National Center for Immunization & Respiratory Diseases



# Work Group Interpretation of Pfizer's MenABCWY Vaccine Clinical Trials Data

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# **Policy Questions for Each Pentavalent Vaccine**

- Should the pentavalent vaccine be included as an option for MenACWY/MenB vaccination in people currently recommended to receive both vaccines?
  - For example, 16 year olds<sup>1</sup>
- Should the pentavalent vaccine be included as an option for people currently recommended to receive MenACWY only?
  - For example, 11–12 year olds
- Should the pentavalent vaccine be included as an option for people currently recommended to receive MenB only?
  - For example, during a serogroup B outbreak

# **Pfizer MenABCWY Vaccine and Trials Overview**

- Comprised of Nimenrix (serogroups ACWY) and Trumenba (serogroup B)
  - Trumenba currently licensed and available in US, 10y through 25y
  - Nimenrix not licensed in US but used extensively elsewhere, 6w and older
- Two clinical trials completed (NCT03135834, NCT04440163)
  - Assessed safety and immunogenicity of pentavalent vaccine
  - Compared to Trumenba (MenB) and Menveo (MenACWY)
  - Included participants 10 through 25 years of age
  - Studied single and two dose (0, 6m) schedules
  - 4-year persistence and booster dose were evaluated
- Extended interval study underway (NCT04440176)
  - Study arm 1 0, 12m (data available)
  - Study arm 2 0, 36m

# Safety

- Assessed by monitoring for and comparing local reactions, systemic events, medically attended adverse events, serious adverse events, and newly diagnosed chronic medical conditions
- Local reactions within 7 days after vaccination
  - Includes pain, redness, swelling
  - Comparison between pentavalent and MenB vaccine only
  - Slightly higher percentage of participants had a local reaction to pentavalent vaccine for both 1<sup>st</sup> and 2<sup>nd</sup> doses
- Systemic events within 7 days after vaccination
  - Includes fatigue, headache, muscle pain, joint pain, chills, diarrhea, vomiting, fever
  - Similar percentage of participants experienced systemic events in pentavalent vaccine group and in MenACWY+MenB group
  - Percentage varied slightly between groups by systemic event and by dose

# Safety, Continued

- Medically attended adverse events
  - Similar percentages between study groups (both <15%)</li>
- Serious adverse events
  - More reported for pentavalent group (0.4% vs. 0%)
  - None assessed to be related to pentavalent vaccine (e.g., hospitalization due to other medical conditions)
- Newly diagnosed chronic medical conditions (NDCMC)
  - More reported for pentavalent group (1.1% vs. 0.3%)
  - Higher number of participants with attention-deficit/hyperactivity disorder (ADHD) in pentavalent group – most with related symptoms before entering study
- Higher risk patients (e.g., complement deficiency) not included in trials

## **Immunogenicity Standards**

- Serogroups A, C, W, and Y
  - Percentage of participants achieving MenACWY seroresponse in hSBA titer 1 month after 1 dose and 1 month after 2 doses
  - Seroresponse is defined as a 4-fold increase in titer over baseline
- Serogroup B
  - Percentage of participants achieving MenB seroresponse in hSBA 1 month after 2 doses
  - Composite response provided
  - Seroresponse is defined as a 4-fold increase in titer over baseline

### Immunogenicity for Serogroups A, C, W, Y

I dose of the pentavalent vaccine is noninferior to 1 dose of MenACWY in both ACWY-naïve and ACWY-primed participants 1 month after administration



## Immunogenicity for Serogroups A, C, W, Y

2 doses of the pentavalent vaccine given 6 months apart are noninferior to 1 dose of MenACWY in both naïve and primed participants 1 month after administration



#### **Seroprotection for ACWY-Naïve Participants after 4 Years**

Seroprotection persists up to 4 years in naïve participants after a 2-dose series





Abbreviations: hSBA-serum bactericidal assay using human complement; PB-post booster; PD1-post dose 1; PD2-post dose 2.

\*Number of subjects with wald and determinate hSBA titler for the given strain ranged from 95-112 for MenABCWY and 54-84 for MenB-Hibp + MenACWY-CRM (Stage 2 mITT population [baseline through 36m P02342m F01]), and 59-80 for MenABCWY and 36-37 for MenB-Hibp + MenACWY-CRM (Booster evaluable immunogenicity population [48m P02/54m P01 Post Primary and Post Booster]). Pfizer Confidential 12 Date on File, Study B1971057 (NCIS135584) Aug 2022, Pfizer Inc.

#### **Seroprotection for ACWY-Primed Participants after 4 Years**

Seroprotection persists up to 4 years in primed participants after a 2-dose series



🔁 Pfizer

For groups A, W, and Y, N=45-51 for MenABCWY and 32-35 for Men3-Htbp + MenACWY-CRM (Base 2 miTT population (Baseline through 36m PD2/42m PD1)), and 32-33 for MenABCWY and 16-17 for Men3fHbp + MenACWY-CRM (Booster evaluable immunogenicity population (Baseline through 36m PD2/42m PD1)), and 32-32 for Men3BCWY and 15-17 for Men3-FM (Base 2 miTT population), and 85-70 for Men3-BCWY and 51 for Men3-FHbp + MenACWY-CRM (Booster evaluable immunogenicity population). Pflaar Confidential 19 Data on File, Study B1971057 (NCT03135834) Aug 2022, Pflaer Inc.

#### **Immunogenicity for Serogroup B**

 2 doses of the pentavalent vaccine given 6 months apart are noninferior to 2 doses of MenB in naïve participants (primed not assessed)



### **Seroprotection for Serogroup B-Naïve Participants**

 Waning of immunity for the pentavalent vaccine is very similar to that observed with MenB, dropping substantially by 12 months post-dose 2



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# **Additional Work Group Reflections**

- Data not presented on 3-dose schedule of pentavalent vaccine
  - 3-dose schedule of Trumenba currently recommended for certain high-risk groups (e.g., people affected by a serogroup B outbreak)
- Data not available in people older than 25 years
  - MenB vaccines licensed for 10–25 years
  - MenACWY vaccines licensed up to 55 years or older depending on vaccine

# **Final Reflections and Next Steps**

- Pfizer's MenABCWY vaccine appears to be noninferior to MenACWY+MenB based on clinical trial data presented
- Data gaps
  - 3-dose schedule for high-risk populations
  - Adults older than 25 years
- Next steps
  - Reviewing additional immunologic persistence data for a single dose
  - GRADE and EtR will focus on pentavalent vaccine studies
  - Cost effectiveness study will be conducted

For more information, contact CDC 1-800-CDC-INFO (232-4636) TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

