

April 28, 2023

Pfizer, Inc.
Attention: Leslie Sands
500 Arcola Road
Collegeville, PA 19426

Dear Ms. Sands:

On February 4, 2020, as amended on March 15, 2023, pursuant to Section 564(b)(1)(C) of the Federal Food, Drug, and Cosmetic Act (the FD&C Act or the Act), the Secretary of the Department of Health and Human Services (HHS) determined that there is a public health emergency, or a significant potential for a public health emergency, that affects, or has a significant potential to affect national security or the health and security of United States citizens living abroad, and that involves the virus that causes Coronavirus Disease 2019 (COVID-19).¹ On the basis of such determination, the Secretary of HHS on March 27, 2020, declared that circumstances exist justifying the authorization of emergency use of drugs and biological products during the COVID-19 pandemic, pursuant to Section 564 of the Act (21 U.S.C. 360bbb-3), subject to terms of any authorization issued under that section.²

On December 11, 2020, the Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) for emergency use of Pfizer-BioNTech COVID-19 Vaccine for the prevention of COVID-19 for individuals 16 years of age and older pursuant to Section 564 of the Act. FDA reissued the letter of authorization on: December 23, 2020,³ February 25, 2021,⁴

¹ U.S. Department of Health and Human Services, Determination of a Public Health Emergency and Declaration that Circumstances Exist Justifying Authorizations Pursuant to Section 564(b) of the FD&C Act, 21 U.S.C. § 360bbb-3, February 4, 2020. U.S. Department of Health and Human Services, *Amended Determination of a Public Health Emergency or Significant Potential for a Public Health Emergency Pursuant to Section 564(b) of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 360bbb-3(b)*, March 15, 2023. 88 FR 16644 (March 20, 2023) (“Amended Determination”).

² U.S. Department of Health and Human Services, *Declaration that Circumstances Exist Justifying Authorizations Pursuant to Section 564(b) of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 360bbb-3*, 85 FR 18250 (April 1, 2020). See Amended Determination (“The declarations issued pursuant to section 564(b)(1) of the FD&C Act that circumstances exist justifying the authorization of emergency use of certain in vitro diagnostics, personal respiratory protective devices, other medical devices and drugs and biological products, as set forth in those declarations, and that are based on the February 4, 2020 determination, remain in effect until those declarations are terminated in accordance with section 564 of the FD&C Act.”).

³ In the December 23, 2020 revision, FDA removed reference to the number of doses per vial after dilution from the letter of authorization, clarified the instructions for vaccination providers reporting to VAERS, and made other technical corrections. FDA also revised the Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers) to clarify the number of doses of vaccine per vial after dilution and the instructions for reporting to VAERS. In addition, the Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers) and the Fact Sheet for Recipients and Caregivers were revised to include additional information on safety monitoring and to clarify information about the availability of other COVID-19 vaccines.

⁴ In the February 25, 2021 revision, FDA allowed flexibility on the date of submission of monthly periodic safety reports and revised the requirements for reporting of vaccine administration errors by Pfizer Inc. The Fact Sheet for Health Care Providers Administering Vaccine (Vaccination Providers) was revised to provide an update to the storage and transportation temperature for frozen vials, direct the provider to the correct CDC website for information on monitoring vaccine recipients for the occurrence of immediate adverse reactions, to include data from a developmental toxicity study, and add adverse reactions that have been identified during post authorization use. The Fact Sheet for Recipients and Caregivers was revised to add adverse reactions that have been identified during post authorization use.

May 10, 2021,⁵ June 25, 2021,⁶ and August 12, 2021.⁷ On August 23, 2021, FDA approved COMIRNATY (COVID-19 Vaccine, mRNA)⁸ and reissued the letter in its entirety for both Pfizer-BioNTech COVID-19 Vaccine and certain uses of COMIRNATY (COVID-19 Vaccine, mRNA).⁹ Subsequently, FDA reissued the letter of authorization on September 22, 2021,¹⁰ October 20, 2021,¹¹ October 29, 2021,¹² November 19, 2021,¹³ December 9, 2021,¹⁴

⁵ In the May 10, 2021 revision, FDA authorized Pfizer-BioNTech Vaccine for the prevention of COVID-19 in individuals 12 through 15 years of age, as well as for individuals 16 years of age and older. In addition, FDA revised the Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers) to include the following Warning: “Syncope (fainting) may occur in association with administration of injectable vaccines, in particular in adolescents. Procedures should be in place to avoid injury from fainting.” In addition, the Fact Sheet for Recipients and Caregivers was revised to instruct vaccine recipients or their caregivers to tell the vaccination provider about fainting in association with a previous injection.

⁶ In the June 25, 2021 revision, FDA clarified terms and conditions that relate to export of Pfizer-BioNTech COVID-19 Vaccine from the United States. In addition, the Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers) was revised to include a Warning about myocarditis and pericarditis following administration of the Pfizer-BioNTech COVID-19 Vaccine. The Fact Sheet for Recipients and Caregivers was updated to include information about myocarditis and pericarditis following administration of the Pfizer-BioNTech COVID-19 Vaccine.

⁷ In the August 12, 2021 revision, FDA authorized a third dose of the Pfizer-BioNTech COVID-19 Vaccine administered at least 28 days following the two dose series of this vaccine in individuals 12 years of age or older who have undergone solid organ transplantation, or individuals 12 years of age or older who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise.

⁸ COMIRNATY (COVID-19 Vaccine, mRNA) was approved for active immunization to prevent COVID-19 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in individuals 16 years of age and older.

⁹ In the August 23, 2021 revision, FDA clarified that, subsequent to the FDA approval of COMIRNATY (COVID-19 Vaccine, mRNA) for the prevention of COVID-19 for individuals 16 years of age and older, this EUA would remain in place for the Pfizer-BioNTech COVID-19 Vaccine for the previously-authorized indication and uses. It also authorized COMIRNATY (COVID-19 Vaccine, mRNA) under this EUA for certain uses that are not included in the approved biologics license application (BLA). In addition, the Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers) was revised to provide updates on expiration dating of the authorized Pfizer-BioNTech COVID-19 Vaccine and updated language regarding warnings and precautions related to myocarditis and pericarditis. The Fact Sheet for Recipients and Caregivers was updated as the Vaccine Information Fact Sheet for Recipients and Caregivers, which comprises the Fact Sheet for the authorized Pfizer-BioNTech COVID-19 Vaccine and information about the FDA-licensed vaccine, COMIRNATY (COVID-19 Vaccine, mRNA).

¹⁰ In the September 22, 2021 revision, FDA authorized the administration of a single booster dose of COMIRNATY (COVID-19 Vaccine, mRNA) or Pfizer-BioNTech COVID-19 Vaccine at least 6 months after completing the primary series of this vaccine in individuals: 65 years of age and older; 18 through 64 years of age at high risk of severe COVID-19; and 18 through 64 years of age whose frequent institutional or occupational exposure to SARS-CoV-2 put them at high risk of serious complications of COVID-19 including severe COVID-19.

¹¹ In the October 20, 2021 revision, FDA clarified eligibility for the booster dose of COMIRNATY (COVID-19 Vaccine, mRNA) or Pfizer-BioNTech COVID-19 Vaccine and authorized the administration of a single booster dose of Pfizer-BioNTech COVID-19 Vaccine or COMIRNATY (COVID-19 Vaccine, mRNA) as a heterologous booster dose following completion of primary vaccination with another authorized COVID-19 vaccine. The eligible population(s) and dosing interval for the heterologous booster dose were the same as those authorized for a booster dose of the vaccine used for primary vaccination.

¹² In the October 29, 2021 revision, FDA authorized: 1) the use of Pfizer-BioNTech COVID-19 Vaccine for children 5 through 11 years of age; and 2) a manufacturing change to include an additional formulation of the Pfizer-BioNTech COVID-19 Vaccine that uses tromethamine (Tris) buffer instead of phosphate buffered saline (PBS) used in the originally authorized Pfizer-BioNTech COVID-19 Vaccine. The formulation of the Pfizer-BioNTech COVID-19 Vaccine that uses Tris buffer was authorized in two presentations: 1) multiple dose vials, with gray caps and labels with a gray border, formulated to provide, without need for dilution, doses (each 0.3 mL dose containing 30 microgram (mcg) nucleoside-modified messenger RNA (modRNA)) for individuals 12 years of age and older; and 2) multiple dose vials, with orange caps and labels with an orange border, formulated to provide, after dilution, doses (each 0.2 mL dose containing 10 mcg modRNA) for individuals 5 through 11 years of age. The formulation that uses Tris buffer is the only formulation that is authorized for use in individuals 5 through 11 years of age.

¹³ In the November 19, 2021 revision, FDA authorized the use of COMIRNATY (COVID-19 Vaccine, mRNA) and the Pfizer-BioNTech COVID-19 Vaccine as a single booster dose in individuals 18 years of age or older at least 6 months after completing the primary series of this vaccine (i.e., as a homologous booster dose), and as a single booster dose following completion of primary vaccination with another authorized COVID-19 vaccine (i.e., as a heterologous booster dose) in individuals 18 years of age or older. The dosing interval for the heterologous booster dose was authorized to be the same as that authorized for a booster dose of the vaccine used for primary vaccination.

¹⁴ In the December 9, 2021 revision, FDA authorized the use of the vaccine as a single booster dose in individuals 16 and 17 years of age, at least 6 months after completing the primary series of this vaccine (i.e., as a homologous booster dose).

December 16, 2021,¹⁵ January 3, 2022,¹⁶ March 29, 2022,¹⁷ May 17, 2022,¹⁸ and on June 17, 2022.¹⁹

On July 8, 2022, FDA approved a supplement submitted by BioNTech Manufacturing GmbH to the biologics license application (BLA) for COMIRNATY (COVID-19 Vaccine, mRNA),²⁰ and reissued the letter of authorization in its entirety for both Pfizer-BioNTech COVID-19 Vaccine and certain uses of COMIRNATY (COVID-19 Vaccine, mRNA).²¹ Subsequently, FDA reissued the letter of authorization on August 31, 2022.²² The August 31, 2022 reissuance provided for certain emergency uses of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent (Original and Omicron BA.4/BA.5)²³ after either completion of primary vaccination with any FDA approved or authorized monovalent²⁴ COVID-19 vaccine or receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. Subsequently, FDA reissued

¹⁵ On December 16, 2021, FDA approved a supplement to the COMIRNATY (COVID-19 Vaccine, mRNA) BLA to include a new 30 mcg dose formulation of COMIRNATY (COVID-19 Vaccine, mRNA) that uses Tris buffer instead of the PBS buffer used in the originally approved vaccine. At that time the EUA was revised to clarify that the Pfizer-BioNTech COVID-19 Vaccine that uses Tris buffer and COMIRNATY (COVID-19 Vaccine, mRNA) that uses the Tris buffer have the same formulation and could be used interchangeably. In addition, FDA extended the expiration date of the Pfizer-BioNTech COVID-19 Vaccine that uses the Tris buffer from 6 months to 9 months when held at -90 °C to -60 °C. FDA also updated the fact sheets to reflect these revisions.

¹⁶ In the January 3, 2022 revision, FDA: (i) authorized the use of the vaccine as a single booster dose in individuals 12 through 15 years of age; (ii) lowered the authorized dosing interval of the homologous booster dose to at least five (5) months after completion of the primary series; and (iii) authorized a third primary series dose of the vaccine administered at least 28 days following the two dose series of this vaccine in individuals 5 through 11 years of age who have undergone solid organ transplantation, or 5 through 11 years of age who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise. In addition, FDA revised the Fact Sheets for Healthcare Providers Administering Vaccine (Vaccination Providers) and the Fact Sheet for Recipients and Caregivers to reflect these revisions.

¹⁷ In the March 29, 2022 revision, FDA authorized a second booster dose of COMIRNATY (COVID-19 Vaccine, mRNA) or the Pfizer-BioNTech COVID-19 Vaccine at least 4 months after receipt of a first booster dose of any FDA-authorized or approved COVID-19 vaccine to: 1) individuals 50 years of age and older; and 2) individuals 12 years of age or older who have undergone solid organ transplantation, or individuals 12 years of age or older who have been diagnosed with conditions that are considered to have an equivalent level of immunocompromise.

¹⁸ In the May 17, 2022 revision, FDA authorized the administration of a single booster dose of the Pfizer-BioNTech COVID-19 Vaccine in individuals 5 through 11 years of age, at least 5 months after completing a primary series with this vaccine.

¹⁹ In the June 17, 2022 revision, FDA authorized the administration of Pfizer-BioNTech COVID-19 Vaccine as a 3-dose primary series for the prevention of COVID-19 in individuals 6 months through 4 years of age; and an additional presentation of the Pfizer-BioNTech COVID-19 Vaccine in multiple dose vials with maroon caps and labels with maroon borders (each 0.2 mL dose containing 3 mcg mRNA) for use in individuals 6 months through 4 years of age.

²⁰ FDA approved COMIRNATY (COVID-19 Vaccine, mRNA) for active immunization to prevent COVID-19 caused by SARS-CoV-2 in adolescents 12 through 15 years of age.

²¹ In the July 8, 2022 authorization, FDA clarified that the EUA would remain in place for the Pfizer-BioNTech COVID-19 vaccine for the previously authorized uses, and authorized use of COMIRNATY (COVID-19 Vaccine, mRNA) under this EUA for certain uses that are not included in the approved BLA. In addition, the Vaccine Information Fact Sheet for Recipients and Caregivers: For 12 Years of Age and Older and the Fact Sheets for Healthcare Providers Administering Vaccine (Vaccination Providers): For 12 Years of Age and Older were updated to reflect this.

²² In the August 31, 2022 revision, FDA authorized the Pfizer-BioNTech Vaccine, Bivalent (Original and Omicron BA.4/BA.5) in single dose vials and multiple dose vials with gray caps and labels with gray borders (each 0.3 mL dose containing a total of 30 mcg modRNA) for the prevention of COVID-19 in individuals 12 years of age and older as a single booster dose administered at least 2 months after either: 1) completion of primary vaccination with any FDA authorized or approved monovalent COVID-19 vaccine, or 2) receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. FDA also revised the scope of authorization for COMIRNATY (COVID-19 Vaccine, mRNA) and Pfizer BioNTech COVID-19 Vaccine to remove their use as a booster dose for individuals 12 years of age and older. Finally, FDA revised the Fact Sheets for Pfizer-BioNTech COVID-19 Vaccine, as applicable, to reflect these changes and to reflect updates to the Conditions of Authorization regarding VAERS reporting.

²³ Hereinafter, this letter refers to this vaccine as the “Pfizer-BioNTech COVID-19 Vaccine, Bivalent.”

²⁴ For purposes of this letter, monovalent refers to any COVID-19 Vaccine that contains or encodes the spike protein of only the Original SARS-CoV-2.

the letter of authorization on October 12, 2022,²⁵ December 8, 2022,²⁶ March 14, 2023,²⁷ and April 18, 2023.²⁸

On April 28, 2023, having concluded that revising this EUA is appropriate to protect the public health or safety under Section 564(g)(2) of the Act, FDA is reissuing the April 18, 2023 letter of

²⁵ In the October 12, 2022 revision, FDA authorized the Pfizer-BioNTech COVID-19 Vaccine, Bivalent in multiple dose vials with orange caps and labels with orange borders (each 0.2 mL dose containing a total of 10 mcg modRNA) for the prevention of COVID-19 in individuals 5 through 11 years of age as a single booster dose administered at least 2 months after either: 1) completion of primary vaccination with any FDA authorized or approved monovalent COVID-19 vaccine, or 2) receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. FDA also revised the scope of authorization for Pfizer BioNTech COVID-19 Vaccine to remove its use as a booster dose for individuals 5 through 11 years of age. Finally, FDA revised the following Fact Sheets to reflect these changes: 1) Fact Sheet for Recipients and Caregivers About the Pfizer-BioNTech COVID-19 Vaccine and the Pfizer-BioNTech COVID-19 Vaccine Bivalent (Original and Omicron BA.4/BA.5) to Prevent Coronavirus Disease (COVID-19) for Use in Individuals 5 Through 11 Years of Age; 2) Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers): Emergency Use Authorization (EUA) of Pfizer-BioNTech COVID-19 Vaccine to Prevent Coronavirus Disease 2019 (COVID-19) Primary Series For 5 Through 11 Years of Age Dilute Before Use; and 3) Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers): Emergency Use Authorization (EUA) Pfizer-BioNTech COVID-19 Vaccine, Bivalent (Original and Omicron BA.4/BA.5) Booster Dose for 12 Years of Age and Older.

²⁶ On December 8, 2022, FDA revised the third dose in the 3-dose primary series authorized for individuals 6 months through 4 years of age. Specifically, the Pfizer-BioNTech COVID-19 Vaccine, Bivalent supplied in multiple dose vials with maroon caps and labels with maroon borders (each 0.2 mL dose containing a total of 3 mcg of modRNA) was authorized for the prevention of COVID-19 in individuals 6 months through 4 years of age as the third dose in the 3-dose primary series dose administered at least 8 weeks after a second primary series dose of the Pfizer-BioNTech COVID-19 Vaccine. FDA also revised the scope of the authorization for Pfizer-BioNTech COVID-19 Vaccine supplied in multiple dose vials with maroon caps and labels with maroon borders, to remove its use as the third primary series dose in the 3-dose primary series authorized for individuals 6 months through 4 years of age. Thus, Pfizer-BioNTech COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine, Bivalent (each in multiple dose vials with maroon caps and labels with maroon borders) were authorized for use in individuals 6 months through 4 years of age to provide a 3-dose primary series as follows: Dose 1: Pfizer-BioNTech COVID-19 Vaccine; Dose 2: Pfizer-BioNTech COVID-19 Vaccine; Dose 3: Pfizer-BioNTech COVID-19 Vaccine, Bivalent. In addition, because the authorized primary series for individuals 6 months through 4 years of age no longer consists of only monovalent Pfizer-BioNTech COVID-19 Vaccine doses, FDA revised the scope of authorization for the Pfizer-BioNTech COVID-19 Vaccine, Bivalent for use in individuals 5 through 11 years of age and individuals 12 years of age and older so that the Pfizer-BioNTech COVID-19 Vaccine, Bivalent can be administered as a booster dose regardless of whether primary vaccination was completed with a monovalent COVID-19 vaccine. Specifically, FDA authorized the Pfizer-BioNTech COVID-19 Vaccine, Bivalent supplied in multiple dose vials with orange caps and labels with orange borders for use in individuals 5 through 11 years of age (each 0.2 mL dose containing 10 mcg modRNA) and the Pfizer-BioNTech COVID-19 Vaccine, Bivalent supplied in multiple dose and single dose vials with gray caps and labels with gray borders for use in individuals 12 years of age and older (each 0.3 mL dose containing 30 mcg modRNA) as a single booster dose administered at least 2 months after either: 1) completion of primary vaccination with any FDA authorized or approved COVID-19 vaccine, or 2) receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. FDA also revised the applicable Fact Sheets to reflect these changes. FDA also authorized an extension of expiration dating for the Pfizer-BioNTech COVID-19 Vaccine formulated in Tris/Sucrose buffer that provide 30-, 10-, and 3-mcg mRNA per dose from 12 months to 18 months from the date of manufacture when stored at -90 to -60 °C. This extension is also applicable to the Pfizer-BioNTech COVID-19 Vaccine, Bivalent presentations that provide 30- and 10-mcg mRNA per dose. The Fact Sheets for Healthcare Providers Administering Vaccine (Vaccination Providers) were updated to reflect these changes.

²⁷ In the March 14, 2023 revision, FDA authorized Pfizer-BioNTech COVID-19 Vaccine, Bivalent supplied in multiple dose vials with maroon caps and labels with maroon borders (each 0.2 mL dose containing a total of 3 mcg of modRNA) for use in individuals 6 months through 4 years of age to provide a single booster dose at least 2 months after completion of primary vaccination with 3 doses of the Pfizer-BioNTech COVID-19 Vaccine. FDA also revised the applicable Fact Sheets for Pfizer-BioNTech COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine, Bivalent, to reflect these changes.

²⁸ In the April 18, 2023 revision, FDA: 1) Revised the authorized dosing regimen and schedule of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent, as described in the Scope of Authorization (Section II); 2) No longer authorized the use of the Pfizer-BioNTech COVID-19 Vaccine and certain uses of COMIRNATY (COVID-19 Vaccine; mRNA) in the United States; 3) Clarified the terms and conditions that relate to export of Pfizer-BioNTech COVID-19 Vaccine from the United States; and 4) Revised Condition G to require the inclusion of distribution data for Pfizer-BioNTech COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine, Bivalent in the monthly periodic safety reports.

authorization in its entirety with revisions to authorize the following uses of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent with maroon caps and labels with maroon borders (each 0.2 mL dose containing 3 mcg of modRNA) for individuals 6 months through 4 years of age with certain kinds of immunocompromise²⁹ who have previously received three 0.2 mL doses (Pfizer-BioNTech COVID-19 Vaccine or Pfizer-BioNTech COVID-19 Vaccine, Bivalent),

- 1) A fourth dose administered at least 1 month following the most recent dose;
- 2) additional doses that may be administered at the discretion of the healthcare provider, taking into consideration the individual's clinical circumstances.

FDA is also revising the Fact Sheets for Pfizer-BioNTech COVID-19 Vaccine, Bivalent, to reflect these changes.

For the December 11, 2020 authorization for individuals 16 years of age and older, FDA reviewed safety and effectiveness data from an ongoing Phase 1/2/3 trial in approximately 44,000 participants randomized 1:1 to receive Pfizer-BioNTech COVID-19 Vaccine or saline control. The trial enrolled participants 12 years of age and older. FDA's review at that time considered the safety and effectiveness data as they related to the request for emergency use authorization in individuals 16 years of age and older. FDA's review of the available safety data from 37,586 of the participants 16 years of age and older, who were followed for a median of two months after receiving the second dose, did not identify specific safety concerns that would preclude issuance of an EUA. FDA's analysis of the available efficacy data from 36,523 participants 12 years of age and older without evidence of SARS-CoV-2 infection prior to 7 days after dose 2 confirmed that the vaccine was 95% effective (95% credible interval 90.3, 97.6) in preventing COVID-19 occurring at least 7 days after the second dose (with 8 COVID-19 cases in the vaccine group compared to 162 COVID-19 cases in the placebo group). Based on these data, and review of manufacturing information regarding product quality and consistency, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine may be effective. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks of the vaccine, for the prevention of COVID-19 in individuals 16 years of age and older. Finally, on December 10, 2020, the Vaccines and Related Biological Products Advisory Committee voted in agreement with this conclusion.

For the May 10, 2021 authorization for individuals 12 through 15 years of age, FDA reviewed safety and effectiveness data from the above-referenced, ongoing Phase 1/2/3 trial that enrolled approximately 46,000 participants, including 2,260 participants 12 through 15 years of age. Trial participants were randomized 1:1 to receive Pfizer-BioNTech COVID-19 Vaccine or saline control. FDA's review of the available safety data from 2,260 participants 12 through 15 years of age, who were followed for a median of 2 months after receiving the second dose, did not identify specific safety concerns that would preclude issuance of an EUA. FDA's analysis of SARS-CoV-2 50% neutralizing antibody titers 1 month after the second dose of Pfizer-BioNTech COVID-19 Vaccine in a subset of participants who had no serological or virological evidence of past SARS-CoV-2 infection confirm that the geometric mean antibody titer in

²⁹ Certain kinds of immunocompromise refers to individuals who have undergone solid organ transplant or who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise.

participants 12 through 15 years of age was non-inferior to the geometric mean antibody titer in participants 16 through 25 years of age. FDA's analysis of available descriptive efficacy data from 1,983 participants 12 through 15 years of age without evidence of SARS-CoV-2 infection prior to 7 days after dose 2 confirm that the vaccine was 100% effective (95% confidence interval 75.3, 100.0) in preventing COVID-19 occurring at least 7 days after the second dose (with no COVID-19 cases in the vaccine group compared to 16 COVID-19 cases in the placebo group). Based on these data, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine may be effective in individuals 12 through 15 years of age. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks of the vaccine, for the prevention of COVID-19 in individuals 12 through 15 years of age.

For the August 12, 2021 authorization of a third primary series dose in individuals 12 years of age or older who have undergone solid organ transplantation, or individuals 12 years of age or older who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise, FDA reviewed safety and effectiveness data reported in two manuscripts on solid organ transplant recipients. The first study was a single arm study conducted in 101 individuals who had undergone various solid organ transplant procedures (heart, kidney, liver, lung, pancreas) a median of 97±8 months earlier. A third dose of the Pfizer-BioNTech COVID-19 Vaccine was administered to 99 of these individuals approximately 2 months after they had received a second dose. Levels of total SARS-CoV-2 binding antibodies meeting the pre-specified criteria for success occurred four weeks after the third dose in 26/59 (44.0%) of those who were initially considered to be seronegative and received a third dose of the Pfizer-BioNTech COVID-19 Vaccine; 67/99 (68%) of the entire group receiving a third vaccination were subsequently considered to have levels of antibodies indicative of a significant response. In those who received a third vaccine dose, the adverse event profile was similar to that after the second dose and no grade 3 or grade 4 events were reported. A supportive secondary study was a double-blind, randomized-controlled study conducted in 120 individuals who had undergone various solid organ transplant procedures (heart, kidney, kidney-pancreas, liver, lung, pancreas) a median of 3.57 years earlier (range 1.99-6.75 years). A third dose of a similar messenger RNA vaccine (the Moderna COVID-19 vaccine) was administered to 60 individuals approximately 2 months after they had received a second dose (i.e., doses at 0, 1 and 3 months); saline placebo was given to 60 individuals for comparison. The primary outcome was anti-RBD antibody at 4 months greater than 100 U/mL. This titer was selected based on NHP challenge studies as well as a large clinical cohort study to indicate this antibody titer was protective. Secondary outcomes were based on a virus neutralization assay and polyfunctional T cell responses. Baseline characteristics were comparable between the two study arms as were pre-intervention anti-RBD titer and neutralizing antibodies. Levels of total SARS-CoV-2 binding antibodies indicative of a significant response occurred four weeks after the third dose in 33/60 (55.0%) of the Moderna COVID-19 vaccinated group and 10/57 (17.5%) of the placebo individuals. In the 60 individuals who received a third vaccine dose, the adverse event profile was similar to that after the second dose and no grade 3 or grade 4 adverse events were reported. Despite the moderate enhancement in antibody titers, the totality of data (i.e., supportive paper by Hall et al. demonstrated efficacy of the product in the elderly and persons with co-morbidities) supports the conclusion that a third dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective in this

population, and that the known and potential benefits of a third dose of Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks of the vaccine for immunocompromised individuals at least 12 years of age who have received two doses of the Pfizer-BioNTech COVID-19 Vaccine and who have undergone solid organ transplantation, or who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise.

For the September 22, 2021 authorization of a single booster dose administered at least 6 months after completing the primary series in individuals: 65 years of age and older; 18 through 64 years of age at high risk of severe COVID-19; and 18 through 64 years of age whose frequent institutional or occupational exposure to SARS-CoV-2 puts them at high risk of serious complications of COVID-19 including severe COVID-19, FDA reviewed safety and effectiveness data from the above-referenced, ongoing Phase 1/2/3 trial in which 329 participants 18 through 75 years of age received a booster dose of the Pfizer-BioNTech COVID-19 Vaccine approximately 6 months (range 4.8 to 8.8 months) after completion of the primary series. FDA's review of the available safety data from 329 participants 18 through 75 years of age, who had been followed for a median of 2.6 months after receiving the booster dose, did not identify specific safety concerns that would preclude issuance of an EUA. The effectiveness of the booster dose of the Pfizer-BioNTech COVID-19 Vaccine is based on an assessment of 50% neutralizing antibody titers (NT50) against SARS-CoV-2 (USA_WA1/2020). FDA's analysis of SARS-CoV-2 NT50 one month after the booster dose compared to 1 month after the primary series in study participants 18 through 55 years of age who had no serological or virological evidence of past SARS-CoV-2 infection up to 1 month after the booster dose confirmed noninferiority for both geometric mean ratio and difference in seroresponse rates. Based on the totality of the scientific evidence available, including data from the above-referenced clinical trial, FDA concluded that a booster dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective, and that the known and potential benefits of a single booster dose at least 6 months after completing the primary series outweigh the known and potential risks for individuals 65 years of age and older; individuals 18 through 64 years of age at high risk of severe COVID-19; and individuals 18 through 64 years of age whose frequent institutional or occupational exposure to SARS-CoV-2 puts them at high risk of serious complications of COVID-19 including severe COVID-19.

For the October 20, 2021 authorization of a single booster dose as a heterologous booster dose following completion of primary vaccination with another authorized COVID-19 vaccine, FDA reviewed data from an ongoing Phase 1/2 clinical trial in participants 19-85 years of age. In this trial, adults who had completed primary vaccination with a Moderna COVID-19 Vaccine 2-dose series (N=151), a Janssen COVID-19 Vaccine single dose (N=156), or a Pfizer-BioNTech COVID-19 Vaccine 2-dose series (N=151) at least 12 weeks prior to enrollment and who reported no history of SARS-CoV-2 infection were randomized 1:1:1 to receive a booster dose of one of three vaccines: Moderna COVID-19 Vaccine, Janssen COVID-19 Vaccine, or Pfizer-BioNTech COVID-19 Vaccine. Adverse events were assessed through 28 days after the booster dose. An overall review of adverse reactions reported following the Pfizer-BioNTech COVID-19 Vaccine heterologous booster dose did not identify any new safety concerns, as compared with adverse reactions reported following Pfizer-BioNTech COVID-19 Vaccine primary series doses or homologous booster dose. Neutralizing antibody titers, as measured by a pseudovirus

neutralization assay using a lentivirus expressing the SARS-CoV-2 Spike protein with D614G mutation, were assessed on Day 1 prior to administration of the booster dose and on Day 15 after the booster dose. A booster response to the Pfizer-BioNTech COVID-19 Vaccine was demonstrated regardless of primary vaccination. Based on the on the totality of the scientific evidence available, including data from the above-referenced clinical trial, FDA concluded that a heterologous booster dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective, and that the known and potential benefits of a heterologous booster dose of the Pfizer-BioNTech COVID-19 Vaccine following completion of primary vaccination with another authorized COVID-19 vaccine outweigh the known and potential risks.

For the October 29, 2021 authorization for the Pfizer-BioNTech COVID-19 Vaccine that uses Tris buffer for individuals 5 through 11 years of age, FDA reviewed safety and effectiveness data from an ongoing Phase 1/2/3 trial that has enrolled 4,695 participants 5 through 11 years of age, of whom 3,109 participants received Pfizer-BioNTech COVID-19 Vaccine (containing 10 mcg modRNA) formulated using PBS buffer and approximately 1,538 participants received saline control in Phase 2/3. FDA's review of the available safety data from 3,109 participants 5 through 11 years of age who received Pfizer-BioNTech COVID-19 Vaccine (containing 10 mcg modRNA), including 1,444 who were followed for at least 2 months after receiving the second dose, did not identify specific safety concerns that would preclude issuance of an EUA. SARS-CoV-2 50% neutralizing antibody titers 1 month after the second dose were compared between a subset of participants 5 through 11 years of age who received Pfizer-BioNTech COVID-19 Vaccine (containing 10 mcg modRNA) and a subset of participants 16 through 25 years of age who received Pfizer-BioNTech COVID-19 Vaccine (containing 30 mcg modRNA) in the above-referenced ongoing Phase 1/2/3 trial that enrolled approximately 46,000 participants. Immunobridging analyses included a subset of participants from each study who had no serological or virological evidence of past SARS-CoV-2 infection. FDA's analyses confirm that immunobridging criteria were met for both geometric mean antibody titers and seroresponse rates. FDA's analysis of available descriptive efficacy data from 1,968 participants 5 through 11 years of age without evidence of SARS-CoV-2 infection prior to 7 days after dose 2 confirm that the vaccine was 90.7% effective (95% confidence interval 67.7, 98.3) in preventing COVID-19 occurring at least 7 days after the second dose (with 3 COVID-19 cases in the vaccine group compared to 16 COVID-19 cases in the placebo group). Based on these data, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine may be effective in individuals 5 through 11 years of age. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks of the vaccine, for the prevention of COVID-19 in individuals 5 through 11 years of age. Finally, on October 26, 2021, the Vaccines and Related Biological Products Advisory Committee voted in agreement with this conclusion.

For the October 29, 2021 authorization of the manufacturing change to include an additional formulation of the Pfizer-BioNTech COVID-19 Vaccine that uses Tris buffer instead of PBS buffer used in the originally authorized Pfizer-BioNTech COVID-19 Vaccine, FDA reviewed data on analytical comparability, which uses laboratory testing to demonstrate that a change in

product formulation is not expected to impact safety or effectiveness.³⁰ In the case of Pfizer-BioNTech COVID-19 Vaccine, multiple different release parameters were evaluated, ranging from product appearance to size of the lipid-nanoparticle to the integrity of the modRNA in the product. Release and characterization tests include tests for purity, composition, and critical attributes of mRNA associated with the activity of the vaccine. In this case, analytical comparability to the current PBS formulation of the Pfizer-BioNTech COVID-19 Vaccine was demonstrated for the Tris formulation of the Pfizer-BioNTech COVID-19 Vaccine through a combination of release and characterization testing.

For the November 19, 2021 authorization expanding the eligible population for the homologous and heterologous booster doses to individuals 18 years of age and older, FDA reviewed data provided by the sponsor and other data available to FDA, including real world evidence. Data previously reviewed to support the September 22, 2021 authorization of a homologous booster dose, together with new real-world data indicating increasing COVID-19 cases in the United States, including among vaccinated individuals, and suggesting a decreased risk of myocarditis following mRNA COVID-19 vaccine booster doses compared with second primary series doses, support expansion of the population eligible for a Pfizer-BioNTech COVID-19 vaccine homologous booster dose to include all individuals 18 years of age and older who completed the primary series at least 6 months previously. Data previously reviewed to support the October 20, 2021 authorization of a heterologous booster dose, together with data and information to support authorization of the EUA amendment to expand the eligible population for a homologous booster dose of the Moderna COVID-19 Vaccine, support a revision to the Pfizer-BioNTech COVID-19 Vaccine EUA such that the eligible population for a heterologous booster dose of the Pfizer-BioNTech COVID-19 Vaccine is all adults 18 years of age and older who completed primary vaccination with another authorized COVID-19 vaccine. Based on the totality of the scientific evidence available, FDA concluded that a homologous or heterologous booster dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective, and that the known and potential benefits of the booster dose of the Pfizer-BioNTech Vaccine following completion of primary vaccination with Pfizer-BioNTech COVID-19 Vaccine or another authorized COVID-19 vaccine, outweigh the known and potential risks in individuals 18 years of age and older.

For the December 9, 2021 authorization expanding the eligible population for the homologous booster doses to individuals 16 years of age and older, FDA reviewed: data submitted previously by the sponsor to support the September 22, 2021 and November 19, 2021 authorization of a homologous booster dose under EUA; real-world data, which includes data that indicates increasing COVID-19 cases in the United States amongst vaccinated and unvaccinated individuals, and data suggesting a decreased risk of myocarditis following administration of Pfizer-BioNTech COVID-19 Vaccine booster doses compared with second primary series doses among vaccinated individuals; and a benefit-risk assessment from the sponsor, to support the expansion of the population eligible for a Pfizer-BioNTech COVID-19 Vaccine homologous booster dose to include all individuals 16 years of age and older who completed the primary

³⁰ Analytical comparability assessments use laboratory testing to demonstrate that a change in product formulation does not impact a product's safety or effectiveness. For the Pfizer-BioNTech COVID-19 Vaccine, multiple different release parameters were evaluated to assess the comparability of the modified formulation (the formulation with the Tris buffer) to the originally-authorized formulation (the formulation with the PBS buffer). These release parameters ranged from product appearance to size of the lipid-nanoparticle to the integrity of the modRNA in the product. Release and characterization tests include tests for purity, composition, and critical attributes of mRNA associated with the activity of the vaccine. The combination of release testing and characterization testing demonstrated that the modified formulation was analytically comparable to the original formulation.

series at least 6 months previously. Based on the totality of the scientific evidence available, FDA concluded that a homologous booster dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective, and that the known and potential benefits of the booster dose of the Pfizer-BioNTech COVID-19 Vaccine following completion of primary vaccination with Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks in individuals 16 years of age and older.

For the December 16, 2021 authorization, the FDA reviewed manufacturing information indicating that the expiration date of the Pfizer-BioNTech COVID-19 Vaccine that uses the Tris buffer could be extended from 6 months to 9 months when held at -90 °C to -60 °C.

For the January 3, 2022 authorization expanding the use of the vaccine as a single booster dose in individuals 12 through 15 years of age and lowering the authorized dosing interval of the homologous booster dose to at least 5 months after completion of the primary series, the FDA reviewed: prepublications; accepted publications; published publications; real world evidence on the safety of booster doses provided by the Israeli Ministry of Health, which includes data from over 6,300 individuals 12 to 15 years of age who received a Pfizer-BioNTech COVID-19 Vaccine booster dose at least 5 months following completion of the primary series, noting no cases of myocarditis or pericarditis reported to date; and real world evidence data from approximately 4.7 million third (booster) doses of the Pfizer-BioNTech COVID-19 Vaccine given to individuals 16 years of age and older at least 5 months after the primary series. Based on the totality of the scientific evidence available, FDA concluded that a homologous booster dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective and that the known and potential benefits of the booster dose of the Pfizer-BioNTech COVID-19 Vaccine following completion of primary vaccination with the Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks in individuals 12 years of age and older when given at least 5 months following the primary series.

For the January 3, 2022 authorization of a third primary series dose in individuals 5 through 11 years of age who have undergone solid organ transplantation, or individuals 5 through 11 years of age who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise, data on safety in this population is inferred from the experience in healthy children 5 through 11 years of age who were vaccinated with the primary series, and data from vaccine efficacy in individuals 12 years of age and older is extrapolated to determine efficacy. Based on the totality of the scientific evidence available, FDA concluded that a third dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective and that the known and potential benefits of a third dose of the Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks of the vaccine for immunocompromised individuals 5 through 11 years of age who have received two doses of the Pfizer-BioNTech COVID-19 Vaccine and who have undergone solid organ transplantation, or who are diagnosed with conditions that are considered to have an equivalent level of immunocompromise.

For the March 29, 2022 authorization of a second booster dose of the Pfizer-BioNTech COVID-19 Vaccine for administration to individuals 50 years of age and older and to individuals 12 years of age or older with certain kinds of immunocompromise at least 4 months after receipt of a first booster dose of any of the FDA authorized or approved COVID-19 vaccines, the sponsor

submitted a publication which included immunogenicity data from an ongoing study in Israel. (*Gili Regev-Yochay, Tal Gonen, Mayan Gilboa, et al. 2022 DOI: 10.1056/NEJMc2202542*). In this open-label, non-randomized clinical study in healthcare workers at a single center in Israel, 154 individuals 18 years of age and older who had received primary vaccination and a first booster dose with Pfizer-BioNTech COVID-19 Vaccine were administered a second booster dose of Pfizer-BioNTech COVID-19 Vaccine at least four months after the first booster dose. Among these individuals, approximately 11-fold increases in geometric mean neutralizing antibody titers against wild-type virus and Delta and Omicron variants, respectively, were reported at two weeks after the second booster dose as compared to 5 months after the first booster dose. Safety surveillance data from the Ministry of Health of Israel on the administration of approximately 700,000 fourth doses of the Pfizer-BioNTech COVID-19 Vaccine given at least 4 months after the third dose in adults 18 years of age and older (approximately 600,000 of whom were 60 years of age and older) revealed no new safety concerns. Based on the totality of the scientific evidence available, FDA concluded that a second booster dose of the Pfizer-BioNTech COVID-19 Vaccine may be effective and that the known and potential benefits of a second booster dose of the Pfizer-BioNTech COVID-19 Vaccine following receipt of a first booster dose of any FDA authorized or approved COVID-19 vaccine outweigh the known and potential risks in the authorized populations when given at least 4 months following the first booster dose.

For the May 17, 2022 authorization of a single booster dose administered at least 5 months after completing a primary series of the Pfizer-BioNTech COVID-19 Vaccine in individuals 5 through 11 years of age, FDA reviewed safety and effectiveness data from a subset of participants 5 through 11 years of age enrolled in an ongoing study described above (see October 29, 2021 authorization). A total of 401 participants 5 through 11 years of age received a booster dose of Pfizer-BioNTech COVID-19 Vaccine (10 mcg modRNA) at least 5 months after completing the primary series (range 5 to 9 months, 86.8% of participants received the booster dose at least 8 months after Dose 2). FDA's review of the available safety data collected up to the cutoff date of March 22, 2022 (median follow-up time of 1.3 months), did not identify specific safety concerns that would preclude issuance of an EUA. The geometric mean SARS-CoV-2 50% neutralizing antibody titer (NT50) 1 month after the booster dose was compared to the pre-booster dose geometric mean titers (GMT) in 67 participants 5 through 11 years of age who had no serological or virological evidence of SARS-CoV-2 infection up to one month after the booster dose. The NT50 GMT at 1 month after the booster dose was increased compared to before the booster dose. Based on the totality of the scientific evidence available, FDA concluded that a booster dose of the Pfizer-BioNTech COVID-19 Vaccine following completion of primary vaccination with the Pfizer-BioNTech COVID-19 Vaccine may be effective and that the known and potential benefits of a booster dose of the Pfizer-BioNTech COVID-19 Vaccine following completion of primary vaccination with the Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks in individuals 5 through 11 years of age when given at least 5 months following the primary series.

For the June 17, 2022 authorization for the Pfizer-BioNTech COVID-19 Vaccine that uses Tris buffer for individuals 6 months through 4 years of age, FDA reviewed safety and effectiveness data from an ongoing Phase 1/2/3 trial. This study enrolled 1,776 participants 6 through 23 months of age, of whom 1,178 participants received at least one dose of Pfizer-BioNTech

COVID-19 Vaccine (containing 3 mcg modRNA) and 598 participants received at least one dose of saline placebo; and also enrolled 2,750 participants 2 through 4 years of age, of whom 1,835 participants received at least one dose of Pfizer-BioNTech COVID-19 Vaccine (containing 3 mcg modRNA) and 915 participants received at least one dose of saline placebo in Phase 2/3. In an analysis of Study 3 (Phase 2/3), based on data in the blinded placebo-controlled follow-up period up to the cutoff date of April 29, 2022, 570 participants 6 through 23 months of age who received a 3-dose primary series [386 Pfizer BioNTech COVID 19 Vaccine; 184 placebo] have been followed for a median of 1.3 months after the third dose. In an analysis of Study 3 (Phase 2/3), based on data in the blinded placebo-controlled follow-up period up to the cutoff date of April 29, 2022, 886 participants 2 through 4 years of age who received a 3 dose primary series [606 Pfizer BioNTech COVID 19 Vaccine; 280 placebo] have been followed a median of 1.4 months after the third dose. The median duration of combined blinded and unblinded follow-up after the third dose was 2.1 months for each age group. FDA's review of the available safety data from participants 6 through 23 months of age and participants 2 through 4 years of age did not identify specific safety concerns that would preclude issuance of an EUA. SARS-CoV-2 50% neutralizing antibody titers were compared between a subset of participants 6 through 23 months of age, or a subset of participants 2 through 4 years of age, at 1 month after the three-dose primary series of Pfizer-BioNTech COVID-19 Vaccine (containing 3 mcg modRNA per dose) and a subset of participants 16 through 25 years of age at 1 month after the two-dose primary series of Pfizer-BioNTech COVID-19 Vaccine (containing 30 mcg modRNA per dose) in the above-referenced ongoing Phase 1/2/3 trial that enrolled approximately 46,000 participants. Immunobridging analyses included a subset of participants from each study who had no evidence of prior SARS-CoV-2 infection up to 1 month after completion of the primary series. FDA's analyses confirm that for both age groups, 6 through 23 months of age and 2 through 4 years of age, immunobridging criteria were met for both geometric mean antibody titers and seroresponse rates. Based on these data, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine may be effective in individuals 6 months through 4 years of age. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine outweigh the known and potential risks of the vaccine for the prevention of COVID-19 in individuals 6 months through 4 years of age. Finally, on June 15, 2022, the Vaccines and Related Biological Products Advisory Committee voted in agreement with this conclusion.

The August 31, 2022 authorization of a booster dose of Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 12 years and older is based on: 1) safety and effectiveness data from clinical trials which evaluated primary and booster vaccination with Pfizer-BioNTech COVID-19 Vaccine; 2) postmarketing safety data with Pfizer-BioNTech COVID-19 Vaccine; and 3) safety and immunogenicity data from a clinical trial (Study 4) which evaluated a booster dose of Pfizer's and BioNTech's bivalent COVID-19 vaccine (Original and Omicron BA.1), not authorized or approved in the U.S., hereafter referred to as bivalent vaccine (Original and Omicron BA.1). FDA considered safety and effectiveness data previously reviewed by FDA in support of the December 11, 2020, May 10, 2021, and October 29, 2021 authorizations of primary vaccinations and the September 22, 2021, October 20, 2021, November 19, 2021, December 9, 2021, January 3, 2022, and March 29, 2022 authorizations of booster vaccinations in individuals 12 years and older with Pfizer-BioNTech COVID-19 Vaccine, as well as

postmarketing safety data. In Study 4, a total of 610 participants greater than 55 years of age previously vaccinated with a 2-dose primary series and 1 booster dose of Pfizer-BioNTech COVID-19 Vaccine received a second booster dose with either Pfizer-BioNTech COVID-19 Vaccine (305 participants) or the bivalent vaccine (Original and Omicron BA.1) (305 participants). The bivalent vaccine (Original and Omicron BA.1) booster dose was administered 4.7 to 11.5 months (median 6.3 months) after the first booster dose. The Pfizer-BioNTech COVID-19 Vaccine booster dose was administered 5.3 to 13.1 months (median 6.3 months) after the first booster dose. The median duration of follow-up was 1.7 months for those that received the bivalent vaccine (Original and Omicron BA.1) and 1.8 months for those that received Pfizer-BioNTech COVID-19 Vaccine. FDA's review of the safety data accrued with the bivalent vaccine (Original and Omicron BA.1) together with the previously submitted safety data and post-marketing data with Pfizer-BioNTech COVID-19 Vaccine did not identify specific safety concerns that would preclude issuance of an EUA. In study 4, primary immunogenicity analyses assessed superiority with respect to level of 50% neutralizing titer (NT50) and noninferiority with respect to seroresponse rate of the anti-Omicron BA.1 immune response induced by a second booster dose with the bivalent vaccine (Original and Omicron BA.1) relative to the response elicited by a second booster dose with Pfizer BioNTech COVID-19 Vaccine 1 month after vaccination. Superiority of the anti-Omicron BA.1 NT50 and non-inferiority of the seroresponse rate to the Omicron BA.1 variant for the bivalent vaccine (Original and Omicron BA.1) relative to Pfizer-BioNTech COVID19 Vaccine were met. In a secondary analysis of NT50 to the Original SARS-CoV-2 strain, a second booster dose with the bivalent vaccine (Original and Omicron BA.1) was non-inferior to a second booster dose with Pfizer-BioNTech COVID-19 Vaccine. In a descriptive analysis, 50.0% (95% CI 42.6, 57.4) of participants who received a second booster dose with the bivalent vaccine (Original and Omicron BA.1) and 49.2% (95% CI 41.6, 56.7) of participants who received a second booster dose with the Pfizer-BioNTech COVID-19 Vaccine achieved seroresponse (\geq 4-fold rise from baseline before the second booster dose) to the Original strain. Based on the totality of the scientific evidence available, including these data and previously submitted data on the effectiveness of primary and booster vaccination with Pfizer-BioNTech COVID-19 Vaccine, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be effective as a booster dose in individuals 12 years of age and older when administered at least 2 months after completion of primary vaccination or receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine, Bivalent outweigh the known and potential risks of the vaccine for the prevention of COVID-19 in individuals 12 years of age and older when administered at least 2 months after completion of primary vaccination or receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. In addition, authorization of Pfizer-BioNTech COVID-19 Vaccine, Bivalent was considered for the express purpose of improving protection conferred by COVID-19 vaccine booster doses against the currently circulating Omicron variant of SARS-CoV-2, resulting in a more favorable anticipated benefit/risk balance compared to Pfizer-BioNTech COVID-19 Vaccine. Consequently, revising the EUA to no longer provide for the use of the Pfizer-BioNTech COVID-19 Vaccine as a booster dose for individuals 12 years of age and older was appropriate for the protection of the public health.

The October 12, 2022 authorization of a booster dose of Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 5 through 11 years of age is based on the data that FDA relied on for the August 31, 2022 authorization of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 12 years of age and older, including data previously reviewed by FDA for the October 29, 2021 authorization for the Pfizer-BioNTech COVID-19 Vaccine as a primary series for individuals 5 through 11 years of age and for the May 17, 2022 authorization of a single booster dose of Pfizer-BioNTech COVID-19 Vaccine in individuals 5 through 11 years of age, administered at least 5 months after completing a primary series with this vaccine. FDA also considered additional data reviewed for the May 17, 2022 authorization of a single booster dose of Pfizer-BioNTech COVID-19 Vaccine in this age group. Based on the totality of the scientific evidence available, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be effective as a booster dose in individuals 5 through 11 years of age when administered at least 2 months after completion of primary vaccination or receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine, Bivalent outweigh the known and potential risks of the vaccine for the prevention of COVID-19 in individuals 5 through 11 years of age when administered at least 2 months after completion of primary vaccination or receipt of the most recent booster dose with any FDA authorized or approved monovalent COVID-19 vaccine. In addition, authorization of Pfizer-BioNTech COVID-19 Vaccine, Bivalent was considered for the express purpose of improving protection conferred by COVID-19 vaccine booster doses against the currently circulating Omicron variant of SARS-CoV-2, resulting in a more favorable anticipated benefit/risk balance compared to Pfizer-BioNTech COVID-19 Vaccine. Consequently, it was appropriate for the protection of the public health to revise this EUA to no longer provide for the use of the Pfizer-BioNTech COVID-19 Vaccine as a booster dose for individuals 5 through 11 years of age.

The December 8, 2022 authorization of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent, as the third dose in the 3-dose primary series administered at least 8 weeks after the second primary series dose of the Pfizer-BioNTech COVID-19 Vaccine in individuals 6 months through 4 years of age is based on safety and effectiveness data previously reviewed. Specifically, the safety of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent for the third dose of the primary series in individuals 6 months through 4 years of age is based on: 1) safety data from a clinical study which evaluated a booster dose with bivalent vaccine (Original and Omicron BA.1), in individuals greater than 55 years of age;³¹ 2) safety data from clinical studies which evaluated primary vaccination with Pfizer-BioNTech COVID-19 Vaccine in individuals 6 months of age and older; 3) safety data from clinical studies which evaluated booster vaccination with Pfizer-BioNTech COVID-19 Vaccine (previously, but no longer, authorized) in individuals 5 years of age and older; and 4) postmarketing safety data with the Pfizer-BioNTech COVID-19 Vaccine and the Pfizer-BioNTech COVID-19 Vaccine, Bivalent. Effectiveness is based on: 1) efficacy of primary vaccination with Pfizer-BioNTech COVID-19 Vaccine in individuals 16 years of age and older; 2) effectiveness of primary vaccination with Pfizer-BioNTech COVID-19 Vaccine in individuals 6 months through 4 years of age; and 3) immunogenicity of a second booster dose

³¹ The safety data accrued with the bivalent vaccine (Original and Omicron BA.1) and with the Pfizer-BioNTech COVID-19 Vaccine are relevant to the Pfizer-BioNTech COVID-19 Vaccine, Bivalent because these vaccines are manufactured using the same process.

with bivalent vaccine (Original and Omicron BA.1) in individuals greater than 55 years of age in Study 4. Based on the totality of scientific evidence available, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be effective in individuals 6 months through 4 years of age when given as the third dose in the 3-dose primary series administered at least 8 weeks after a second primary series dose of the Pfizer-BioNTech COVID-19 Vaccine. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine, Bivalent outweigh the known and potential risks of the vaccine for the prevention of COVID-19 in individuals 6 months through 4 years of age when given as the third dose in the 3-dose primary series administered at least 8 weeks after a second primary series dose of the Pfizer-BioNTech COVID-19 Vaccine. In addition, authorization of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent has been considered for the express purpose of improving protection conferred by the third dose of the primary series in individuals 6 months through 4 years of age against the currently circulating Omicron variant of SARS-CoV-2, resulting in a more favorable anticipated benefit/risk balance compared to Pfizer-BioNTech COVID-19 Vaccine for the third dose. Consequently, at this time, revising this EUA to no longer provide for the use of the Pfizer-BioNTech COVID-19 Vaccine as a third dose in the primary series in this age group is appropriate for the protection of the public health.

The March 14, 2023 authorization of Pfizer-BioNTech COVID-19 Vaccine, Bivalent as a single booster dose in individuals 6 months through 4 years at least 2 months after completion of primary vaccination with 3 doses of the Pfizer-BioNTech COVID-19 Vaccine is based on data previously reviewed to support the December 8, 2022 authorization of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent as the third dose in the 3-dose primary series administered at least 8 weeks after the second primary series dose of the Pfizer-BioNTech COVID-19 Vaccine in individuals 6 months through 4 years of age, as well as safety and immunogenicity of a booster dose with Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 6 months through 4 years of age and safety of a booster dose with Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals ≥ 5 years of age. FDA's review of the available safety data in individuals 6 months through 4 years of age and individuals ≥ 5 years of age did not identify specific safety concerns that would preclude issuance of an EUA. Study 6 enrolled participants 6 months through 11 years of age to receive a booster (fourth dose) of Pfizer-BioNTech COVID-19 Vaccine, Bivalent. In this study, 113 participants 5 through 11 years of age previously vaccinated with a 2-dose primary series and 1 booster dose of Pfizer-BioNTech COVID-19 Vaccine (10 mcg modRNA) received a booster (fourth dose) with Pfizer-BioNTech COVID-19 Vaccine, Bivalent (Original and Omicron BA.4/BA.5) (10 mcg modRNA). Participants received a booster (fourth dose) with Pfizer-BioNTech COVID-19, Bivalent 2.6 to 8.5 months after receiving their third dose with Pfizer-BioNTech COVID-19 Vaccine and had a median follow-up time of 1.6 months (range 1.1 to 2.3 months) up to a data cutoff date of November 25, 2022. In Study 6, a subset of 60 participants 6 months through 4 years of age received a booster dose (fourth dose) of Pfizer-BioNTech COVID-19 Vaccine, Bivalent (3 mcg modRNA) after receiving 3 prior doses of Pfizer-BioNTech COVID-19 Vaccine (3 mcg modRNA). Neutralizing antibody levels following the fourth dose were summarized. Data from a subset of participants 6 months through 4 years of age in Study 3 who received 3 doses of Pfizer BioNTech COVID-19 Vaccine (3 mcg modRNA) were reviewed as a reference. There were no formal statistical comparisons of the immune response between subsets from the two studies. Based on the totality of scientific

evidence available, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be effective in individuals 6 months through 4 years of age when given as a booster dose at least 2 months after completion of primary vaccination with 3 doses of the Pfizer-BioNTech COVID-19 Vaccine. Additionally, FDA determined it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent outweigh the known and potential risks of the vaccine for the prevention of COVID-19 in individuals 6 months through 4 years of age when given as a single booster dose at least 2 months after completion of primary vaccination with 3 doses of the Pfizer-BioNTech COVID-19 Vaccine.

For the April 18, 2023 authorization, the effectiveness of Pfizer-BioNTech COVID-19 Vaccine, Bivalent for individuals 6 months of age and older is based on previously reviewed data on 1) effectiveness of Pfizer-BioNTech COVID-19 Vaccine in individuals 6 months of age and older, 2) immunogenicity of the bivalent vaccine (Original and Omicron BA.1) in individuals greater than 55 years of age, and 3) immunogenicity of Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 6 months through 4 years of age. Effectiveness of a single dose of Pfizer-BioNTech COVID-19 Vaccine, Bivalent for most individuals 5 years of age and older is based on seroprevalence surveys that estimate that almost all of the U.S. population 5 years of age and older now have antibodies (from vaccination and/or infection) against SARS-CoV-2 (*Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC; 2023, March 31. <https://covid.cdc.gov/covid-data-tracker>*) and an observational, test-negative, case-control study (*Powell AA, et al. Lancet Infect Dis. 2023. PMID: 36436536*). This study included symptomatic individuals aged 12 to 17 years of age with SARS-CoV-2 polymerase-chain-reaction (PCR) testing results in England from August 9, 2021 to March 31, 2022. Among 1,161,704 SARS-CoV-2 PCR tests linked to COVID-19 vaccination status, there were 390,467 SARS-CoV-2 PCR confirmed positive tests during Delta variant predominance and 212,433 SARS-CoV-2 positive tests during Omicron variants BA.1 and BA.2 predominance. Among adolescents who had received only one dose of Pfizer-BioNTech COVID-19 Vaccine, those who had evidence of previous infection with Alpha, Delta, or Omicron variants had increased protection against symptomatic Omicron infection compared with those with no evidence of previous infection. At 2 to 14 weeks following one dose of Pfizer-BioNTech COVID-19 Vaccine, the estimated vaccine effectiveness was 18.8% (95% CI: 17.2%, 20.3%), 81.5% (95% CI: 80.0%, 82.9%), 78.8% (95% CI: 77.9, 79.5%), and 79.6% (95% CI: 44.9%, 92.4%) for individuals with no evidence of prior infection, and evidence of prior Alpha, Delta, and Omicron infection, respectively. The safety of Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 6 months of age and older is based on previously reviewed safety data from clinical studies which evaluated primary and booster vaccination with Pfizer BioNTech COVID-19 Vaccine, booster vaccination with Pfizer-BioNTech COVID-19 Vaccine, Bivalent, and a booster dose of bivalent vaccine (Original and Omicron BA.1); and postmarketing safety data with Pfizer-BioNTech COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine, Bivalent. FDA's review of the available safety data in individuals 6 months of age and older did not identify specific safety concerns that would preclude issuance of an EUA. Based on the totality of the scientific evidence available, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be effective in individuals 6 months of age and older for the prevention of COVID-19 when administered in accordance with the revised dosing regimen and schedule. Additionally, FDA determined it is

reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent outweigh the known and potential risks of the vaccine for the prevention of COVID-19 in individuals 6 months of age and older when administered according to the revised dosing regimen and schedule. The revised dosing regimen and schedule are set forth in the Scope of Authorization (Section II). In addition, simplification of the vaccine composition (i.e., single vaccine composition for all doses) and schedule was considered for the express purpose of reducing complexity, decreasing vaccine administration errors due to the complexity of the number of different vial presentations, and potentially increasing vaccine uptake. Revising the EUA to provide for a simplified vaccine composition and schedule in the United States, by no longer providing for the use of the monovalent Pfizer-BioNTech COVID-19 Vaccine in the United States, is appropriate for the protection of the public health.

The April 28, 2023 authorization of additional doses of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 6 months through 4 years of age with certain kinds of immunocompromise is based on previously reviewed data. Specifically, the safety and effectiveness are based on 1) the safety and effectiveness of a fourth dose of Pfizer-BioNTech COVID-19 Vaccine, Bivalent in individuals 6 months through 4 years of age after three previous doses, and 2) immunogenicity of a third primary series dose of Pfizer-BioNTech COVID-19 Vaccine in individuals with compromised immunity. FDA also reviewed literature on immunogenicity of a fourth dose of Pfizer-BioNTech COVID-19 Vaccine, Bivalent in adults. Based on the totality of scientific evidence available, FDA concluded that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be effective in individuals 6 months through 4 years of age with certain kinds of immunocompromise who have received three 0.2 mL doses (Pfizer-BioNTech COVID-19 Vaccine or Pfizer-BioNTech COVID-19 Vaccine, Bivalent), as 1) a fourth dose administered at least 1 month following the most recent dose; and 2) additional doses that may be administered at the discretion of the healthcare provider, taking into consideration the individual's clinical circumstances. Additionally, FDA determined that it is reasonable to conclude, based on the totality of the scientific evidence available, that the known and potential benefits of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent outweigh the known and potential risks of the vaccine for the prevention of COVID-19 in individuals 6 months through 4 years of age with certain kinds of immunocompromise who have received three 0.2 mL doses (Pfizer-BioNTech COVID-19 Vaccine or Pfizer-BioNTech COVID-19 Vaccine, Bivalent), when given as 1) a fourth dose administered at least 1 month following the most recent dose; and 2) additional doses that may be administered at the discretion of the healthcare provider, taking into consideration the individual's clinical circumstances.

Having concluded that the criteria for issuance of this authorization under Section 564(c) of the Act are met, I am authorizing the emergency use of Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine³² for the prevention of COVID-19, as

³² Reference to the Pfizer-BioNTech COVID-19 Vaccine hereinafter refers to both the formulations that use the PBS and Tris buffers, unless specifically delineated otherwise.

described in the Scope of Authorization section of this letter (Section II) and subject to the terms of this authorization.

I. Criteria for Issuance of Authorization

I have concluded that the emergency use of Pfizer-BioNTech COVID-19 Vaccine, Bivalent³³ for the prevention of COVID-19 when administered as described in the Scope of Authorization (Section II) meets the criteria for issuance of an authorization under Section 564(c) of the Act, because:

- A. SARS-CoV-2 can cause a serious or life-threatening disease or condition, including severe respiratory illness, to humans infected by this virus;
- B. Based on the totality of scientific evidence available to FDA, it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be effective in preventing COVID-19, and that, when used under the conditions described in this authorization, the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine, Bivalent when used to prevent COVID-19 outweigh its known and potential risks; and
- C. There is no adequate, approved, and available alternative³⁴ to Pfizer-BioNTech COVID-19 Vaccine, Bivalent to prevent COVID-19.³⁵

II. Scope of Authorization

I have concluded, pursuant to Section 564(d)(1) of the Act, that the scope of this authorization is limited as follows:

- Pfizer Inc. will supply Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine either directly or through authorized distributor(s),³⁶ to

³³ In this section (Section I), references to Pfizer-BioNTech COVID-19 Vaccine, Bivalent also apply to Pfizer-BioNTech COVID-19 Vaccine.

³⁴ Although COMIRNATY (COVID-19 Vaccine, mRNA) and SPIKEVAX (COVID-19 Vaccine, mRNA) are approved to prevent COVID-19 in certain individuals who fall within the scope of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent authorization, there are not sufficient quantities of approved vaccine available for distribution to this population in its entirety at the time of reissuance of this EUA. Additionally, there are no COVID-19 vaccines that are approved to provide additional doses to certain immunocompromised populations as described in this EUA or COVID-19 vaccination in certain pediatric populations described in this EUA. In addition, there are no bivalent vaccines that contain or encode the spike protein of the Omicron variant of SARS-CoV-2 that are approved to prevent COVID-19.

³⁵ No other criteria of issuance have been prescribed by regulation under Section 564(c)(4) of the Act.

³⁶ “Authorized Distributor(s)” are identified by Pfizer Inc. or, if applicable, by a U.S. government entity, such as the Centers for Disease Control and Prevention (CDC) and/or other designee, as an entity or entities allowed to distribute authorized Pfizer-BioNTech COVID-19 Vaccine, Bivalent or Pfizer-BioNTech COVID-19 Vaccine.

emergency response stakeholders³⁷ as directed by the U.S. government, including the Centers for Disease Control and Prevention (CDC) and/or other designee, for use consistent with the terms and conditions of this EUA;

- Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine may be administered by a vaccination provider³⁸ without an individual prescription for each vaccine recipient; and
- The Pfizer-BioNTech COVID-19 Vaccine, Bivalent, and the Pfizer-BioNTech COVID-19 Vaccine formulations that use either Tris or PBS buffer, as described in more detail under *Product Description* and covered by this authorization, will be administered by vaccination providers in accordance with the uses described in this Scope of Authorization (Section II).

³⁷ For purposes of this letter, “emergency response stakeholder” refers to a public health agency and its delegates that have legal responsibility and authority for responding to an incident, based on political or geographical boundary lines (e.g., city, county, tribal, territorial, State, or Federal), or functional (e.g., law enforcement or public health range) or sphere of authority to administer, deliver, or distribute vaccine in an emergency situation. In some cases (e.g., depending on a state or local jurisdiction’s COVID-19 vaccination response organization and plans), there might be overlapping roles and responsibilities among “emergency response stakeholders” and “vaccination providers” (e.g., if a local health department is administering COVID-19 vaccines; if a pharmacy is acting in an official capacity under the authority of the state health department to administer COVID-19 vaccines). In such cases, it is expected that the conditions of authorization that apply to emergency response stakeholders and vaccination providers will all be met.

³⁸ For purposes of this letter, “vaccination provider” refers to the facility, organization, or healthcare provider licensed or otherwise authorized by the emergency response stakeholder (e.g., non-physician healthcare professionals, such as nurses and pharmacists pursuant to state law under a standing order issued by the state health officer) to administer or provide vaccination services in accordance with the applicable emergency response stakeholder’s official COVID-19 vaccination and emergency response plan(s) and who is enrolled in the CDC COVID-19 Vaccination Program. If the vaccine is exported from the United States, a “vaccination provider” is a provider that is authorized to administer this vaccine in accordance with the laws of the country in which it is administered. For purposes of this letter, “healthcare provider” also refers to a person authorized by the U.S. Department of Health and Human Services (e.g., under the PREP Act Declaration for Medical Countermeasures against COVID-19) to administer FDA-authorized COVID-19 vaccine (e.g., qualified pharmacy technicians and State-authorized pharmacy interns acting under the supervision of a qualified pharmacist). See, e.g., HHS. *Fourth Amendment to the Declaration Under the Public Readiness and Emergency Preparedness Act for Medical Countermeasures Against COVID-19 and Republication of the Declaration*. 85 FR 79190 (December 9, 2020).

Table 1. Authorized Uses of Pfizer-BioNTech COVID-19 Vaccine, Bivalent for Use in Individuals 6 Months of Age and Older Not Previously Vaccinated with a COVID-19 Vaccine

Age	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Vial Cap and Label Border Color	Dosing Regimen, Dose and Schedule
6m-4y [^]	Maroon	3 doses, 0.2 mL each Dose 1: Week 0 Dose 2: Week 3 Dose 3: ≥ 8 weeks after Dose 2
5-11y	Orange	Single dose, 0.2 mL
12-64y	Gray	Single dose, 0.3 mL
$\geq 65y$	Gray	Single dose, 0.3 mL One additional dose, 0.3 mL, may be administered ≥ 4 months after first dose of an authorized bivalent COVID-19 vaccine

[^]Notwithstanding the age limitations for use of the vaccine, individuals turning from 4 to 5 years of age during the vaccination series may receive all doses with Pfizer-BioNTech COVID-19 Vaccine, Bivalent supplied in vials with maroon caps and labels with maroon borders.

Table 2. Authorized Uses of Pfizer-BioNTech COVID-19 Vaccine, Bivalent in Individuals 6 Months Through 4 Years of Age Previously Vaccinated with Monovalent Pfizer-BioNTech COVID-19 Vaccine*

Age	Number of Previous Doses of Pfizer-BioNTech COVID-19 Vaccine	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Vial Cap and Label Border Color	Dosing Regimen, Dose and Schedule
6m-4y	1 previous dose	Maroon	2 doses [^] , 0.2 mL each Dose 1: 3 weeks after receipt of Pfizer-BioNTech COVID-19 Vaccine Dose 2: ≥ 8 weeks after Dose 1
6m-4y	2 previous doses	Maroon	Single dose, 0.2 mL ≥ 8 weeks after receipt of second dose of Pfizer-BioNTech COVID-19 Vaccine
6m-4y	3 previous doses	Maroon	Single dose, 0.2 mL ≥ 2 months [¥] after receipt of third dose of Pfizer-BioNTech COVID-19 Vaccine

* The monovalent Pfizer-BioNTech COVID-19 Vaccine is no longer authorized for use in the United States.

[^]Notwithstanding the age limitations for use of the vaccine, individuals turning from 4 to 5 years of age during the vaccination series may receive 2 doses with Pfizer-BioNTech COVID-19 Vaccine, Bivalent supplied in vials with maroon caps and labels with maroon borders.

[¥] For individuals with certain kinds of immunocompromise previously vaccinated with three doses of the monovalent Pfizer-BioNTech COVID-19 Vaccine, see text below Table 3 for dosing interval.

Table 3. Authorized Uses of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent for Use in Individuals 5 Years of Age and Older Previously Vaccinated with 1 or More Doses of a Monovalent COVID-19 Vaccine^Δ

Age	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Vial Cap and Label Border Color	Dosing Regimen, Dose and Schedule
5-11y	Orange	Single dose, 0.2 mL ≥2 months after monovalent COVID-19 vaccine
12-64y	Gray	Single dose, 0.3 mL ≥2 months after monovalent COVID-19 vaccine
≥65y	Gray	Single dose, 0.3 mL ≥2 months after monovalent COVID-19 vaccine One additional dose, 0.3 mL, may be administered ≥4 months after first dose of an authorized bivalent COVID-19 vaccine

^Δ Monovalent refers to a COVID-19 vaccine that contains or encodes the spike protein of only the Original SARS-CoV-2.

For individuals with certain kinds of immunocompromise 6 months through 4 years of age who have received three 0.2 mL doses (Pfizer-BioNTech COVID-19 Vaccine or Pfizer-BioNTech COVID-19 Vaccine, Bivalent), a fourth dose with Pfizer-BioNTech COVID-19 Vaccine, Bivalent with maroon caps and labels with maroon borders (each 0.2 mL dose containing 3 mcg modRNA) may be administered at least 1 month following the most recent dose; additional doses of Pfizer-BioNTech COVID-19 Vaccine, Bivalent with maroon caps and labels with maroon borders (each 0.2 mL dose containing 3 mcg modRNA) may be administered at the discretion of the healthcare provider, taking into consideration the individual’s clinical circumstances.

For individuals with certain kinds of immunocompromise 5 years of age and older, a single additional age-appropriate dose³⁹ of Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be administered at least 2 months following the initial dose of a bivalent COVID-19 vaccine; additional age-appropriate doses of Pfizer-BioNTech COVID-19 Vaccine, Bivalent may be administered at the discretion of the healthcare provider, taking into consideration the individual’s clinical circumstances.

Pfizer-BioNTech COVID-19 Vaccine

The Pfizer-BioNTech COVID-19 Vaccine is no longer authorized for use in the United States. However, the authorized presentations of the Pfizer-BioNTech COVID-19 Vaccine described in Section II of the March 14, 2023 reissuance of this Letter remain authorized when exported from the United States in accordance with Section III.Z. Under Section III.Z, the Fact Sheets for

³⁹ For individuals 5 through 11 years of age, the authorized age-appropriate dose is a 0.2 mL dose from the vial presentation with orange caps and labels with orange borders (each 0.2 mL dose containing 10 mcg modRNA). For individuals 12 years of age and older, the authorized age-appropriate dose is a 0.3 mL dose from the vial presentation with gray caps and labels with gray borders (each 0.3 mL dose containing 30 mcg modRNA).

Pfizer-BioNTech COVID-19 Vaccine that were authorized as of March 14, 2023 and that describe the scope of FDA’s March 14, 2023 authorization must, upon request, be made available to the regulatory authorities of the country in which the vaccine will be used.

Product Description

The Pfizer-BioNTech COVID-19 Vaccine, Bivalent is provided in four vial presentations:

Table 4: Pfizer-BioNTech COVID-19 Vaccine, Bivalent Vial Presentations

Presentation	Authorized age	Dose Volume and Quantity of mRNA	Buffer used	Dilution
Multiple Dose Vials with Maroon Caps and Labels with Maroon Borders	6 months through 4 years of age	0.2 mL dose (each containing 3 mcg modRNA)	Tris	Dilute with 2.2 mL sterile 0.9% Sodium Chloride Injection, USP
Multiple Dose Vials with Orange Caps and Labels with Orange Borders	5 through 11 years of age	0.2 mL dose (each containing 10 mcg modRNA)	Tris	Dilute with 1.3 mL sterile 0.9% Sodium Chloride Injection, USP
Multiple Dose Vials with Gray Caps and Labels with Gray Borders	12 years of age and older	0.3 mL dose (each containing 30 mcg modRNA)	Tris	Not to be diluted
Single Dose Vials with Gray Caps and Labels with Gray Borders	12 years of age and older	0.3 mL dose (each containing 30 mcg modRNA)	Tris	Not to be diluted

Multiple dose vials with maroon caps and labels with maroon borders

Each 0.2 mL dose of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent contains 1.5 mcg of modRNA encoding the S-glycoprotein of SARS-CoV-2 Wuhan-Hu-1 strain (Original) and 1.5 mcg of modRNA encoding the S-glycoprotein of SARS-CoV-2 Omicron variant lineages BA.4 and BA.5 (Omicron BA.4/BA.5). The S-glycoproteins of the SARS-CoV-2 Omicron variant lineages BA.4 and BA.5 are identical. Each dose contains 3 mcg modRNA. Each dose also includes the following ingredients: lipids (0.04 mg ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 0.005 mg 2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 0.01 mg 1,2-distearoyl-sn-glycero-3-phosphocholine, and 0.02 mg cholesterol), 3.2 mg sucrose, 0.006 mg tromethamine, and 0.04 mg tromethamine hydrochloride in Sterile Water for Injection. The diluent (sterile 0.9% Sodium Chloride Injection, USP) contributes 1.52 mg sodium chloride per dose. The Pfizer-BioNTech COVID-19 Vaccine, Bivalent does not contain a preservative.

Multiple dose vials with orange caps and labels with orange borders

Each 0.2 mL dose of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent contains 5 mcg of modRNA encoding the S-glycoprotein of SARS-CoV-2 Wuhan-Hu-1 strain (Original) and 5 mcg of modRNA encoding the S glycoprotein of SARS-CoV-2 Omicron variant lineages BA.4 and BA.5 (Omicron BA.4/BA.5). The S-Proteins of SARS-CoV-2 Omicron variant lineages BA.4 and BA.5 are identical. Each dose contains 10 mcg of modRNA. Each dose also includes the following ingredients: lipids (0.14 mg ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 0.02 mg 2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 0.03 mg 1,2-distearoyl-sn-glycero-3-phosphocholine, and 0.06 mg cholesterol), 10.3 mg sucrose, 0.02 mg tromethamine, and 0.13 mg tromethamine hydrochloride in Sterile Water for Injection. The diluent (sterile 0.9% Sodium Chloride Injection, USP) contributes 0.9 mg sodium chloride per dose. The Pfizer-BioNTech COVID-19 Vaccine, Bivalent does not contain a preservative.

Single dose and multiple dose vials with gray caps and labels with gray borders

Each 0.3 mL dose of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent contains 15 mcg of modRNA encoding the S-glycoprotein of SARS-CoV-2 Wuhan-Hu-1 strain (Original) and 15 mcg of modRNA encoding the S glycoprotein of SARS-CoV-2 Omicron variant lineages BA.4 and BA.5 (Omicron BA.4/BA.5). The S-Proteins of SARS-CoV-2 Omicron variant lineages BA.4 and BA.5 are identical. Each dose contains 30 mcg of modRNA. Each dose also includes the following ingredients: lipids (0.43 mg ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 0.05 mg 2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 0.09 mg 1,2-distearoyl-sn-glycero-3-phosphocholine, and 0.19 mg cholesterol), 0.06 mg tromethamine, 0.4 mg tromethamine hydrochloride, and 31 mg sucrose in Sterile Water for Injection. The Pfizer-BioNTech COVID-19 Vaccine, Bivalent does not contain a preservative.

The manufacture of the authorized Pfizer-BioNTech COVID-19 Vaccine, Bivalent is limited to those facilities identified and agreed upon in Pfizer’s request for authorization.

For Pfizer-BioNTech COVID-19 Vaccine, Section III.Z refers to the Fact Sheets for the Pfizer-BioNTech COVID-19 Vaccine that were authorized under the March 14, 2023 reissuance of this Letter. Those Fact Sheets describe different presentations of the vaccine that were authorized for use in the United States as of that date and that remain authorized for export in accordance with Section III.Z.

The Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine vial labels and carton labels are clearly marked for “Emergency Use Authorization.” The Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine are authorized to be distributed, stored, further redistributed, and administered by emergency response stakeholders when packaged in the authorized manufacturer packaging (i.e., vials and cartons), despite the fact that the vial and carton labels may not contain information that otherwise would be required under the FD&C Act.

Pfizer-BioNTech COVID-19 Vaccine, Bivalent is authorized for emergency use with the following product-specific information required to be made available to vaccination providers and recipients, respectively (referred to as “authorized labeling”):

Fact Sheet for Healthcare Providers Administering Vaccine: Emergency Use Authorization of Pfizer-BioNTech COVID-19 Vaccine, Bivalent (Original and Omicron BA.4/BA.5)

Fact Sheet for Recipients and Caregivers About Pfizer-BioNTech COVID-19 Vaccine, Bivalent Which Has Emergency Use Authorization (EUA) to Prevent Coronavirus Disease 2019 (COVID-19)

I have concluded, pursuant to Section 564(d)(2) of the Act, that it is reasonable to believe that the known and potential benefits of Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine, when used to prevent COVID-19 and used in accordance with this Scope of Authorization (Section II), outweigh their known and potential risks.

I have concluded, pursuant to Section 564(d)(3) of the Act, based on the totality of scientific evidence available to FDA, that it is reasonable to believe that Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine may be effective in preventing COVID-19 when used in accordance with this Scope of Authorization (Section II), pursuant to Section 564(c)(2)(A) of the Act.

Having reviewed the scientific information available to FDA, including the information supporting the conclusions described in Section I above, I have concluded that Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine (as described in this Scope of Authorization (Section II)) meet the criteria set forth in Section 564(c) of the Act concerning safety and potential effectiveness.

The emergency use of Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine under this EUA must be consistent with, and may not exceed, the terms of the Authorization, including the Scope of Authorization (Section II) and the Conditions of Authorization (Section III). Subject to the terms of this EUA and under the circumstances set forth in the Secretary of HHS's determination under Section 564(b)(1)(C) described above and the Secretary of HHS's corresponding declaration under Section 564(b)(1), Pfizer-BioNTech COVID-19 Vaccine, Bivalent and Pfizer-BioNTech COVID-19 Vaccine are authorized to prevent COVID-19 as described in the Scope of Authorization (Section II) under this EUA, despite the fact that they do not meet certain requirements otherwise required by applicable federal law.

III. Conditions of Authorization

Pursuant to Section 564 of the Act, I am establishing the following conditions on this authorization:

Pfizer Inc. and Authorized Distributor(s)

- A. Pfizer Inc. and authorized distributor(s) will ensure that the authorized Pfizer-BioNTech COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine, Bivalent are distributed, as directed by the U.S. government, including CDC and/or other designee. For Pfizer-BioNTech COVID-19 Vaccine, Bivalent, the authorized labeling (i.e., Fact Sheets) will be made available to vaccination providers, recipients, and caregivers consistent with the terms of this letter.

- B. Pfizer Inc. and authorized distributor(s) will ensure that appropriate storage and cold chain is maintained until delivered to emergency response stakeholders' receipt sites.
- C. Pfizer Inc. will ensure that the terms of this EUA are made available to all relevant stakeholders (e.g., emergency response stakeholders, authorized distributors, and vaccination providers) involved in distributing or receiving authorized Pfizer-BioNTech COVID-19 Vaccine, Bivalent. Pfizer Inc. will provide to all relevant stakeholders a copy of this letter of authorization and communicate any subsequent amendments that might be made to this letter of authorization and its authorized labeling.
- D. Pfizer Inc. may develop and disseminate instructional and educational materials (e.g., video regarding vaccine handling, storage/cold-chain management, preparation, disposal) that are consistent with the authorized emergency use of Pfizer-BioNTech COVID-19 Vaccine, Bivalent as described in the letter of authorization and authorized labeling, without FDA's review and concurrence, when necessary to meet public health needs during an emergency. Any instructional and educational materials that are inconsistent with the authorized labeling are prohibited.
- E. Pfizer Inc. may request changes to this authorization, including to the authorized Fact Sheets. Any request for changes to this EUA must be submitted to Office of Vaccines Research and Review (OVRR)/Center for Biologics Evaluation and Research (CBER). Such changes require appropriate authorization prior to implementation.⁴⁰
- F. Pfizer Inc. will report to Vaccine Adverse Event Reporting System (VAERS):
- Serious adverse events (irrespective of attribution to vaccination);
 - Cases of myocarditis;
 - Cases of pericarditis;
 - Cases of Multisystem Inflammatory Syndrome in children and adults; and
 - Cases of COVID-19 that result in hospitalization or death, that are reported to Pfizer Inc.

These reports should be submitted to VAERS as soon as possible but no later than 15 calendar days from initial receipt of the information by Pfizer Inc.

⁴⁰ The following types of revisions may be authorized without reissuing this letter: (1) changes to the authorized labeling; (2) non-substantive editorial corrections to this letter; (3) new types of authorized labeling, including new fact sheets; (4) new carton/container labels; (5) expiration dating extensions; (6) changes to manufacturing processes, including tests or other authorized components of manufacturing; (7) new conditions of authorization to require data collection or study. All changes to the authorization require review and concurrence from OVRR. For changes to the authorization, including the authorized labeling, of the type listed in (3), (6), or (7), review and concurrence is required from the Preparedness and Response Team (PREP)/Office of the Center Director (OD)/CBER and the Office of Counterterrorism and Emerging Threats (OCET)/Office of the Chief Scientist (OCS).

- G. Pfizer Inc. must submit to Investigational New Drug application (IND) number 19736 periodic safety reports at monthly intervals in accordance with a due date agreed upon with the Office of Biostatistics and Pharmacovigilance (OBPV)/CBER beginning after the first full calendar month after authorization. Each periodic safety report is required to contain descriptive information which includes:
- A narrative summary and analysis of adverse events submitted during the reporting interval, including interval and cumulative counts by age groups, special populations (e.g., pregnant women), and adverse events of special interest;
 - A narrative summary and analysis of vaccine administration errors, whether or not associated with an adverse event, that were identified since the last reporting interval;
 - Newly identified safety concerns in the interval;
 - Actions taken since the last report because of adverse experiences (for example, changes made to Healthcare Providers Administering Vaccine (Vaccination Providers) Fact Sheet, changes made to studies or studies initiated); and
 - Cumulative doses distributed, and doses distributed during the monthly reporting interval, for Pfizer-BioNTech COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine, Bivalent.
- H. No changes will be implemented to the description of the product, manufacturing process, facilities, or equipment without notification to and concurrence by FDA.
- I. All manufacturing facilities will comply with Current Good Manufacturing Practice requirements.
- J. Pfizer Inc. will submit to the EUA file Certificates of Analysis (CoA) for each drug product lot at least 48 hours prior to vaccine distribution. The CoA will include the established specifications and specific results for each quality control test performed on the final drug product lot.
- K. Pfizer Inc. will submit to the EUA file quarterly manufacturing reports, starting in July 2021, that include a listing of all drug substance and drug product lots produced after issuance of this authorization. This report must include lot number, manufacturing site, date of manufacture, and lot disposition, including those lots that were quarantined for investigation or those lots that were rejected. Information on the reasons for lot quarantine or rejection must be included in the report.
- L. Pfizer Inc. and authorized distributor(s) will maintain records regarding release of Pfizer-BioNTech COVID-19 Vaccine and Pfizer-BioNTech COVID-19 Vaccine, Bivalent for distribution (i.e., lot numbers, quantity, release date).
- M. Pfizer Inc. and authorized distributor(s) will make available to FDA upon request any records maintained in connection with this EUA.

- N. Pfizer Inc. will conduct post-authorization observational studies to evaluate the association between Pfizer-BioNTech COVID-19 Vaccine, and Pfizer-BioNTech COVID-19 Vaccine, Bivalent, and a pre-specified list of adverse events of special interest, including myocarditis and pericarditis, along with deaths and hospitalizations, and severe COVID-19. The study population should include individuals administered the Pfizer-BioNTech COVID-19 Vaccine (previously, but no longer authorized for use in the U.S.) as a primary series (6 months of age and older) or booster dose (5 years of age and older); individuals administered a dose of the authorized Pfizer-BioNTech COVID-19 Vaccine, Bivalent (6 months of age and older) under this EUA in the general U.S. population, and populations of interest such as healthcare workers, pregnant women, immunocompromised individuals, subpopulations with specific comorbidities. The studies should be conducted in large scale databases with an active comparator. Pfizer Inc. will provide protocols and status update reports to the IND 19736 with agreed-upon study designs and milestone dates.

Emergency Response Stakeholders

- O. Emergency response stakeholders will identify vaccination sites to receive authorized Pfizer-BioNTech COVID-19 Vaccine, Bivalent and ensure its distribution and administration, consistent with the terms of this letter and CDC's COVID-19 Vaccination Program.
- P. Emergency response stakeholders will ensure that vaccination providers within their jurisdictions are aware of this letter of authorization, and the terms herein and any subsequent amendments that might be made to the letter of authorization, instruct them about the means through which they are to obtain and administer the vaccine under the EUA, and ensure that the authorized labeling [i.e., Fact Sheet for Healthcare Providers Administering Vaccine (Vaccination Providers) and Vaccine Information Fact Sheet for Recipients and Caregivers] is made available to vaccination providers through appropriate means (e.g., e-mail, website).
- Q. Emergency response stakeholders receiving authorized Pfizer-BioNTech COVID-19 Vaccine, Bivalent will ensure that appropriate storage and cold chain is maintained.

Vaccination Providers

- R. Vaccination providers will administer the vaccine in accordance with the authorization and will participate and comply with the terms and training required by CDC's COVID-19 Vaccination Program.
- S. Vaccination providers will provide the Fact Sheet for Recipients and Caregivers to each individual receiving vaccination and provide the necessary information for receiving their dose(s).

T. Vaccination providers administering the vaccines must report the following information associated with the administration of the vaccines of which they become aware to VAERS in accordance with the Fact Sheet for Healthcare Providers Administering Vaccine:

- Vaccine administration errors whether or not associated with an adverse event
- Serious adverse events (irrespective of attribution to vaccination)
- Cases of myocarditis
- Cases of pericarditis
- Cases of Multisystem Inflammatory Syndrome in children and adults
- Cases of COVID-19 that result in hospitalization or death

Complete and submit reports to VAERS online at

<https://vaers.hhs.gov/reportevent.html>. The VAERS reports should include the words “Pfizer-BioNTech COVID-19 Vaccine EUA” or “Pfizer-BioNTech COVID-19 Vaccine, Bivalent EUA”, as appropriate, in the description section of the report. More information is available at vaers.hhs.gov or by calling 1-800-822-7967. To the extent feasible, report to Pfizer Inc. by contacting 1-800-438-1985 or by providing a copy of the VAERS form to Pfizer Inc.; Fax: 1-866-635-8337.

U. Vaccination providers will conduct any follow-up requested by the U.S government, including CDC, FDA, or other designee, regarding adverse events to the extent feasible given the emergency circumstances.

V. Vaccination providers will monitor and comply with CDC and/or emergency response stakeholder vaccine management requirements (e.g., requirements concerning obtaining, tracking, and handling vaccine) and with requirements concerning reporting of vaccine administration data to CDC.

W. Vaccination providers will ensure that any records associated with this EUA are maintained until notified by FDA. Such records will be made available to CDC, and FDA for inspection upon request.

Conditions Related to Printed Matter, Advertising, and Promotion

X. All descriptive printed matter, advertising, and promotional material, relating to the use of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent shall be consistent with the authorized labeling, as well as the terms set forth in this EUA, and meet the requirements set forth in Section 502(a) and (n) of the FD&C Act and FDA implementing regulations.

Y. All descriptive printed matter, advertising, and promotional material relating to the use of the Pfizer-BioNTech COVID-19 Vaccine, Bivalent clearly and conspicuously shall state that:

- The Pfizer-BioNTech COVID-19 Vaccine, Bivalent has not been approved or licensed by FDA, but has been authorized for emergency use by FDA, under an EUA to prevent Coronavirus Disease 2019 (COVID-19) for use in individuals 6 months of age and older; and

- The emergency use of this product is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of the medical product under Section 564(b)(1) of the FD&C Act unless the declaration is terminated or authorization revoked sooner.

Condition Related to Export

Z. If the Pfizer-BioNTech COVID-19 Vaccine, Bivalent is exported from the United States, conditions C, D, and O through Y do not apply, but export is permitted only if 1) the regulatory authorities of the country in which the vaccine will be used are fully informed that this vaccine is subject to an EUA and is not approved or licensed by FDA and 2) the intended use of the vaccine will comply in all respects with the laws of the country in which the product will be used. The requirement in this letter that the authorized labeling (i.e., Fact Sheets) be made available to vaccination providers, recipients, and caregivers in condition A will not apply if the authorized labeling (i.e., Fact Sheets) are made available to the regulatory authorities of the country in which the vaccine will be used.

If the Pfizer-BioNTech COVID-19 Vaccine is exported from the United States, conditions C, D, and O through Y do not apply, but export is permitted only if 1) the vaccine was manufactured on or before April 18, 2023, 2) the regulatory authorities of the country in which the vaccine will be used are fully informed that this vaccine is subject to an EUA and is not approved or licensed by FDA, 3) the intended use of the vaccine will comply in all respects with the laws of the country in which the product will be used, 4) the Fact Sheets that were authorized as of March 14, 2023 for the vial presentation being exported are made available, upon request, to the regulatory authorities of the countries in which the vaccine will be used, and 5) the regulatory authorities are informed that the Pfizer-BioNTech COVID-19 Vaccine and associated Fact Sheets are no longer authorized for use in the United States and that FDA is not currently revising the Fact Sheets with updated information.

IV. Duration of Authorization

This EUA will be effective until the declaration that circumstances exist justifying the authorization of the emergency use of drugs and biological products during the COVID-19 pandemic is terminated under Section 564(b)(2) of the Act or the EUA is revoked under Section 564(g) of the Act.

Sincerely,

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Peter Marks, M.D., Ph.D.
Director
Center for Biologics Evaluation and Research

Enclosures