Food and Drug Administration
Center for Biologics Evaluation and Research

SUMMARY MINUTES
163rd VACCINES AND RELATED BIOLOGICAL PRODUCTS ADVISORY COMMITTEE

December 17, 2020

Committee Members
Hana El Sahly, M.D., Chair +
Archana Chatterjee, M.D., Ph.D.
CAPT. Amanda Cohn, M.D.
Hayley Gans, M.D.
Holly Janes, Ph.D. +
Michael Kurilla, M.D., Ph.D.
Myron Levine, M.D., D.T.P.H., F.A.A.P. +
H. Cody Meissner, M.D.
Paul Offit, M.D.
Steven Pergam, M.D., M.P.H.
Andrea Shane, M.D., M.P.H., M.Sc. +
Paul Spearman, M.D. +
Geeta K. Swamy, M.D. +

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

Consumer Representative
Sheldon Toubman, J.D. *

Designated Federal Officer's (DFO)
Prabhakara Atreya, Ph.D.
Kathleen Hayes, M.P.H.

Committee Management Specialist(s)
Monique Hill, M.H.A.

* Consumer Representative
+ Not in attendance
< Alternate Industry representative

Temporary Voting Members
Arnold Monto, M.D. (Acting Chair)
A. Oveta Fuller, Ph.D.
David Kim, M.D., M.A.
Eric Rubin, M.D., Ph.D.
James Hildreth, Sr., Ph.D., M.D.
James Neaton, Ph.D.
Jeannette Lee, Ph.D.
Mark Sawyer, M.D., F.A.A.P.
Melinda Wharton, M.D., M.P.H.
Pamela McInnes, D.D.S., M.Sc.
Patrick Moore, M.D., M.P.H.
Robert Schooley, M.D.
Stanley Perlman, M.D., Ph.D.

Speakers and Guest Speakers
Doran Fink, M.D., Ph.D.-FDA
Jacqueline Miller, M.D., F.A.A.P – Sponsor
Rachel Zang, M.D.-FDA
Steven Goodman, M.D., Ph.D.
Tal Zaks, M.D. – Sponsor

FDA Participants
Marion Gruber, M.D.
Philip Krause, M.D.
Peter W. Marks, M.D., Ph.D.
Celia M. Witten, Ph.D., M.D.CDR. Valerie Marshall, M.P.H., P.M.P.
Jerry Weir, Ph.D.

These summary minutes for the December 17, 2020 Meeting of the Vaccines and Related Biological Products Advisory Committee were approved on January 6, 2021.

I certify that I participated in the December 17, 2020 Meeting of the Vaccines and Related Biological Products Advisory Committee and that these minutes accurately reflect what transpired.

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

On December 17, 2020 at 9:00 a.m. Eastern Standard Time (EST), the 163rd Meeting of the Vaccines and Related Biological Products Advisory Committee (VRBPAC) met in open session to discuss emergency use authorization (EUA) of the Moderna COVID-19 Vaccine for the prevention of COVID-19 in individuals 18 years of age and older.

Dr. Arnold Monto, the Acting Chair, called the meeting to order. The DFO made administrative remarks, conducted roll call and invited the committee members to introduce themselves, and read the Conflict of Interest (COI) statement into the public record. It was stated that one conflict of interest waiver was issued under 18 U.S. Code 208 in connection with the meeting and the waiver was posted on the FDA website for public disclosure.

Dr. Doran Fink of FDA provided an introductory presentation titled "Emergency Use Authorization; Overview and Considerations for COVID-19 Vaccines." This was followed by a presentation by Dr. Steven Goodman with Stanford University School of Medicine titled "Considerations for placebo-controlled trial design if an unlicensed vaccine becomes available." The sponsors then gave their presentation " Emergency Use Authorization (EUA) Application for mRNA-1273" provided by Dr. Tal Zaks, Dr. Jacqueline Miller, Melissa Moore, and Dr. David Martin from ModernaTx, Inc. and by Dr. Lindsey Robert Baden with Brigham and Women's Hospital.

After the Sponsors presentations concluded and a 10-minute break, the Committee conducted a 60-minute Open Public Hearing (OPH) session in which 18 public pre-registered speakers made presentations and oral comments. 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 held a 30 additional Q &A session for the Sponsor presenters and were then released for lunch.

Following a 30-minute lunch break, the Committee heard from Dr. Rachel Zhang with FDA who presented "FDA Review of Efficacy and Safety of Moderna COVID-19 Vaccine Emergency Use Authorization Request." After Dr. Zhang's presentation, the Committee proceeded with the discussion and voting portion of the meeting. There was one discussion item presented to the Committee, with no vote:

In considering Moderna's plans for unblinding and crossover of placebo recipients, please discuss the most critical data to further inform vaccine safety and effectiveness to support licensure that should be accrued in:

- Ongoing clinical trials with the Moderna COVID-19 vaccine
- Other studies (e.g., additional clinical trials or observational studies) with the Moderna COVID-19 vaccine

Regarding critical data to be obtained in ongoing trials with the Moderna COVID-19 vaccine, committee members discussed the importance of collecting blood specimens obtained from breakthrough cases to evaluate T- and B- cell immunity and to identify correlates of protection, and the importance of collecting respiratory specimens obtained from breakthrough cases to evaluate effect of the vaccine on shedding of infectious virus and to provide information about potential antigenic escape mutants. Members commented that efforts should be made to obtain data on long term safety of the vaccine, waning of immunity, the vaccine's impact on virus transmission, and asymptomatic infection. In addition, they suggested that ongoing studies should collect additional data on vaccine effectiveness in subjects at increased risk for COVID-19, pregnant women and pediatric populations.

Committee members were asked to discuss whether the ongoing Phase 3 trial should be continued using a blinded cross-over design or an open-label design as proposed by Moderna. Some members stressed the importance of using a blinded cross-over design in order to preserve data integrity and to allow an evaluation of waning of immunity and duration of protection. Other members opined that even though a blinded cross-over design would be ideal, it would present with logistical challenges, and that high drop-out rates can be anticipated because clinical trial participants would obtain a vaccine made available under EUA before a blinded cross-over could be implemented. Therefore, open-label unblinded vaccination of placebo recipients, even though not ideal, may be a more realistic option. However, to preserve blinded placebo-controlled follow-up for as long as is practical, some committee members opined that placebo recipients should be offered the vaccine as they become eligible for vaccination according to CDC prioritization groups.

The committee suggested for the following data to be obtained in additional studies (e.g., additional clinical trials or observational studies) with the Moderna COVID-19 vaccine: data on vaccine effectiveness in the elderly, immunogenicity data from dose ranging studies, in particular in immunocompromised subpopulations, effectiveness of the vaccine following one dose, and interchangeability of the two COVID-19 mRNA vaccines. Additional studies should be conducted to obtain data regarding duration of protection, to identify a correlate of protection, to further evaluate Bell's palsy as an adverse event as well as to evaluate other neurological and cardiac outcomes (both in terms of vaccine safety and effect of vaccination on prevention of these outcomes when related to COVID-19), co-administration with other vaccines, and vaccine safety and effectiveness in pregnant and pediatric subjects.

Following the discussion topic, the Committee was asked to take a vote on the following

question:

1) Based on the totality of scientific evidence available, do the benefits of the Moderna COVID-19 Vaccine outweigh its risks for use in individuals 18 years of age and older?

The results of the vote were as follows: Yes = 20, No = 0, Abstain = 1. Thus, the committee voted in favor of a determination that based on the totality of scientific evidence available, the benefits of the Moderna COVID-19 Vaccine outweigh its risks for use in individuals 18 years of age and older.

Following the vote, the meeting was then adjourned on December 17, 2020 at 5:00 PM EST.

Additional information and details may be obtained from the transcript and the recording of the webcast of the meeting that may be viewed at:
https://www.youtube.com/watch?v=I4psAfbUtC0&feature=youtu.be