COVID-19 Press Briefing

August 18, 2021
COVID-19 Response Team Update

Jeff Zients
Update from the Surgeon General
of the United States

Dr. Vivek Murthy
CDC Update

Dr. Rochelle P. Walensky
Vaccine Effectiveness against Infection has Decreased over Time

- **NY State**: Age-adjusted VE against new COVID-19 diagnoses declined from 92% to 80%

- **Mayo Clinic**: VE against Delta variant infection decreased for both mRNA vaccines
  - Pfizer: 76% to 42%
  - Moderna: 86% to 76%
Vaccines Effectiveness Against Infection is Decreasing in those Most Vulnerable

- Nursing homes: Reported weekly case counts of new laboratory-confirmed SARS-CoV-2 infections among nursing home residents and staff by vaccination status from February 15 through August 1.
Vaccine Effectiveness against Infection has Decreased over Time

- New York State [May - July] (1)
- Mayo Clinic - Moderna [January - July] (2)
- Nursing Home Residents [March - July] (3)
- Mayo Clinic - Pfizer [January - July] (2)

Source:
1. [http://dx.doi.org/10.15585/mmwr.mm7034e](http://dx.doi.org/10.15585/mmwr.mm7034e)
2. [https://doi.org/10.1101/2021.08.06.21261707](https://doi.org/10.1101/2021.08.06.21261707)
3. [https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e3.htm?s_cid=mm7034e3_w](https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e3.htm?s_cid=mm7034e3_w)
Vaccines Effectiveness against Hospitalizations Remains Relatively High

- **NY State:** Age-adjusted VE against new COVID-19 diagnoses declined from 92% to 80%
  - Age-adjusted VE against hospitalizations remained stable at 92%-95%
- **Mayo Clinic:** VE against Delta variant infection decreased for both mRNA vaccines
  - VE against hospitalization remained high
Vaccines Effectiveness against Hospitalizations Remains Relatively High

- IVY: In an evaluation at 21 hospitals in 18 states, the duration of mRNA VE against COVID-19–associated hospitalizations was assessed among adults aged ≥18 years.
Vaccine Effectiveness against Hospitalizations Remains Relatively High

Vaccine Effectiveness

Early

Late

95%
91%
87%
85%
84%
81%
75%

New York State (May - July) (1)
Mayo Clinic - Moderna (January - July) (2)
IVY (March - July) (3)
Mayo Clinic - Pfizer (January - May) (2)

(1) http://dx.doi.org/10.15585/mmwr.mm7034e
(2) https://doi.org/10.1101/2021.08.06.21261707
(3) http://dx.doi.org/10.15585/mmwr.mm7034e2
Vaccine Effectiveness against Infection has Decreased for the Delta Variant

Unpublished CDC data, last updated August 6, 2021.
Summary

- Vaccine effectiveness against infection (symptomatic and asymptomatic) is decreasing over time
- Vaccine effectiveness against severe disease, hospitalization, and death remains relatively high
- Vaccine effectiveness is decreased for the Delta variant
- Anticipating further waning immunity and the ongoing Delta surge, we are preparing for a booster vaccine
NIH Update

Dr. Anthony Fauci
Immunological Basis Supporting a 3rd (Booster) mRNA Immunization

- Antibody levels decline over time
- Higher levels of antibody are associated with higher levels of vaccine efficacy
- Higher levels of antibody may be required to protect against Delta
- A booster mRNA immunization increases antibody titers by at least 10-fold
Antibody Levels Decline Over Time Following 2 mRNA Immunizations Regardless of Variant

Source: Pegu, Doria-Rose et al., Science, Aug 12, 2021
Higher Levels of Antibody Are Associated With Higher Levels of Vaccine Efficacy

Immune Correlates Analysis of the mRNA-1273 COVID-19 Vaccine Efficacy Trial

- Model of vaccine efficacy based on Moderna phase 3 study; 4 weeks after 2nd dose
- For serum neutralization titer of 100, vaccine efficacy was 91%

Source: Gilbert at al., Immune Correlates Analysis of the mRNA-1273 COVID-19 Vaccine Efficacy Trial: Pre-print on medRxiv
Higher Levels of Antibody May Be Required To Protect Against Delta

Moderna mRNA-1273 vaccine: Serum Neutralization titer after two immunizations

- Average is 2.4 times lower antibody titer for Delta (B.1.617.2)

Source: Pegu, Doria-Rose et al., Science, Aug 12, 2021

Infection and Vaccine-Induced Neutralizing-Antibody Responses to the SARS-CoV-2 B.1.617 Variants

MS Suthar et al.

Similar data for Pfizer mRNA vaccine
A Booster mRNA Immunization Increases Antibody Titers by at least 10-Fold

Immunogenicity After Boosting with Dose of 50ug of Moderna mRNA vaccine (boost given approx. 6 – 7 months after 2nd shot)

First columns: just before 3rd dose
Second columns: 15 days post-3rd dose boost

Reference: Preliminary Analysis of Safety and Immunogenicity of a SARS-CoV-2 Variant Vaccine Booster Wu et al., medRxiv preprint
Summary

- Current immunological data indicating that:
  - Antibody levels decline over time
  - Higher levels of antibody are associated with higher levels of vaccine efficacy
  - Higher levels of antibody may be required to protect against Delta
  - A booster mRNA immunization increases antibody titers by at least 10-fold

support the use of a 3rd (booster) mRNA immunization to increase the level of protection
Q&A