Food and Drug Administration
Center for Biologics Evaluation and Research

SUMMARY MINUTES
174th VACCINES AND RELATED BIOLOGICAL PRODUCTS ADVISORY COMMITTEE

June 15, 2022

Committee Members
Arnold Monto, M.D. (Acting Chair)
Adam Berger, Ph.D.
CAPT. Amanda Cohn, M.D.
Andrea Shane, M.D., M.P.H., M.Sc. +
Archana Chatterjee, M.D., Ph.D.
David Kim, M.D. M.S. M.H.A.
Eric Rubin, M.D. Ph.D.+
Geeta K. Swamy, M.D. +
Hana El Sahly, M.D., Chair +
Henry Bernstein, D.O. MHCM, FAAP
Hayley Altman-Gans, M.D.
Holly Janes, Ph.D. +
Paul Offit, M.D.
Steven Pergam, M.D., M.P.H.

Industry Representatives
Paula Annunziato, M.D.
Gregg Sylvester, M.D., M.P.H. <+

Consumer Representative
Jay Portnoy, M.D.

Designated Federal Officers (DFO)
Prabhakara Atreya, Ph.D.
Christina Vert, M.S.
Sussan Paydar, Ph.D.

Committee Management Specialist(s)
Joanne Lipkind
Karen Thomas
Lisa Wheeler

Temporary Voting Members
Art Reingold, M.D,
A. Oveta Fuller, Ph.D.
Jeannette Lee, Ph.D.
H. Cody Meissner, M.D.
James Hildreth, Sr. Ph.D., M.D.
Michael Nelson, M.D., Ph.D.
Mark Sawyer, M.D., F.A.A.P.
Melinda Wharton, M.D., M.P.H.
Ofer Levy, M.D., Ph.D.
Pamela McInnes, DDS, MSc.
Wayne Marasco, M.D. Ph.D.

Speakers and Guest Speakers
Sudhakar Agnihothram, B. Pharm, Ph.D. – FDA
Ramachandra Naik, Ph.D. – FDA
Robin Wisch, M.D. – FDA
Susan Wollersheim, M.D. – FDA
Carla Vinals, Ph.D.- Moderna
Evan Anderson, M.D., FAAP - Moderna
Jacqueline Miller, M.D., FAAP - Moderna
Rituparna Das, M.D., Ph.D. – Moderna
William C. Gruber, M.D., FAAP, FIDSA, FPIDS – Pfizer

FDA Participants
Peter W. Marks, M.D., Ph.D.
Doran Fink, M.D., Ph.D.
Jerry Weir, Ph.D.

* Consumer Representative
+ Not in attendance
< Alternate Industry representative

These summary minutes for the June 15, 2022, meeting of the Vaccines and Related Biological Products Advisory Committee were approved on July 8, 2022.

I certify that I participated in the June 15, 2022, meeting of the Vaccines and Related Biological Products Advisory Committee and that these minutes accurately reflect what transpired.

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Prabhakara Atreya, Ph.D. Acting Designated Federal Officer	Arnold Monto, M.D. Acting Chair

On June 15, 2022 at 8:30 a.m. Eastern Standard Time (EST), the 174th meeting of the Vaccines and Related Biological Products Advisory Committee (VRBPAC) took place in open session to discuss amending the EUA of the Moderna COVID-19 Vaccine for the prevention of COVID-19 in infants and children 6 months through 5 years of age, and also to discuss amending the EUA of the Pfizer-BioNTech COVID -19 Vaccine for the prevention of COVID-19 in infants and children 6 months through 4 years of age.

Dr. Arnold Monto, the Acting Chair, called the meeting to order. The DFO, Dr. Prabhakara Atreya made administrative remarks, conducted roll call and invited the committee members to introduce themselves. The alternative DFO, Dr. Sussan Paydar read the Conflict of Interest (COI) statement into the public record.

Dr. Peter Marks, Director for the Center for Biologics Evaluation and Research (CBER), FDA made welcoming remarks. Dr. Sudhakar Agnihothram and Dr. Ramachandra Naik from Division of Vaccines and Related Product Applications (DVRPA), Office of Vaccines Research and Review (OVRR), CBER, FDA made introductory presentations on two topics titled, "Moderna COVID-19 Vaccine: Request for Emergency Use Authorization (EUA) Amendment, use of a 2-Dose Primary Series in Infants and Children 6 Months through 5 Years of Age, and Pfizer-BioNTech COVID-19 Vaccine: Request for EUA Amendment, Use of a 3-Dose Primary Series in Infants and Children 6 Months through 4 Years of Age."

The committee then heard combined presentations by one of the Sponsors, Moderna, on the topic of "mRNA-1273 (Moderna COVID-19 Vaccine) – Request for Emergency Use Authorization for Use in Individuals 6 Months through 5 Years of Age." The session started by Dr. Carla Vinals, Vice President, ModernaTX, followed by Dr. Evan Anderson, Associate Professor, Pediatrics and Medicine, Emory University School of Medicine, and by Dr. Jacqueline Miller, Senior Vice President, Therapeutic Area Head, Infectious Diseases, and by Dr. Rituparna Das, Vice President, Clinical Development, COVID-19 Vaccines, ModernaTX.

Dr. Robin Wisch, a Medical Officer, Clinical Review Staff, Immediate Office of Director, DVRPA, OVRR, CBER, FDA made a presentation titled "FDA Review of Effectiveness and Safety of Moderna COVID-19 Vaccine in Infants and Children 6 Months through 5 Years of Age."

The Committee was then released for a 15-minute break. Afterwards, a 45-minute Sponsor presentation was made by Dr. William C. Gruber, Senior Vice President, Vaccine Clinical Research and Development, Pfizer on a topic titled "BNT162b2 (Pfizer-BioNTech COVID-19 Vaccine) – Request for Emergency Use Authorization for Use in Infants and Children 6 Months through 4 Years of Age."

Following the Pfizer presentation, there was an FDA presentation made by Susan Wollersheim, Medical Officer, Clinical Review Branch 1, DVRPA, OVRR, CBER on a topic titled "FDA Review of Effectiveness and Safety of Pfizer-BioNTech COVID-19 Vaccine in Infants and Children 6 Months through 4 Years of Age."

The Committee was then released for a 30-minute lunch break. After lunch, an Open Public Hearing (OPH) session was held in which 21 pre-registered public speakers made either presentations or oral comments only. The names of OPH speakers and their oral remarks may be obtained from the transcript posted on the website.

Following the OPH session, the committee then held a 25-minute session of "Additional Q & A for FDA and Sponsor Presenters – Moderna COVID-19 Vaccine" followed by 60 minutes of "Committee Discussion and Voting - Moderna COVID-19 Vaccine."

Discussion Summary: Committee members generally agreed that the immunobridging data, along with available supportive efficacy data and post-authorization effectiveness data in adults, supported the benefits of the vaccine in

the age group of 6 months through 5 years. Committee members stressed the importance of data to support authorization of a third (booster) dose of Moderna COVID-19 Vaccine for pediatric age groups in the near future, based on available data overwhelmingly indicating the need for three doses of available mRNA vaccines to achieve more optimal protection against COVID-19 and serious outcomes caused by the Omicron variant. Committee members also stressed the importance of post-authorization assessments of vaccine effectiveness in the setting of continually evolving epidemiology of the COVID-19 pandemic.

Committee members also generally agreed that available safety data was clearly favorable to support EUA in this age group but stressed the importance of continued post-authorization safety surveillance, in particular for myocarditis/pericarditis and for certain respiratory infections (RSV and pneumonia), for which imbalances of uncertain clinical significance were observed in the clinical trial, and febrile seizures given the rates of fever observed in the youngest age group. Some committee members encouraged Moderna to continue pediatric development of the vaccine with assessment of alternative dose levels or dosing intervals that could improve upon effectiveness or decrease the risk of myocarditis. Committee members also stressed the importance of generating data to inform the safety and effectiveness of concomitant use of the vaccine with other routine childhood vaccinations and expressed concern that the current lack of such data would be a barrier to successful vaccination campaigns.

Many committee members opined that authorization of the vaccine in pediatric age groups, supported by available data, would be important to provide patients and their caregivers choices in how to best protect themselves from COVID-19. Some committee members also expressed the importance of accurately communicating the relative risks of COVID-19 and expected benefits of vaccination for the age groups where risk of serious outcomes from COVID-19 is lower. while some committee members encouraged vaccination of all eligible children consistent with use of other preventive vaccines for diseases that cause similar morbidity and mortality as COVID-19, others felt strongly that use of COVID-19 vaccines should not be mandated for the youngest age group.

After committee discussion, the following voting question was presented to the Committee of **21 voting members**:

Moderna Voting Question:

Based on the totality of scientific evidence available, do the benefits of the Moderna COVID-19 Vaccine when administered as a 2-dose series (25 µg each

dose) outweigh its risks for use in infants and children 6 months through 5 years of age?

The voting results were as follows: **21 Yes, 0 No, 0 Abstain**

The committee was then released for a 10-minute break followed by a 25-minute session of "Additional Q & A for FDA and Sponsor Presenters – Pfizer-BioNTech COVID-19 Vaccine" followed by a 60-minute session on "Committee Discussion and Voting – Pfizer-BioNTech COVID-19 Vaccine."

Discussion Summary: Committee members generally agreed that the available immunobridging data, along with available supportive efficacy data and post-authorization effectiveness data in adults, supported the benefits of the vaccine in the age group of 6 months through 4 years. However, committee members noted the limitations of the available clinical endpoint efficacy data and agreed with FDA's assessment that additional data would be needed to more precisely determine effectiveness of the 3-dose series in infants and children 6 months through 4 years of age.

Committee members also expressed concern that healthcare providers and caregivers who choose this vaccine should ensure completion of the 3-dose series. Some committee members thought that a fourth (booster) dose might be needed to achieve more optimal protection against COVID-19 and serious outcomes caused by the Omicron variant, and committee members stressed the importance of post-authorization assessments of vaccine effectiveness in the setting of continually evolving epidemiology of the COVID-19 pandemic.

Committee members also generally agreed that available safety data was clearly favorable to support EUA in the age group of 6 months through 4 years but stressed the importance of continued post-authorization safety surveillance. Some committee members encouraged Pfizer to continue pediatric development of the vaccine with assessment of alternative dose levels or dosing intervals that could improve upon effectiveness or decrease the risk of myocarditis. Committee members also stressed the importance of generating data to inform the safety and effectiveness of concomitant use of the vaccine with other routine childhood vaccinations and expressed concern that the current lack of such data would be a barrier to successful vaccination campaigns.

Many committee members opined that authorization of the vaccine in this age group, supported by available data, would be an important to providing patients

and their caregivers choices in how to best protect themselves from COVID-19. Some committee members also expressed the importance of accurately communicating the relative risks of COVID-19 and expected benefits of vaccination for this age group where risk of serious outcomes from COVID-19 is lower.

While some committee members encouraged vaccination of all eligible children consistent with use of other preventive vaccines for diseases that cause similar morbidity and mortality as COVID-19, others felt strongly that use of COVID-19 vaccines should not be mandated for this age group.

After committee discussion, the following voting question was presented to the Committee **of 21 voting members:**

Pfizer Voting Question:
Based on the totality of scientific evidence available, do the benefits of the Pfizer-BioNTech COVID-19 Vaccine when administered as a 3-dose series (3 µg each dose) outweigh its risks for use in infants and children 6 months through 4 years of age?

The Committee voting results were as follows: **21 Yes, 0 No, 0 Abstain**

Following the voting discussion, the meeting was adjourned on June 15, 2022, at 5:00 PM ET.

Additional information and details may be obtained from the transcript and the recording of the webcast of the meeting that may be viewed at:

Vaccines and Related Biological Products Advisory Committee – 6/15/2022 - YouTube