindication to COVID-19 vaccine administration. COVID-19 vaccine doses received within 90 days after receipt of passive antibody therapy do not need to be repeated.
- Patients in congregate healthcare settings (e.g., long-term care facilities) or other congregate settings (e.g., correctional and detention facilities, homeless shelters) with a known SARS-CoV-2 exposure may receive vaccination at any time.[66175]

Patients vaccinated outside the United States

- Patients who were vaccinated outside the United States with an FDA-authorized COVID-19 vaccine and have received all the recommended doses do NOT need any additional doses.
- Patients who received the first dose of an FDA-authorized COVID-19 vaccine that requires 2 doses do NOT need to restart the vaccine series in the United States, but should receive the second dose as close to the recommended time as possible.
- Patients who have completed a COVID-19 series with a vaccine that has been authorized for emergency use by the World Health Organization (WHO) do NOT need any additional doses with an FDA-authorized COVID-19 vaccine.
- Patients who are partially vaccinated with a COVID-19 vaccine series authorized for emergency use by WHO may be offered an FDA-authorized COVID-19 vaccine series.
- Patients who have completed or partially completed a COVID-19 vaccine series with a vaccine that is NOT authorized by FDA or NOT authorized for emergency use by WHO may be offered an FDA-authorized COVID-19 vaccine series.
- The minimum interval between the last dose of a non-FDA authorized COVID-19 vaccine and an FDA-authorized COVID-19 vaccine is 28 days.[66175]

For the prevention of coronavirus disease 2019 (COVID-19)

Intramuscular dosage (Pfizer-BioNTech COVID-19 vaccine)

- **Adults**

  0.3 mL (30 mcg) IM for 2 doses administered 3 weeks apart.[66904]

- **Adolescents 16 to 17 years**

  0.3 mL (30 mcg) IM for 2 doses administered 3 weeks apart.[66904]

- **Children and Adolescents 12 to 15 years†**

  0.3 mL (30 mcg) IM for 2 doses administered 3 weeks apart.[66080]

Intramuscular dosage (Moderna COVID-19 vaccine)†

- **Adults**

  0.5 mL (100 mcg) IM for 2 doses administered 1 month apart.[66120]

for patients who have undergone solid organ transplantation or who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise†

Intramuscular dosage (Pfizer-BioNTech COVID-19 vaccine)

- **Adults**

  0.3 mL (30 mcg) IM may be administered as a third dose at least 28 days after the second dose.[66080]

- **Children and Adolescents 12 to 17 years**

  0.3 mL (30 mcg) IM may be administered as a third dose at least 28 days after the second dose.[66080]

Intramuscular dosage (Moderna COVID-19 vaccine)

- **Adults**

  0.5 mL (100 mcg) IM may be administered as a third dose at least 28 days after the second dose.[66120]

Maximum Dosage Limits

- Adults

  0.3 mL/dose IM for Pfizer-BioNTech COVID-19 vaccine; 0.5 mL/dose IM for Moderna COVID-19 vaccine.

- Geriatric

  0.3 mL/dose IM for Pfizer-BioNTech COVID-19 vaccine; 0.5 mL/dose IM for Moderna COVID-19 vaccine.

- Adolescents

  0.3 mL/dose IM for Pfizer-BioNTech COVID-19 vaccine; safety and efficacy have not been established for Moderna COVID-19 vaccine.

- Children

  12 years: 0.3 mL/dose IM for Pfizer-BioNTech COVID-19 vaccine; safety and efficacy have not been established for Moderna COVID-19 vaccine.

  1 to 11 years: Safety and efficacy have not been established.

- Infants

  Safety and efficacy have not been established.

- Neonates

  Safety and efficacy have not been established.

Patients with Hepatic Impairment Dosing

Specific guidelines for dosage adjustments in hepatic impairment are not available; it appears that no dosage adjustments are needed.

Patients with Renal Impairment Dosing

Specific guidelines for dosage adjustments in renal impairment are not available; it appears that no dosage adjustments are needed.

† Off-label indication

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References

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66120 – Food and Drug Administration (FDA). Fact Sheet for Healthcare Providers Administering Vaccine: Emergency Use Authorization (EUA) of Moderna COVID-19 Vaccine to Prevent Coronavirus Disease 2019 (COVID-19). Retrieved August 13, 2021.

66175 – Center for Disease Control and Prevention. Interim clinical considerations for use of COVID-19 vaccines currently authorized in the United States. Updated August 11, 2021. Accessed August 12, 2021. Available at: https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html.

66904 – Comirnaty (COVID-19) injection package insert. New York, NY: Pfizer, Inc; 2021 Aug.

How Supplied

Nucleoside-modified messenger RNA (modmRNA) of SARS-CoV-2 Suspension for injection
COMIRNATY COVID-19 Vaccine Suspension for Injection (00069-1000) (Pfizer Injectables)
Pfizer-BioNTech COVID-19 Vaccine (59267-1000) (Pfizer Manufacturing Belgium NV)

Synthetic messenger RNA (mRNA) of SARS-CoV-2, SM-102, Cholesterol, 1,2-DISTEAROYL-SN-GLYCERO-3-PHOSPHOCHOLINE, PEG2000-DMG Suspension for injection
Moderna COVID-19 100mcg/0.5mL Vaccine (80777-0273) (Moderna US, Inc)

Description/Classification

Description

The COVID-19 vaccine is a vaccine that contains messenger RNA (mRNA) encoding the viral spike glycoprotein (S) of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It is used for active immunization for the prevention of coronavirus disease 2019 (COVID-19) caused by SARS-CoV-2. While Comirnaty (Pfizer-BioNTech COVID-19 vaccine) has received full FDA-approval for the 2-dose regimen in patients 16 years and older, use in patients 12 to 15 years and the recommended third dose for immunocompromised patients continues to be covered under the Emergency Use Authorization (EUA).[66080][66904] The Moderna COVID-19 vaccine is not an FDA-approved vaccine, but has been authorized under an EUA for use in patients 18 years of age and older.[66120] There are many clinical trials underway for various COVID-19 vaccines.[66083] One of the advantages of mRNA vaccines is that they can be rapidly manufactured. The process is cell-free and can be scaled, allowing quick responses to large outbreaks and epidemics, such as the COVID-19 pandemic. Additionally, mRNA vaccines offer a different technology; unlike other vaccines, RNA-based vaccines introduce an mRNA sequence coded for a disease-specific antigen, which elicits a robust innate immune response when presented to the immune system.[66084][66093] In clinical trials, RNA-vaccines and RNA-based therapeutic agents have been found to be safe and well-tolerated. The most commonly reported adverse drug reactions include injection site pain, fever, chills, fatigue, muscle pain, and headache. Serious allergic reactions and anaphylaxis have been reported in patients outside of clinical trials during mass vaccination.[66084][66080][66120]

Emerging SARS-CoV-2 Virus Variants

The mRNA COVID-19 vaccines are being tested against emerging coronavirus variants. Based on in vitro studies, Moderna reported no significant impact on neutralization of it's mRNA vaccine against the B.1.1.7 (alpha) variant; however, a 6-fold geometric mean titer reduction against the B.1.351 (beta) variant was seen. Pfizer has reported a small effect of its mRNA vaccine on neutralization titers against these variants compared to the parental virus strain based on in vitro studies; however, Pfizer's analysis did not include all the mutations found in the variants.[66352][66353][66354] In a study evaluating the effectiveness of the Pfizer-BioNTech COVID-19 vaccine against the B.1.1.7 (alpha) and B.1.617.2 (delta) variants, 2 doses of the Pfizer-BioNTech COVID-19 vaccine was 93.7% effective among patients with the alpha variant and 88% effective among patients with the delta variant. The effectiveness after 1 dose was considerably lower among patients with the delta variant (30.7%) than among those with the alpha variant (48.7%).[66845]

Pfizer-BioNTech Vaccine Trial Data

Efficacy data for the Pfizer-BioNTech COVID-19 vaccine included 36,621 patients 12 years of age and older who did not have evidence of prior infection with SARS-CoV-2 through 7 days after the second dose. Of the study participants who received the Pfizer-BioNTech COVID-19 vaccine (n = 18,242), 51.1% were male and 48.9% were female, 82.8% were White, 8.9% were Black or African American, 4.5% were Asian, 0.6% were American Indian or Alaska Native, 0.3% were Native Hawaiian or other Pacific Islander, and 2.9% were either multiracial or not reported. Additionally, 72.7% were not Hispanic or Latino, 26.8% were Hispanic or Latino, and 0.6% were not reported. Patients who were immunocompromised and those who had a previous clinical or microbiological diagnosis of COVID-19 disease were excluded, along with pregnant and breast-feeding women. Patients with pre-existing stable disease, defined as diseases not requiring significant change in therapy or hospitalization for worsening disease during the 6 weeks before enrollment, were included as were participants with known stable infection with human immunodeficiency virus (HIV), hepatitis C virus (HCV), or hepatitis B virus (HBV). In an interim analysis, there were no confirmed COVID-19 cases in patients 12 to 15 years who received the Pfizer-BioNTech COVID-19 vaccine with or without evidence of prior SARS-CoV-2 infection, an overall efficacy of 100%. There were 8 confirmed COVID-19 cases in patients 16 years and older who received the Pfizer-BioNTech COVID-19 vaccine and 162 cases in the placebo group. The overall efficacy of the Pfizer-BioNTech COVID-19 vaccine was 95% in patients without evidence of prior SARS-CoV-2 infection. In patients 16 to 64 years and 65 years and older, the efficacy was 95.1% and 94.7%, respectively. There were no significant clinical differences in overall vaccine efficacy in patients at risk of severe COVID-19 disease including those with 1 or more comorbidities that increase the risk of severe COVID-19 disease (e.g., asthma, BMI 30 kg/m^2 or more, chronic pulmonary disease, diabetes mellitus, hypertension).[57006][66080]

Moderna Vaccine Trial Data

Efficacy data for the Moderna COVID-19 vaccine included 28,207 patients who did not have evidence of prior infection with SARS-CoV-2 through 14 days after the second dose. Of the study participants, 52.6% were male and 47.4% were female, 79.5% were White, 9.7% were Black or African American, 4.6% were Asian, and 2.1% were other. Additionally, 19.7% were Hispanic or Latino. Patients who were immunocompromised were excluded, along with pregnant and breast-feeding women. Patients with pre-existing stable disease, defined as diseases not requiring significant change in therapy or hospitalization for worsening disease during the 3 months before enrollment, were included as were participants with known stable infection with human immunodeficiency virus (HIV). In the primary efficacy analysis, there were 11 confirmed COVID-19 cases in the Moderna COVID-19 vaccine group and 185 cases in the placebo group. The overall efficacy of the Moderna COVID-19 vaccine was 94.1% in patients without evidence of prior SARS-CoV-2 infection (95% CI, 89.3% to 96.8%; p less than 0.001). In patients 18 to 64 years and 65 years and older, the efficacy was 95.6% and 86.4%, respectively. Vaccine efficacy was also similar across other subgroups including presence of risk for severe COVID-19, sex, and race and ethnic group. A secondary endpoint of vaccine efficacy at preventing COVID-19 14 days after the first dose was 95.2%. The vaccine efficacy in the population that included patients who were SARS-CoV-2 seropositive at baseline was 93.6%. There were 30 cases of severe COVID-19 all occurring in patients who received placebo.[66120][66199]

Classifications

- General Anti-infectives Systemic
  - Vaccines
    - Pure Vaccines
      - SARS-CoV-2 (Covid-19) Vaccines

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References

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66080 – Food and Drug Administration (FDA). Fact Sheet for Healthcare Providers Administering Vaccine: Emergency Use Authorization (EUA) of Pfizer-BioNTech COVID-19 Vaccine to Prevent Coronavirus Disease 2019 (COVID-19). Retrieved August 23, 2021.

66083 – World Health Organization. Draft landscape of COVID-19 candidate vaccines. Updated November 3, 2020. Accessed November 5, 2020. Available at: https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines.

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66199 – Baden LR, El Sahly HM, Essink B, et al. Efficacy and safety of the mRNA-1273 SARS-CoV-2 vaccine. [published online ahead of print, 2020 Dec 30]. N Engl J Med. Doi: 10.1056/NEJMoa2035389.

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66353 – Wu K, Werner AP, Moliva JI, et al. mRNA-1273 vaccine induces neutralizing antibodies against spike mutants from global SARS-CoV-2 variants. bioRxiv. 25 Jan 2021; doi:10.1101/2021.01.25.427948.

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66845 – Lopez Bernal J, Andrews N, Gower C, et al. Effectiveness of Covid-19 vaccines against the B.1.617.2 (delta) variant. N Engl J Med. Published online July 21, 2021. doi: 10.1056/NEJMoa2108891.

66904 – Comirnaty (COVID-19) injection package insert. New York, NY: Pfizer, Inc; 2021 Aug.

Administration Information

General Administration Information

For storage information, see the specific product information within the How Supplied section.

Under the Emergency Use Authorization (EUA), healthcare providers are required to communicate to the patient, parent, or caregiver information consistent with the "Fact Sheet for Recipients and Caregivers" prior to the patient receiving the vaccine, including:

- FDA has authorized the emergency use of this vaccine, which is not an FDA-approved vaccine.
- The recipient or caregiver has the option to accept or refuse the COVID-19 vaccine.
- The significant known and potential risks and benefits of the COVID-19 vaccine, and the extent to which such potential risks and benefits are unknown.
- Available alternative vaccines in clinical trials or approved for use under other EUA and the risks and benefits of those alternatives.

Under the EUA, vaccination providers enrolled in the federal COVID-19 Vaccination Program are required to report all vaccination administration errors, all serious adverse events, cases of Multisystem Inflammatory Syndrome (MIS) in adults and children, and cases of COVID-19 that result in hospitalization or death after administration of the vaccine.[66080]

Storage and Handling Prior to Thawing (Pfizer-BioNTech COVID-19 vaccine)

- Cartons of Pfizer-BioNTech COVID-19 vaccine vials arrive in thermal containers with dry ice. Once received, vials should be immediately transferred from the thermal container and preferably stored in an ultra-low temperature freezer between -90 to -60 degrees C (-130 to -76 degrees F) until the expiration date printed on the label.
- Alternatively, Pfizer-BioNTech COVID-19 vaccine vials may be stored frozen at -25 to -15 degrees C (-13 to 5 degrees F) for up to 2 weeks. These vials may be returned 1 time to the recommended storage condition of -90 to -60 degrees C (-130 to -76 degrees F). Total cumulative time the vials are stored at -25 to -15 degrees C (-13 to 5 degrees F) should be tracked and should not exceed 2 weeks.
- Protect from light until ready to use.
- If an ultra-low temperature freezer is not available for storage of the Pfizer-BioNTech COVID-19 vaccine, the thermal container in which the vaccine arrives may be used as temporary storage when consistently refilled to the top with dry ice. The thermal container maintains a temperature range of -90 to -60 degrees C (-130 to -76 degrees F). Storage of the vials between -96 to -60 degrees C (-141 to -76 degrees F) is not considered an excursion from the recommended storage condition. Refer to the re-icing guidelines included in the original container for instructions regarding use for temporary storage.
- *Transportation of frozen vials:* If local redistribution is needed and cartons containing vials cannot be transported at -90 to -60 degrees C (-130 to -76 degrees F), vials may be transported at -25 to -15 degrees C (-13 to 5 degrees F). Any hours used for transport at -25 to -15 degrees C (-13 to 5 degrees F) count against the 2-week limit for storage at -25 to -15 degrees C (-13 to 5 degrees F). Frozen vials transported at -25 to -15 degrees C (-13 to 5 degrees F) may be returned 1 time to the recommended storage condition of -90 to -60 degrees C (-130 to -76 degrees F).[66080][66904]

Storage and Handling Prior to Thawing (Moderna COVID-19 vaccine)

- Store vaccine vials frozen between -50 to -15 degrees C (-58 to 5 degrees F) until ready to use. Keep in the original container to protect from light. Do not store on dry ice or below -50 degrees C (-58 degrees F).
- *Transportation of frozen vials:* If transport at -50 to -15 degrees C (-58 to 5 degrees F) is not feasible, available data support transportation of 1 or more thawed vials for up to 12 hours at 2 to 8 degrees C (35 to 46 degrees F) when shipped using shipping containers which have been qualified to maintain 2 to 8 degrees C (35 to 46 degrees F) and under routine road and air transport conditions with shaking and vibration minimized. Once thawed and transported at 2 to 8 degrees C (35 to 46 degrees F), vials should not be refrozen and should be stored at 2 to 8 degrees C (35 to 46 degrees F) for up to 30 days until use.[66120]

Route-Specific Administration

Injectable Administration

- Administer intramuscularly. Do not administer intravenously, intradermally, or subcutaneously.
- Visually inspect parenteral products for particulate matter and discoloration prior to administration whenever solution and container permit. Prior to dilution, the Pfizer-BioNTech COVID-19 vaccine is a white to off-white suspension and may contain white to off-white opaque amorphous particles. The diluted Pfizer-BioNTech

COVID-19 vaccine is an off-white suspension and should not contain particulate matter.[66080] The Moderna COVID-19 vaccine is a white to off-white suspension. It may contain white or translucent product-related particles.[66120]

- There is no available information on coadministration of the COVID-19 vaccine with other vaccines; do not mix with other vaccines or products in the same syringe.[66080][66120]
    - The COVID-19 vaccine may be administered with other vaccines without regard to timing. It is unknown whether reactogenicity is increased with coadministration of COVID-19 vaccines and other vaccines in the same day, as well as coadministration with other vaccines known to be more reactogenic, such as adjuvanted or live vaccines. When deciding whether to coadminister another vaccine with COVID-19 vaccines, consider if the patient is behind or at risk of becoming behind on recommended vaccines, their risk of vaccine-preventable disease, and the reactogenicity profile of the vaccines. If multiple vaccines are given at a single visit, administer each injection in a different injection site; separate injection sites by 1 inch or more, if possible. Administer the COVID-19 vaccines and vaccines that may be more likely to cause a local reaction (e.g., tetanus-toxoid-containing and adjuvanted vaccines) in different limbs, if possible.
    - Do not delay the mRNA COVID-19 vaccine because of testing for tuberculosis (TB) infection. Testing for TB infection, using the tuberculin skin test (TST) or interfero-gamma release assay (IGRA) can be done before or during the same visit as vaccine administration. If TB testing can not be done at the same time, testing should be delayed by 4 weeks or more after the completion of mRNA COVID-19 vaccination. Patients who have active TB disease or an illness that is being evaluated as active TB disease can receive an mRNA COVID-19 vaccine.[66175]
- A 30 minute observation period after vaccination is recommended for the following patient populations:
    - History of an immediate allergic reaction of any severity to a vaccine or injectable therapy
    - History of anaphylaxis due to any cause
    - A contraindication to a different COVID-19 vaccine than the 1 they are receiving
- A 15 minute observation period after vaccination is recommended for all other patients.[66175]

Intramuscular Administration

Pfizer-BioNTech COVID-19 vaccine

Thawing

- The Pfizer-BioNTech COVID-19 vaccine contains a volume of 0.45 mL, supplied as a frozen suspension that is preservative-free. Each vial must be thawed prior to dilution.
    - *Thawing under refrigeration:* Vials may be thawed and stored in the refrigerator [2 to 8 degrees C (35 to 46 degrees F)] for up to 1 month. A carton of 25 or 195 vials may take up to 2 or 3 hours, respectively, to thaw in the refrigerator; fewer vials will require less time to thaw.
    - *Transportation of vials thawed under refrigeration:* Available data support transportation of 1 or more vials thawed under refrigeration at 2 to 8 degrees C (35 to 46 degrees F) for up to 12 hours.
    - *Thawing at room temperature:* For immediate use, frozen vials may be thawed at room temperature [up to 25 degrees C (77 degrees F)] for 30 minutes. Undiluted vials may be stored at room temperature for no more than 2 hours.
    - Thawed vials may be handled in room light conditions; however, minimize exposure to room light and avoid exposure to direct sunlight and ultraviolet light during storage. Do NOT refreeze thawed vials.[66080][66904]

Dilution

- Thawed vials must reach room temperature before dilution and must be diluted within 2 hours.
- Before dilution, gently invert vial 10 times to mix. Do NOT shake.
- Inspect liquid in the vial prior to dilution. The liquid should be a white to off-white suspension and may contain white to off-white amorphous particles.
- Dilute the vaccine suspension in its original vial with 1.8 mL of 0.9% Sodium Chloride Injection. Do NOT use bacteriostatic 0.9% Sodium Chloride Injection or any other diluent. Equalize vial pressure before removing the needle from the vial by withdrawing 1.8 mL of air into the empty diluent syringe. Do not add more than 1.8 mL of diluent

- After dilution, gently invert vial 10 times to mix. Do NOT shake.
- Each vial contains up to 6 doses of 0.3 mL. Vial labels and cartons may state that after dilution, a vial contains 5 doses of 0.3 mL. The information on the EUA fact sheet and product labeling supersedes the number of doses stated on vial labels and cartons.
- Low dead-volume syringes and/or needles are preferred to extract up to 6 doses from a single vial. If using standard syringes and needles, the volume may not be sufficient to extract a sixth dose from a single vial. If the amount of vaccine remaining in the vial cannot provide a full dose of 0.3 mL, discard the vial and content; do not pool excess vaccine from multiple vials.
- Record the date and time of dilution on the vial label.
- *Storage after dilution:* Store between 2 and 25 degrees C (35 to 77 degrees F) and use within 6 hours from the time of dilution. Discard any vaccine remaining in vials after 6 hours. Diluted vials may be handled in room light conditions; however, minimize exposure to room light and avoid exposure to direct sunlight and ultraviolet light during storage. Do NOT freeze the diluted vaccine. If it is frozen, it must be discarded.[66080][66904]

Intramuscular Injection

- After withdrawing the dose, administer immediately as an intramuscular injection.[66080][66904]

Moderna COVID-19 vaccine

Thawing

- The Moderna COVID-19 vaccine contains a frozen suspension that is preservative-free and must be thawed prior to use.
    - Maximum 11-dose vial (range: 10 to 11 doses):
        - *Thawing in the refrigerator:* Vials may be thawed and stored in the refrigerator [2 to 8 degrees C (36 to 46 degrees F)] for 2 hours 30 minutes. Allow vial to remain at room temperature for 15 minutes prior to administration.
        - *Thawing at room temperature:* Frozen vials may be thawed at room temperature [15 to 25 degrees C (59 to 77 degrees F)] for 1 hour.
    - Maximum 15-dose vial (range: 13 to 15 doses):
        - *Thawing in the refrigerator:* Vials may be thawed and stored in the refrigerator [2 to 8 degrees C (36 to 46 degrees F)] for 3 hours. Allow vial to remain at room temperature for 15 minutes prior to administration.
        - *Thawing at room temperature:* Frozen vials may be thawed at room temperature [15 to 25 degrees C (59 to 77 degrees F)] for 1 hour 30 minutes.
    - Do NOT refreeze thawed vials.
    - Thawed vials can be handled in room light conditions; however, minimize exposure to room light during storage.[66120]

Preparation

- Swirl vial gently after thawing and between each withdrawal. Do NOT shake. Do NOT dilute.
- Withdraw each 0.5 mL dose using a new sterile needle and syringe to prevent transmission of infection between patients. Pierce the stopper at a different site each time.
- The 11-dose vial contains a range of 10 to 11 doses and the 15-dose vial contains a range of 13 to 15 doses. Depending on the syringes and needles used for each dose, there may not be sufficient volume to extract more than 10 doses from the maximum of 11 doses vial or more than 13 doses from the maximum of 15 doses vial. If the amount of vaccine remaining in the vial cannot provide a full dose of 0.5 mL, discard the vial and content; do not pool excess vaccine from multiple vials.
- *Storage before vial has been needle-punctured:*
    - *Storage in refrigerator:* Store between 2 and 8 degrees C (36 to 46 degrees F) for up to 30 days. Do NOT refreeze.
    - *Storage outside refrigerated conditions:* Vials may be stored between 8 and 25 degrees C (46 to 77 degrees F) for a total of 24 hours.

- *Storage after vial has been needle-punctured:* Store between 2 and 25 degrees C (36 to 77 degrees F) and use within 12 hours from the time the needle punctures the vial to withdraw initial dose. Do NOT refreeze.[66120]

Intramuscular Injection

- After withdrawing the dose, administer immediately as an intramuscular injection.[66120]

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References

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Adverse Reactions

- anaphylactoid reactions
- angioedema
- appendicitis
- arthralgia
- Bell's palsy
- chills
- diarrhea
- erythema
- fatigue
- fever
- headache
- injection site reaction
- lymphadenopathy
- malaise
- myalgia
- myocarditis
- nausea
- pericarditis
- pruritus
- rash
- urticaria
- vomiting

The Pfizer-BioNTech COVID-19 vaccine (Comirnaty) is FDA-approved for the 2-dose regimen in patients 16 years and older; use in patients 12 to 15 years and the recommended third dose for immunocompromised patients is covered under an Emergency Use Authorization (EUA). The Moderna COVID-19 vaccine is not an FDA-approved vaccine, but has been authorized under an EUA for use in patients 18 years of age and older. Under the EUA, there are limited clinical safety data available, and serious unexpected adverse reactions may occur that have not been previously reported. Vaccination providers must report all vaccination administration errors, all serious adverse

events, cases of Multisystem Inflammatory Syndrome (MIS) in adults and children, and cases of COVID-19 that result in hospitalization or death after vaccination.[66080][66120] [66904]

Pfizer-BioNTech COVID-19 vaccine clinical trials are ongoing, but at the time of study analysis for the EUA, 37,586 patients 16 years or older and 1,308 patients 12 to 15 years had been followed for a median of 2 months after the second dose of vaccine. However, solicited reactogenicity data are limited in 16 and 17-year-old participants. Patients will continue to be monitored for unsolicited adverse events, including severe adverse events, throughout the study. Patients will be monitored from dose 1 through 1 month for all unsolicited adverse events or 6 months for serious adverse events after the last vaccination.[66080]

Moderna COVID-19 vaccine clinical trials are ongoing, but at the time of study analysis for the EUA, 30,351 patients 18 years of age or older had been followed for a median of 2 months after the second dose of vaccine. Patients will continue to be monitored for unsolicited adverse events, including severe adverse events, throughout the study.[66120]

After dose 1 and dose 2 of the Pfizer-BioNTech COVID-19 vaccine, the use of antipyretic or pain medicine was reported by 36.6% and 50.8% of patients 12 to 15 years, respectively, 27.8% and 45% of patients 18 to 55 years, respectively, and 19.9% and 37.7% of patients 56 years and older, respectively.[66080] After dose 1 and dose 2 of the Moderna COVID-19 vaccine, the use of antipyretic or pain medicine was reported by 23.3% and 57.3% of patients 18 to 64 years, respectively, and 17.9% and 41.9% of patients 65 years and older, respectively.[66120]

Local injection site reaction was the most commonly reported adverse reaction after COVID-19 vaccine administration during clinical trials. In general, the rates and severity of the reactions were slightly higher after the second dose compared to after the first.[66080] [66120] After Pfizer-BioNTech COVID-19 vaccine administration, pain (84.1% to 90.5%), erythema or redness (8.6% to 9.5%), and swelling (10.5%) at the injection site were the most common reactions in patients 12 years and older. In patients 12 to 15 years, the mean duration of pain at the injection site after dose 1 was 2.4 days (range 1 to 10 days), for redness 2.4 days (range 1 to 16 days), and for swelling 1.9 days (range 1 to 5 days). In patients 16 years and older, most local reactions resolved within 3 days, but some patients reported symptoms for up to 36 days. About one-third of patients 12 to 15 years (35.8% to 43.7%) and 18 to 55 years (28.3% to 32%) who received the vaccine reported pain that either interfered with daily activity or prevented it; the percentage of patients reporting this degree of pain (15.2% to 18.5%) was lower in patients 56 years and older. The largest difference occurred in the incidence of redness in patients 56 years and older (7.2% after dose 2, 4.7% after dose 1).[66080] After Moderna COVID-19 vaccine administration, pain at the injection site was reported in 92% of patients. The highest rates of pain were in patients 18 to 64 years after dose 2, with 89.9% reporting pain and 4.6% reporting that it prevented daily activity and required the use of pain relievers. Erythema or redness (8.9% after dose 2, 3% after dose 1) and swelling or hardness (12.6% after dose 2, 6.7% after dose 1) were reported in patients 18 to 64 years. Similar numbers of erythema or redness (7.5% after dose 2, 2.3% after dose 1) and swelling or hardness (10.8% after dose 2, 4.4% after dose 1) were reported in patients 65 years and older. Axillary swelling or tenderness was more common after the second dose in both age groups (18 to 64 years: 16.2% after dose 2, 11.6% after dose 1 and 65 years and older: 8.5% after dose 2, 6.1% after dose 1). Most local reactions lasted 1 to 3 days. Delayed reactions, occurring 8 or more days after administration, occurred in 0.8% and 0.2% of patients after the first and second dose, respectively, and usually resolved over 4 to 5 days.[66120] [66199] Patients who have received dermal fillers may develop swelling at or near the site of filler injection (usually face or lips) after mRNA COVID-19 vaccine administration. It appears to be temporary and can resolve with medical treatment, including corticosteroid therapy. These patients may receive mRNA COVID-19 vaccines without additional precautions; however, they should be advised to contact their health care provider if they develop swelling at or near the site of dermal filler after vaccination.[66175]

During clinical trials, fatigue (62.9% to 77.5%), headache (55.1% to 75.5%), and malaise (0.5%) occurred after administration of the COVID-19 vaccine. The rates and severity of the reactions were generally higher after the second dose compared to the first dose.[66080] [66120] In patients 12 years and older who received the Pfizer-BioNTech COVID-19 vaccine, moderate fatigue (causing some interference with activity) was reported in the majority of patients experiencing fatigue (12 to 15 years: 42.7% after dose 2, 34.1% after dose 1; 18 to 55 years: 33.7% after dose 2, 19.9% after dose 1; and 56 years and older: 26.6% after dose 2, 13.3% after dose 1). Headache was more common after the second dose in all patients 12 years and older (12 to 15 years: 64.5% after dose 2, 55.3% after dose 1; 18 to 55 years: 51.7% after dose 2, 41.9% after dose 1; and 56 years and older: 39% after dose 2, 25.2% after dose 1).[66080] In Moderna COVID-19 vaccine clinical trials, fatigue (70%) was the most frequently reported systemic adverse reaction. The highest incidence of fatigue was reported by patients 18 to 64 years after the second dose, with 67.6% reporting any fatigue, 10.7% reporting fatigue that prevented daily activities, and 1 patient reporting fatigue that required an emergency room visit or hospitalization. Headache was more common after the second dose in both age groups (18 to 64 years: 62.8% after dose 2, 35.3% after dose 1 and 65 years and older: 46.2% after dose 2, 24.5% after dose 1).[66120]

Musculoskeletal adverse reactions reported during COVID-19 vaccine clinical trials include muscle pain or myalgia (38.3% to 61.5%) and/or joint pain or arthralgia (20.2% to 46.4%).[66080] [66120] In patients 12 to 15 years of age, new or worsened muscle pain was reported in about one-third of patients (32.4%) after the second Pfizer-BioNTech COVID-19 vaccine dose compared to 24.1% after the first dose. A similar number of patients 18 to 55 years (37.3% after dose 2, 21.3% after dose 1) and 56 years or older (28.7% after dose 2, 13.9% after dose 1) reported new or worsened muscle pain. Moderate to severe muscle pain (causing some interference with daily activities or preventing activities) was reported after dose 2 in 18% of patients 12 to 15 years, 21.7% of patients 18 to 55 years, and 16.6% of patients 56 years and older. New or worsened joint pain was reported in approximately twice as many patients after the second dose compared to the first dose in patients 12 years and older (12 to 15 years: 15.8% after dose 2, 9.7% after dose 1; 18 to 55 years: 21.9% after dose 2, 11% after dose 1; and 56 years and older: 18.9% after dose 2, 8.6% after dose 1).[66080] During Moderna COVID-19 clinical trials, myalgia was more common after the second dose in both age groups (18 to 64 years: 61.6% after dose 2, 23.7% after dose 1 and 65 years and older: 47.1% after dose 2, 19.7% after dose 1). Myalgia that prevented daily activity was reported in significantly more patients after the second dose (18 to 64 years: 10.1% after dose 2, 0.6% after dose 1 and 65 years and older: 5.6% after dose 2, 0.5% after dose 1). Similar to myalgia, arthralgia was more common after the second dose in both age groups (18 to 64 years: 45.5% after dose 2, 16.6% after dose 1 and 65 years and older: 35% after dose 2, 16.4% after dose 1). Arthralgia that prevented daily activity was reported in significantly more patients after the second dose (18 to 64 years: 5.9% after dose 2, 0.4% after dose 1 and 65 years and older: 3.3% after dose 2, 0.3% after dose 1). One case of arthralgia requiring an emergency room visit or hospitalization was reported in the vaccine group.[66120]

During clinical trials, chills (31.9% to 49.2%) and fever (14.2% to 24.3%) occurred after administration of the COVID-19 vaccine. The rates and severity of the reactions were generally higher after the second dose compared to the first dose.[66080] [66120] In patients 12 to 15 years, fever of 101.2 degrees F (38.4 degrees C) or higher was reported in 3 times more patients after the second Pfizer-BioNTech COVID-19 vaccine dose (7.6% after dose 2, 2.6% after dose 1). In patients 18 to 55 years, fever of 101.2 degrees F (38.4 degrees C) or higher was reported in 6 times more patients after the second Pfizer-BioNTech COVID-19 vaccine dose (6.4% after dose 2, 1% after dose 1). In patients 56 years and older, fever of 101.2 degrees F (38.4 degrees C) or higher was reported in 3% of patients after dose 2 compared to 0.3% of patients after dose 1. Chills were reported by more patients 12 to 55 years after the second Pfizer-BioNTech COVID-19 vaccine dose (12 to 15 years: 41.5% after dose 2, 27.6% after dose 1; 18 to 55 years: 35.1% after dose 2, 14% after dose 1). A similar difference in the incidence of chills was seen in patients 56 years and older (22.7% after dose 2, 6.3% after dose 1).[66080] After Moderna COVID-19 vaccine administration, fever was reported in more patients 18 to 64 years after dose 2 (17.4%) compared to dose 1 (0.9%). A fever of 102.1 degrees F (38.9 degrees C) or higher was reported by 1.7% of patients after dose 2 compared to less than 0.1% after dose 1. Significantly more patients 65 years and older also reported fever after the second dose (10% after dose 2, 0.3% after dose 1). A fever of 102.1 degrees F (38.9 degrees C) or higher was reported by 0.5% of patients after dose 2 compared to less than 0.1% after dose 1. The greatest incidence of chills occurred after dose 2 in patients 18 to 64 years (48.6%).[66120]

Diarrhea, nausea, and vomiting were reported during COVID-19 vaccine clinical trials.[66080] [66120] During clinical trials in patients 12 years and older, nausea (0.4% to 1.1%) was reported after administration of the Pfizer-BioNTech COVID-19 vaccine. Diarrhea was reported by 5.9% to 8% of patients 12 to 15 years, 10.4% to 11.1% of patients 18 to 55 years, and 8.3% of patients 56 years and older. Vomiting was reported in 2.6% to 2.8% of patients 12 to 15 years, 1.2% to 1.9% of patients 18 to 55 years, and 0.5% to 0.7% of patients 56 years and older.[66080] During Moderna COVID-19 vaccine clinical trials, nausea and/or vomiting was reported in twice as many patients 18 to 64 years after dose 2 (21.4%) compared to dose 1 (9.4%). A similar difference was seen in patients 65 years and older (11.8% after dose 2; 5.2% after dose 1). One case of intractable nausea and vomiting requiring hospitalization was reported as a serious adverse reaction in the vaccine group.[66120]

Rare cases of myocarditis and pericarditis have been reported after mRNA COVID-19 vaccination, particularly in adolescents and young adults. Reported cases have occurred predominantly in male adolescents and young adults aged 12 to 29 years. Onset typically has been within a few days after vaccination, occurring more often after the second dose. From May 1 through June 11, 2021, there were 40.6 cases of myocarditis per million second doses of mRNA COVID-19 vaccines administered to males aged 12 to 29 years and 2.4 cases per million second doses administered to males aged 30 years and older; reporting rates among females were 4.2 and 1 cases per million second doses, respectively. Consider myocarditis and pericarditis in adolescents and young adults with acute chest pain, shortness of breath, or palpitations. Most patients require hospitalization, but have experienced resolution of acute symptoms. Although data from short-term follow-up suggests that most patients have resolution of symptoms, information is not yet available about long-term sequelae. It is unclear if patients who develop myocarditis or pericarditis after a first dose of mRNA COVID-19 vaccine are at an increased risk of further adverse cardiac effects after a second dose of vaccine; until additional information is available, defer the second dose. A second dose may be considered in certain circumstances that include personal risk of severe acute COVID-19 (e.g., age, underlying conditions), level of COVID-19 community transmission and personal risk of infection, additional data on the risk of myocarditis or pericarditis after the first dose of mRNA vaccine, or timing of any immunomodulatory therapies. Patients with a history of myocarditis or pericarditis prior to COVID-19 vaccination or after the first dose should not receive a mRNA vaccine dose until their episode of myocarditis or pericarditis has completely resolved, which incudes no evidence of ongoing heart inflammation or sequelae. A case report evaluated 7 healthy male adolescent patients who presented with chest pain within 4 days of receiving the second dose of the Pfizer-BioNTech COVID-19 vaccine; 5 patients also had fever. All patients had an elevated troponin and cardiac MRI was consistent with myocarditis. Three patients were treated with non-steroidal anti-inflammatory drugs (NSAIDs) only and 4 patients received intravenous immune globulin (IVIG) and corticosteroids. All 7 patients had rapid resolution of symptoms.[66080] [66120] [66175] [66698] [66763] [66770]

Serious allergic reactions or anaphylactoid reactions have been reported in patients outside of clinical trials during mass vaccination. During phase 2/3 Pfizer-BioNTech COVID-19 vaccine clinical trials, a subset of patients in the vaccinated group had hypersensitivity-related adverse reactions, possibly representing allergic reactions (0.63% vs. 0.51%, placebo).[66080] [66175] During mass vaccination with the Pfizer-BioNTech COVID-19 vaccine outside of clinical trials, severe allergic reactions, including anaphylaxis and other hypersensitivity reactions (e.g. rash, pruritus, urticaria, angioedema), have been reported.[66080] During this time, 21 cases of anaphylaxis were identified (a rate of 11.1 anaphylaxis cases per million doses administered). Of those, 17 patients had a documented history of allergies or allergic reaction and 7 patients had a history of anaphylaxis. Median time to symptom onset was 13 minutes (range = 2 to 150 minutes). Twenty patients were available for follow-up and all had recovered or been discharged home. An additional 83 nonanaphylaxis allergic reactions were reported; symptoms included pruritus, rash, itchy and scratchy sensation in the throat, and mild respiratory symptoms. Median time to symptom onset was 12 minutes (range = less than 1 minute to 20 hours). In most patients (85%), symptoms occurred within 30 minutes. For 67% of patients, a past history of allergies or allergic reactions was documented.[66397] During Moderna COVID-19 clinical trials, hypersensitivity related adverse reactions were reported in 1.5% of vaccine recipients compared to 1.1% of placebo recipients. Hypersensitivity reactions included injection site rash and injection site urticaria.[66120] During mass vaccination with the Moderna vaccine, 10 cases of anaphylaxis were identified (a rate of 2.5 anaphylaxis cases per million doses administered). Of those, 9 patients had a documented history of allergies or allergic reaction and 5 patients had a history of anaphylaxis. Median time to symptom onset was 7.5 minutes (range = 1 to 45 minutes). Eight patients were available for follow-up and all had recovered or been discharged home. An additional 43 nonanaphylaxis allergic reactions were reported; symptoms included pruritus, rash, itchy and scratchy sensation in the throat, sensations of throat closure, and mild respiratory symptoms. Median time to symptom onset was 15 minutes (range = less than 1 minute to 24 hours). In most patients (73%), symptoms occurred within 30 minutes. For 60% of patients, a past history of allergies or allergic reactions was documented.[66398]

Lymphadenopathy was reported in 0.3% to 0.8% of patients 12 years and older during Pfizer-BioNTech COVID-19 vaccine clinical trials. From dose 1 through 30 days after dose 2, lymphadenopathy was reported in more patients in the vaccine group than in the placebo group (12 to 15 years: 7 vs. 1; 16 years and older: 64 vs. 6).[66080] During Moderna COVID-19 vaccine clinical trials, lymphadenopathy-related events were reported in 1.1% of patients who received the vaccine compared to 0.6% of patients who received placebo. These events included lymphadenopathy, lymphadenitis, lymph node pain, vaccination-site lymphadenopathy, injection-site lymphadenopathy, and axillary mass.[66120]

During Pfizer-BioNTech COVID-19 vaccine clinical trials, appendicitis was reported as a serious adverse reaction in 8 patients receiving vaccine (n = 18,801) vs. 4 receiving placebo (n = 18,785). Bell's palsy (facial paralysis) was reported by 4 patients in the Pfizer-BioNTech COVID-19 vaccine group (n = 18,801) compared to none of the patients in the placebo group. Onset of facial paralysis occurred on day 37 after dose 1 (patient did not receive dose 2) and days 3, 9, and 48 after dose 2. During Moderna COVID-19 vaccine clinical trials, there were 3 reports of Bell's palsy in the vaccine group (n = 15,185) compared to 1 patient in the placebo group (n = 15,166). Onset of facial paralysis occurred 22, 28, and 32 days after vaccination in the vaccine group and 17 days after vaccination in the placebo group. In the United States, it is estimated that between 25 and 35 in 100,000 people are affected with Bell's palsy. Currently available information is insufficient to determine a causal relationship between appendicitis or Bell's palsy with the vaccine.[66080] [66120] [66184]

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Contraindications/Precautions

Absolute contraindications are italicized.

- acquired immunodeficiency syndrome (AIDS)
- agammaglobulinemia
- anticoagulant therapy
- breast-feeding
- chemotherapy
- children
- coagulopathy
- corticosteroid therapy
- heart transplant
- hemophilia
- human immunodeficiency virus (HIV) infection
- hypogammaglobulinemia
- immunosuppression
- infants
- infection
- kidney transplant
- liver transplant
- lung transplant
- neonates
- neoplastic disease
- organ transplant
- pregnancy
- radiation therapy
- renal failure
- severe combined immunodeficiency (SCID)
- syncope
- thrombocytopenia
- vitamin K deficiency

The COVID-19 vaccine is contraindicated in *patients with a history of a severe allergic reaction to any component of the vaccine*. The CDC considers an immediate allergic reaction (occurring within 4 hours of administration) of any severity to a previous dose of COVID-19 vaccine or any of its components or a severe allergic reaction (i.e., anaphylaxis) after a previous dose or to a component of the COVID-19 vaccine a contraindication to COVID-19 vaccination. A known polyethylene glycol (PEG) allergy is a

contraindication to the mRNA COVID-19 vaccines. PEG is an ingredient in both mRNA COVID-19 vaccines and polysorbate 80 is an ingredient in the Janssen COVID-19 vaccine; cross-reactive hypersensitivity between these compounds may occur. Patients with a contraindication to 1 type of COVID-19 vaccine (i.e, mRNA) have a precaution to the other (i.e., adenovirus). However, because of potential cross-reactive hypersensitivity between the ingredients in both vaccines, consider evaluation by an allergist-immunologist in patients with a known allergy to these ingredients before they receive COVID-19 vaccination. Patients with a history of an immediate allergic reaction to a vaccine or injectable therapy that contains multiple components, 1 or more of which is a component of a COVID-19 vaccine, have a precaution to vaccination with that COVID-19 vaccine, even if the specific component responsible for the allergic reaction is unknown. Administration of antihistamines is not recommended for allergic reaction prophylaxis prior to vaccination as they can mask cutaneous symptoms and delay the diagnosis and management of anaphylaxis. Delayed-onset local reactions (e.g., erythema, induration, pruritus), which are sometimes quite large, have been reported beginning a few days through the second week after the first mRNA COVID-19 vaccine dose in some patients. Patients with only a delayed-onset local reaction around the injection site area after the first vaccine dose are not thought to be at risk for anaphylaxis when receiving the second dose and do not have a contraindication or precaution to the second dose. These patients should still receive the second dose using the same vaccine product as the first dose and at the recommended interval, preferably in the opposite arm. As with any biologic product, the prescriber or healthcare professional should have procedures in place to manage allergic reactions. If an anaphylactic or other clinically significant hypersensitivity reaction occurs, institute appropriate therapy and immediately discontinue administration of the vaccine. The healthcare professional should have immediate availability of epinephrine (1 mg/mL) injection and other agents used in the treatment of severe anaphylaxis in the event of a serious allergic reaction to the vaccine.[66080][66120][66175] When vaccinating patients with allergies, a 30 minute observation period is recommended for patients with a history of an immediate allergic reaction of any severity to a vaccine or injectable therapy, patients with a history of anaphylaxis due to any cause, or patients with a contraindication to a different COVID-19 vaccine than the 1 they are receiving. A 15 minute observation period is recommended for all other patients.[66175]

Immunocompromised patients, including patients with immunosuppression or receiving immunosuppressive therapy, may not have an adequate immune response to the COVID-19 vaccine. An additional third dose of the same mRNA vaccine administered at least 28 days after the 2-dose regimen has been authorized for individuals who have undergone solid organ transplantation (e.g., heart transplant, kidney transplant, liver transplant, lung transplant, or other organ transplant), or are diagnosed with a condition that is considered to have an equivalent level of immunocompromise. Administration of a third dose appears to be only moderately effective in increasing antibody titers; counsel patients to maintain physical precautions to avoid exposure to the SARS-CoV-2 virus.[66080] [66120] Immunosuppressed persons may include patients with severe combined immunodeficiency (SCID), hypogammaglobulinemia, agammaglobulinemia, or an immune system compromised by drug therapy (i.e., corticosteroid therapy with greater than physiologic doses). Short-term (less than 2 weeks) corticosteroid therapy or intra-articular, bursal, or tendon injections with corticosteroids should not be immunosuppressive. COVID-19 vaccines may be administered without regard to timing of corticosteroid treatment, including topical or intraarticular treatment, bursal, or tendon injection.[65107] [66175] Ideally, COVID-19 vaccination (2-dose regimen) should be completed at least 2 weeks before initiation of immunosuppressive therapies. When it is not possible to administer the COVID-19 vaccine in advance, people on immunosuppressive therapy can still receive COVID-19 vaccination. Antibody testing to assess for immunity after COVID-19 vaccination is not recommended. Re-vaccination after immune competence is regained in patients who received mRNA COVID-19 vaccines during treatment with immunosuppressive drugs is not recommended. For patients receiving antibody therapies not specific to COVID-19 treatment (e.g., intravenous immunoglobulin, RhoGAM), there is no recommended minimum interval between these therapies and administration of mRNA COVID-19 vaccines. Administration of mRNA COVID-19 vaccines either together or at any interval before or after receipt of an antibody-containing product is unlikely to substantially impair the development of a protective antibody response. During clinical trials, no imbalances were noted in the occurrence of symptoms consistent with autoimmune conditions or inflammatory disorders in patients who received the COVID-19 vaccine compared to placebo. Patients with autoimmune conditions may receive the COVID-19 vaccine.[66175]

Patients with altered immune states due to generalized neoplastic disease or an immune system compromised by radiation therapy or chemotherapy may not have an adequate immune response to the COVID-19 vaccine. Data suggest immune response to COVID-19 vaccination may be reduced in patients receiving chemotherapy for cancer, patients with hematologic cancers (i.e., chronic lymphocytic leukemia), patients receiving stem cells or organ transplants, and in patients receiving certain medications that may blunt the immune response to vaccination (e.g., mycophenolate, rituximab, azathioprine, anti-CD20 monoclonal antibodies, Bruton tyrosine kinase inhibitors).[65107] [66080] [66120] [66175] An additional third dose of the same mRNA vaccine administered at least 28 days after the 2-dose regimen has been authorized for individuals who have undergone solid organ transplantation, or are diagnosed with a condition that is considered to have an equivalent level of immunocompromise. Administration of a third dose appears to be only moderately effective in increasing antibody titers; counsel patients to maintain physical precautions to avoid exposure to the SARS-CoV-2 virus.[66080] [66120] Antibody testing to assess for immunity after COVID-19 vaccination is not recommended. Re-vaccination after immune competence is regained in patients who received mRNA COVID-19 vaccines during chemotherapy or treatment with other immunosuppressive drugs is not recommended.[66175] Delay vaccination for at least 3 months after hematopoietic cell transplantation (HCT) or engineered cellular therapy (e.g. CAR-T cells) to maximize vaccine efficacy. For patients with hematologic malignancies receiving intensive cytotoxic chemotherapy (e.g., cytarabine/anthracycline-based induction regimens for AML), delay vaccination until absolute neutrophile count (ANC) recovery. For patients with solid tumor malignancies undergoing major surgery, separate date of surgery from vaccination by at least a few days to allow symptoms (e.g. fever) to be correctly attributed to

surgery vs. vaccination. For more complex surgeries (e.g. splenectomy or surgery that may lead to an immunosuppressive state) surgeons may recommend a wider window (+/- 2 weeks) from the time of surgery.[66335]

Postponing vaccination with the COVID-19 vaccine is recommended in patients with an acute moderate to severe illness or infection, both before the first vaccine or before the second vaccine if infection develops after the first vaccine administration. Patients who have active tuberculosis (TB) disease or an illness that is being evaluated as active TB disease can receive an mRNA COVID-19 vaccine. If vaccination is not deferred, observe the patient for 15 minutes after vaccine administration.[66175]

Clinical trials for the vaccine were expanded to include patients with chronic, stable human immunodeficiency virus (HIV) infection. Efficacy information for the COVID-19 vaccine is not yet available in this patient population and although patients with HIV infection or acquired immunodeficiency syndrome (AIDS) could have a diminished response, the COVID-19 vaccine should be offered to patients with chronic, stable HIV.[65107] [66080] [66086] [66120] An additional third dose of the same mRNA vaccine administered at least 28 days after the 2-dose regimen has been authorized for individuals who have undergone solid organ transplantation, or are diagnosed with a condition that is considered to have an equivalent level of immunocompromise. Administration of a third dose appears to be only moderately effective in increasing antibody titers; counsel patients to maintain physical precautions to avoid exposure to the SARS-CoV-2 virus.[66080] [66120]

The COVID-19 vaccine is administered by intramuscular (IM) injection only. Carefully consider the risks and benefits in patients at increased risk for bleeding after an intramuscular injection, such as thrombocytopenia, bleeding disorders (e.g., hemophilia), coagulopathy, vitamin K deficiency, and those receiving anticoagulant therapy. Caution and appropriate precautions to minimize the risk of bleeding or hematoma formation are advised.[65107] [66080] [66120]

COVID-19 vaccination is recommended in all eligible women regardless of pregnancy status (including those who are pregnant, trying to get pregnant, or may become pregnant in the future).[66179] [66863] If a woman becomes pregnant after the first dose, administer the second dose as indicated. Manage potential post vaccination fever with acetaminophen. Data suggest that benefits of COVID-19 vaccination outweigh any known or potential risk of vaccination during pregnancy. Analysis of current data from the V-SAFE pregnancy registry did not find an increased risk of miscarriage among approximately 2,500 pregnant women who received an mRNA COVID-19 vaccine before 20 weeks of pregnancy. Miscarriage rates in this population were 13%, compared to 11% to 16% of pregnancies in the general population. Previously, early data from 3 vaccine-safety-related databases, did not identify any safety concerns for pregnant women who were vaccinated or their neonates. There is no current evidence that COVID-19 vaccines cause fertility problems in woman or men.[66863] [66864] In a prospective cohort study of 131 mRNA COVID-19 vaccine recipients (84 pregnant, 31 lactating, and 16 non-pregnant), vaccine-induced antibody titers were equivalent in pregnant and lactating women compared to non-pregnant women. All titers were significantly higher than those induced during SARS-CoV-2 infection during pregnancy. Vaccine-generated antibodies were present in all umbilical cord blood samples; neutralizing antibody titers were lower in umbilical cord compared to maternal sera, although statistical significance was not reached. No differences in reactogenicity were noted between the groups.[66558] A pregnancy exposure registry is available that monitors pregnancy outcomes in women exposed to Comirnaty (Pfizer-BioNTech COVID-19 vaccine) during pregnancy. Encourage women vaccinated during pregnancy to enroll in the registry by going to https://mothertobaby.org/ongoing-study/covid19-vaccines/.[66904] A pregnancy exposure registry is available that monitors pregnancy outcomes in women exposed to Moderna COVID-19 vaccine during pregnancy. Encourage women vaccinated with Moderna COVID-19 vaccine to enroll in the registry by calling 1-866-663-3762. Additionally, encourage pregnant women to enroll in the CDC's V-SAFE program by going to vsafe.cdc.gov.[66120] [66864]

COVID-19 vaccination is recommended in all eligible women, including those who are breast-feeding.[66179] [66864] There are no data regarding use of the COVID-19 vaccine during breast-feeding and its excretion in human breast milk is unknown.[66080] [66120] However, recent reports suggest mothers who have received mRNA COVID-19 vaccines have antibodies in their breast milk, which may help protect their babies.[66864] In a prospective cohort study of 131 mRNA COVID-19 vaccine recipients (84 pregnant, 31 lactating, and 16 non-pregnant), vaccine-induced antibody titers were equivalent in pregnant and lactating women compared to non-pregnant women. All titers were significantly higher than those induced during SARS-CoV-2 infection during pregnancy. Vaccine-generated antibodies were present in all breast milk samples. No differences in reactogenicity were noted between the groups.[66558] If a breast-feeding infant experiences an adverse event possibly related to a maternally administered vaccine, health care providers are encouraged to report the adverse event to the FDA.[66080]

Injectable vaccines, including the Pfizer-BioNTech COVID-19 vaccine, have been associated with episodes of syncope and fainting, especially in adolescents. Prior to administration, ensure procedures are in place to prevent falls and manage syncopal reactions. Patients should remain seated or lying down during the observation period to decrease the risk for injury. If syncope develops, observe patients until symptoms resolve.[66080] [66175]

Data suggest immune response to COVID-19 vaccination may be reduced in patients with renal failure receiving hemodialysis. Counsel hemodialysis patients about the potential for reduced immune responses and the need to continue following precautions to avoid exposure to the SARS-CoV-2 virus.[66175]

The Pfizer-BioNTech COVID-19 vaccine (Comirnaty) is FDA-approved in patients 16 years and older; use in patients 12 to 15 years is covered under an Emergency Use Authorization (EUA).[66080] [66904] The safety and effectiveness of the COVID-19 vaccine have not been established in children 11 years and younger, infants, or neonates. [66080] [66120] [66904] The American Academy of Pediatrics (AAP) recommends against off-label use of the vaccine to anyone under the age of 12 years until authorized by the FDA. Studies in this population are currently underway; however, the data from those studies is not yet available and accurate dosing information is not known.[66927]

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Mechanism of Action

The Pfizer-BioNTech COVID-19 vaccine contains nucleoside-modified messenger RNA (modRNA) and the Moderna COVID-19 vaccine is made up of a synthetic messenger RNA (mRNA), both encoding the viral spike glycoprotein (S) of SARS-CoV-2. The RNA is encapsulated in lipid nanoparticles, which enables entry into host cells, expression of the S protein, and elicitation of both antibody and cellular immune responses.[66080][66120][66904]

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Pharmacokinetics

The COVID-19 vaccine is administered intramuscularly. Vaccination does not ensure immunity.[66080][66120][66904]

Affected cytochrome P450 isoenzymes: none

Route-Specific Pharmacokinetics

- **Intramuscular Route**

  After Pfizer-BioNTech COVID-19 vaccine administration, the highest neutralization titers were measured on day 28 (i.e., 7 days after the second dose) or on day 35 (i.e., 14 days after the second dose). The 50% neutralizing geometric mean titers (GMTs) on day 28 or 35 ranged from 1.7 to 3.8 times the GMT of the convalescent serum panel in patients 18 to 55 years of age and from 1.6 to 2.2 times the GMT of the convalescent serum panel in patients 65 to 85 years of age.[66103][66104]

  After 2 Moderna COVID-19 vaccinations, seroconversion occurred in all patients by day 15. All GMTs exceeded those seen in convalescent serum by day 57. At day 43, neutralizing activity against SARS-CoV-2 was seen in all evaluated patients.[66185]

Special Populations

- **Pediatrics**

  An analysis of SARS-CoV-2 50% neutralizing titers 1 month after the second dose in a randomly selected subset of patients demonstrated non-inferior immune responses (within 1.5-fold) when comparing patients 12 to 15 years to patients 16 to 25 years of age.[66080]

- **Geriatric**

  The Pfizer-BioNTech COVID-19 vaccine generally elicited lower antigen-binding IgG and virus-neutralizing responses in patients 65 to 85 years of age compared to patients 18 to 55 years of age. However, on day 28 (i.e., 7 days after the second dose) and on day 35 (i.e., 14 days after the second dose), the 50% and 90% neutralizing geometric mean titers (GMTs) elicited in older adults exceeded those of the convalescent serum panel.[66103][66104]

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Pregnancy/Breast-feeding

Pregnancy

COVID-19 vaccination is recommended in all eligible women regardless of pregnancy status (including those who are pregnant, trying to get pregnant, or may become pregnant in the future).[66179] [66863] If a woman becomes pregnant after the first dose, administer the second dose as indicated. Manage potential post vaccination fever with acetaminophen. Data suggest that benefits of COVID-19 vaccination outweigh any known or potential risk of vaccination during pregnancy. Analysis of current data from the V-SAFE pregnancy registry did not find an increased risk of miscarriage among approximately 2,500 pregnant women who received an mRNA COVID-19 vaccine before 20 weeks of pregnancy. Miscarriage rates in this population were 13%, compared to 11% to 16% of pregnancies in the general population. Previously, early data from 3 vaccine-safety-related databases, did not identify any safety concerns for pregnant women who were vaccinated or their neonates. There is no current evidence that COVID-19 vaccines cause fertility problems in woman or men.[66863] [66864] In a prospective cohort study of 131 mRNA COVID-19 vaccine recipients (84 pregnant, 31 lactating, and 16 non-pregnant), vaccine-induced antibody titers were equivalent in pregnant and lactating women compared to non-pregnant women. All titers were significantly higher than those

induced during SARS-CoV-2 infection during pregnancy. Vaccine-generated antibodies were present in all umbilical cord blood samples; neutralizing antibody titers were lower in umbilical cord compared to maternal sera, although statistical significance was not reached. No differences in reactogenicity were noted between the groups.[66558] A pregnancy exposure registry is available that monitors pregnancy outcomes in women exposed to Comirnaty (Pfizer-BioNTech COVID-19 vaccine) during pregnancy. Encourage women vaccinated during pregnancy to enroll in the registry by going to https://mothertobaby.org/ongoing-study/covid19-vaccines/.[66904] A pregnancy exposure registry is available that monitors pregnancy outcomes in women exposed to Moderna COVID-19 vaccine during pregnancy. Encourage women vaccinated with Moderna COVID-19 vaccine to enroll in the registry by calling 1-866-663-3762. Additionally, encourage pregnant women to enroll in the CDC's V-SAFE program by going to vsafe.cdc.gov.[66120] [66864]

Breast-Feeding

COVID-19 vaccination is recommended in all eligible women, including those who are breast-feeding.[66179] [66864] There are no data regarding use of the COVID-19 vaccine during breast-feeding and its excretion in human breast milk is unknown.[66080] [66120] However, recent reports suggest mothers who have received mRNA COVID-19 vaccines have antibodies in their breast milk, which may help protect their babies.[66864] In a prospective cohort study of 131 mRNA COVID-19 vaccine recipients (84 pregnant, 31 lactating, and 16 non-pregnant), vaccine-induced antibody titers were equivalent in pregnant and lactating women compared to non-pregnant women. All titers were significantly higher than those induced during SARS-CoV-2 infection during pregnancy. Vaccine-generated antibodies were present in all breast milk samples. No differences in reactogenicity were noted between the groups.[66558] If a breast-feeding infant experiences an adverse event possibly related to a maternally administered vaccine, health care providers are encouraged to report the adverse event to the FDA.[66080]

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Interactions

Level 3 (Moderate)

- Abatacept
- Abemaciclib
- Acalabrutinib
- Adalimumab
- Ado-Trastuzumab emtansine
- Afatinib
- Alectinib
- Alefacept
- Alemtuzumab
- Alpelisib
- Altretamine
- Aminolevulinic Acid
- Amivantamab
- Anakinra
- Anifrolumab
- Antithymocyte Globulin
- Apremilast
- Arsenic Trioxide
- Asparaginase Erwinia chrysanthemi
- Atezolizumab
- Avapritinib
- Avelumab
- Axicabtagene Ciloleucel
- Axitinib
- Azacitidine
- Azathioprine
- Belantamab mafodotin
- Belatacept
- Belimumab
- Belinostat
- Belumosudil
- Bendamustine
- Benralizumab
- Betamethasone
- Bevacizumab
- Bexarotene
- Binimetinib
- Bleomycin
- Blinatumomab
- Bortezomib
- Bosutinib
- Brentuximab vedotin
- Brexucabtagene Autoleucel
- Brigatinib
- Brodalumab
- Budesonide
- Budesonide; Formoterol
- Budesonide; Glycopyrrolate; Formoterol
- Busulfan
- Cabazitaxel
- Cabozantinib
- Calaspargase pegol
- Canakinumab
- Capecitabine
- Capmatinib
- Carboplatin
- Carfilzomib
- Carmustine, BCNU
- Cemiplimab
- Ceritinib
- Certolizumab pegol
- Cetuximab
- Chlorambucil
- Cisplatin
- Cladribine
- Clofarabine
- Cobimetinib
- Copanlisib
- Corticosteroids (systemic)
- Cortisone
- Crizotinib
- Cyclophosphamide
- Cyclosporine
- Cytarabine, ARA-C
- Dabrafenib
- Dacarbazine, DTIC
- Daclizumab
- Dacomitinib
- Dactinomycin, Actinomycin D
- Daratumumab
- Daratumumab; Hyaluronidase
- Dasatinib

- Daunorubicin
- Daunorubicin Liposomal
- Daunorubicin Liposomal; Cytarabine Liposomal
- Decitabine
- Decitabine; Cedazuridine
- Deflazacort
- Denileukin Diftitox
- Denosumab
- Dexamethasone
- Dinutuximab
- Docetaxel
- Dostarlimab
- Doxorubicin
- Doxorubicin Liposomal
- Dupilumab
- Durvalumab
- Duvelisib
- Eculizumab
- Elotuzumab
- Emapalumab
- Enasidenib
- Encorafenib
- Enfortumab vedotin
- Entrectinib
- Epirubicin
- Erdafitinib
- Eribulin
- Erlotinib
- Estramustine
- Etanercept
- Etoposide, VP-16
- Everolimus
- Fam-Trastuzumab deruxtecan
- Fedratinib
- Fingolimod
- Floxuridine
- Fludarabine
- Fludrocortisone
- Fluorouracil, 5-FU
- Fostamatinib
- Gefitinib
- Gemcitabine
- Gemtuzumab Ozogamicin
- Gilteritinib
- Glasdegib
- Golimumab
- Guselkumab
- Hydrocortisone
- Hydroxyurea
- Ibritumomab Tiuxetan
- Ibrutinib
- Idarubicin
- Idecabtagene Vicleucel
- Idelalisib
- Ifosfamide
- Imatinib
- Immunosuppressants
- Inebilizumab
- Infigratinib
- Infliximab
- Inotuzumab Ozogamicin
- Iobenguane I 131
- Ipilimumab
- Irinotecan
- Irinotecan Liposomal
- Isatuximab
- Ivosidenib
- Ixabepilone
- Ixazomib
- Ixekizumab
- L-Asparaginase Escherichia coli
- Lapatinib
- Larotrectinib
- Leflunomide
- Lenvatinib
- Lisocabtagene Maraleucel
- Lomustine, CCNU
- Loncastuximab Tesirine
- Lorlatinib
- Lurbinectedin
- Lutetium Lu 177 dotatate
- Margetuximab
- Mechlorethamine, Nitrogen Mustard
- Melphalan
- Melphalan Flufenamide
- Mepolizumab
- Mercaptopurine, 6-MP
- Methotrexate
- Methoxsalen
- Methylprednisolone
- Midostaurin
- Mitomycin
- Mitotane
- Mitoxantrone
- Mogamulizumab
- Moxetumomab pasudotox

- Mycophenolate
- Nanoparticle Albumin-Bound Paclitaxel
- Natalizumab
- Naxitamab
- Necitumumab
- Nelarabine
- Neratinib
- Nilotinib
- Niraparib
- Nivolumab
- Obinutuzumab
- Ocrelizumab
- Ofatumumab
- Olaparib
- Olaratumab
- Omacetaxine
- Omalizumab
- Osimertinib
- Oxaliplatin
- Ozanimod
- Paclitaxel
- Palbociclib
- Panitumumab
- Panobinostat
- Pazopanib
- Pegaspargase
- Pegcetacoplan
- Pembrolizumab
- Pemetrexed
- Pemigatinib
- Pentostatin
- Pertuzumab
- Pertuzumab; Trastuzumab; Hyaluronidase
- Pexidartinib
- Plicamycin
- Polatuzumab Vedotin
- Ponatinib
- Ponesimod
- Porfimer
- Pralatrexate
- Pralsetinib
- Prednisolone
- Prednisone
- Procarbazine
- Radium-223 Dichloride
- Ramucirumab
- Ravulizumab
- Regorafenib
- Reslizumab
- Ribociclib
- Ribociclib; Letrozole
- Rilonacept
- Ripretinib
- Rituximab
- Rituximab; Hyaluronidase
- Romidepsin
- Rucaparib
- Ruxolitinib
- Sacituzumab Govitecan
- Sarilumab
- Secukinumab
- Selinexor
- Selpercatinib
- Selumetinib
- Siltuximab
- Siponimod
- Sirolimus
- Sonidegib
- Sorafenib
- Sotorasib
- Streptozocin
- Sunitinib
- Tacrolimus
- Tafasitamab
- Tagraxofusp
- Talazoparib
- Talimogene Laherparepvec
- Tazemetostat
- Temozolomide
- Temsirolimus
- Teniposide
- Tepotinib
- Teprotumumab
- Teriflunomide
- Thioguanine, 6-TG
- Thiotepa
- Tisagenlecleucel
- Tivozanib
- Tocilizumab
- Tofacitinib
- Topotecan
- Tositumomab
- Trabectedin
- Trametinib
- Trastuzumab
- Trastuzumab; Hyaluronidase

- Tretinoin, ATRA
- Triamcinolone
- Trifluridine; Tipiracil
- Trilaciclib
- Tucatinib
- Umbralisib
- Upadacitinib
- Ustekinumab
- Vandetanib
- Vedolizumab
- Vemurafenib
- Venetoclax
- Vinblastine
- Vincristine
- Vincristine Liposomal
- Vinorelbine
- Vismodegib
- Voclosporin
- Vorinostat
- Zanubrutinib
- Ziv-Aflibercept

Abatacept: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Abemaciclib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Acalabrutinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Adalimumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ado-Trastuzumab emtansine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Afatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Alectinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Alefacept: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Alemtuzumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Alpelisib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Altretamine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Aminolevulinic Acid: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Amivantamab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Anakinra: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Anifrolumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Antithymocyte Globulin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Apremilast: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Arsenic Trioxide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Asparaginase Erwinia chrysanthemi: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Atezolizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Avapritinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Avelumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Axicabtagene Ciloleucel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Axitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Azacitidine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Azathioprine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Belantamab mafodotin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Belatacept: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Belimumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Belinostat: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Belumosudil: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Bendamustine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Benralizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Betamethasone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Bevacizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Bexarotene: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Binimetinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Bleomycin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Blinatumomab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Bortezomib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Bosutinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Brentuximab vedotin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Brexucabtagene Autoleucel : (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Brigatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Brodalumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Budesonide: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Budesonide; Formoterol: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Budesonide; Glycopyrrolate; Formoterol: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Busulfan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cabazitaxel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cabozantinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Calaspargase pegol: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Canakinumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Capecitabine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Capmatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Carboplatin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Carfilzomib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Carmustine, BCNU: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cemiplimab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ceritinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Certolizumab pegol: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cetuximab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Chlorambucil: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cisplatin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cladribine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Clofarabine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cobimetinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Copanlisib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Corticosteroids (systemic): (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cortisone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Crizotinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cyclophosphamide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cyclosporine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Cytarabine, ARA-C: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dabrafenib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dacarbazine, DTIC: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Daclizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dacomitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dactinomycin, Actinomycin D: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Daratumumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Daratumumab; Hyaluronidase: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dasatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Daunorubicin Liposomal: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Daunorubicin Liposomal; Cytarabine Liposomal: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Daunorubicin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Decitabine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Decitabine; Cedazuridine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Deflazacort: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Denileukin Diftitox: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Denosumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dexamethasone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dinutuximab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Docetaxel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dostarlimab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Doxorubicin Liposomal: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Doxorubicin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Dupilumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Durvalumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Duvelisib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Eculizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Elotuzumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Emapalumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Enasidenib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Encorafenib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Enfortumab vedotin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Entrectinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Epirubicin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Erdafitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Eribulin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Erlotinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Estramustine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Etanercept: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Etoposide, VP-16: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Everolimus: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Fam-Trastuzumab deruxtecan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Fedratinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Fingolimod: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Floxuridine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Fludarabine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Fludrocortisone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Fluorouracil, 5-FU: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Fostamatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Gefitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Gemcitabine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Gemtuzumab Ozogamicin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Gilteritinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Glasdegib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Golimumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Guselkumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Hydrocortisone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Hydroxyurea: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ibritumomab Tiuxetan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ibrutinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Idarubicin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Idecabtagene Vicleucel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Idelalisib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ifosfamide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Imatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Immunosuppressants: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Inebilizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Infigratinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Infliximab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Inotuzumab Ozogamicin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Iobenguane I 131: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ipilimumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Irinotecan Liposomal: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Irinotecan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Isatuximab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ivosidenib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ixabepilone: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ixazomib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ixekizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Lapatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Larotrectinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

L-Asparaginase Escherichia coli: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Leflunomide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Lenvatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Lisocabtagene Maraleucel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Lomustine, CCNU: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Loncastuximab Tesirine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Lorlatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Lurbinectedin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Lutetium Lu 177 dotatate: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Margetuximab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mechlorethamine, Nitrogen Mustard: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Melphalan Flufenamide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Melphalan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mepolizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mercaptopurine, 6-MP: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Methotrexate: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Methoxsalen: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Methylprednisolone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Midostaurin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mitomycin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mitotane: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mitoxantrone: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mogamulizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Moxetumomab pasudotox: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Mycophenolate: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Nanoparticle Albumin-Bound Paclitaxel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Natalizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Naxitamab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Necitumumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Nelarabine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Neratinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Nilotinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Niraparib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Nivolumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Obinutuzumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ocrelizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ofatumumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Olaparib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Olaratumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Omacetaxine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Omalizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Osimertinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Oxaliplatin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ozanimod: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Paclitaxel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Palbociclib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Panitumumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Panobinostat: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pazopanib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pegaspargase: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pegcetacoplan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pembrolizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pemetrexed: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pemigatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pentostatin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pertuzumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pertuzumab; Trastuzumab; Hyaluronidase: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pexidartinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Plicamycin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Polatuzumab Vedotin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ponatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ponesimod: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Porfimer: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pralatrexate: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Pralsetinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Prednisolone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Prednisone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Procarbazine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Radium-223 Dichloride: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ramucirumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ravulizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Regorafenib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Reslizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ribociclib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ribociclib; Letrozole: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Rilonacept: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ripretinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Rituximab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Rituximab; Hyaluronidase: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Romidepsin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Rucaparib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ruxolitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Sacituzumab Govitecan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Sarilumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Secukinumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Selinexor: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Selpercatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Selumetinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Siltuximab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Siponimod: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Sirolimus: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Sonidegib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Sorafenib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Sotorasib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Streptozocin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Sunitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tacrolimus: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tafasitamab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tagraxofusp: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Talazoparib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Talimogene Laherparepvec: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tazemetostat: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Temozolomide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Temsirolimus: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Teniposide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tepotinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Teprotumumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Teriflunomide: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Thioguanine, 6-TG: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Thiotepa: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tisagenlecleucel: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tivozanib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tocilizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tofacitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Topotecan: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tositumomab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Trabectedin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Trametinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Trastuzumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Trastuzumab; Hyaluronidase: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tretinoin, ATRA: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Triamcinolone: (Moderate) Patients receiving corticosteroids in greater than physiologic doses may have a diminished response to the SARS-CoV-2 virus vaccine. Counsel patients receiving corticosteroids about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Trifluridine; Tipiracil: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Trilaciclib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Tucatinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Umbralisib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Upadacitinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ustekinumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vandetanib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vedolizumab: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vemurafenib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Venetoclax: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vinblastine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vincristine Liposomal: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vincristine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vinorelbine: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vismodegib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Voclosporin: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Vorinostat: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Zanubrutinib: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

Ziv-Aflibercept: (Moderate) Patients receiving immunosuppressant medications may have a diminished response to the SARS-CoV-2 virus vaccine. When feasible, administer indicated vaccines prior to initiating immunosuppressant medications. Counsel patients receiving immunosuppressant medications about the possibility of a diminished vaccine response and to continue to follow precautions to avoid exposure to SARS-CoV-2 virus after receiving the vaccine. [65107] [66080]

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Monitoring Parameters

- laboratory monitoring not necessary

US Drug Names

- COMIRNATY COVID-19
- Moderna COVID-19
- Pfizer-BioNTech COVID-19

Global Drug names