



October 26, 2021

Agenda

- COVID vaccination
- Case: Diagnosis and Treatment of CAP

Timeline since Last Tuesday

- FDA met, **Wed 10/20**
 - Moderna Booster 6 months after the primary series
 - Janssen booster 2 months after single dose in all recipients
 - Use of each available COVID-19 vaccine as a heterologous booster dose
- ACIP met, **Thu 10/21**
- Pfizer pediatric data released, **Fri 10/22**
- Vaccine Advisory committee to discuss pediatric data, **Tue 10/26**

Link to watch: https://youtu.be/laaL0_xKmmA






How COVID-19 Vaccine Boosters Compare

drswanda.com

US Covid-19 Booster Eligibility¹

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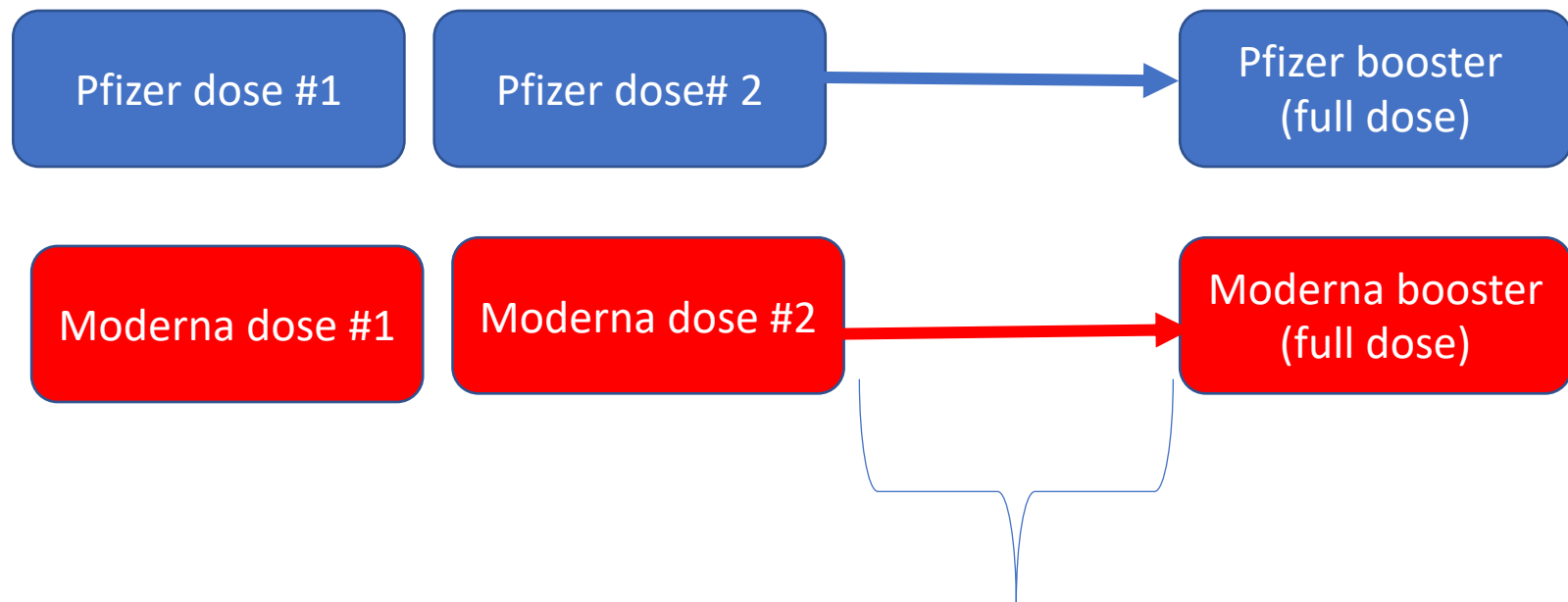
Initial Vaccine Series	Age	Months Since Full Vaccination	Other Eligibility Factor
	18+	2+	N/A
 or 	65+	6+	N/A
	18+	6+	Underlying health conditions with risk of severe Covid-19 Frequent institutional or occupational exposure to SARS-CoV-2

¹ Reference: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/booster-shot.html>



Booster is different than *Additional* dose

Additional dose: 8/12/21 Use of a third dose of a three-dose primary series in certain immunocompromised individuals 12 years of age and older



28 days post dose #1



Pfizer Booster

- ≥ 65 years
- 18-64 years +
High risk of severe COVID-19
- 18-64 years +
Frequent institutional or occupational exposure to
SARS-CoV-2 *clarified given prior mixed messaging from ACIP*

Dose: Full Dose

Dose Timeline: ≥ 6 months after completing primary series



Moderna Booster

- ≥ 65 years
- 18-64 years +
High risk of severe COVID-19
- 18-64 years +
Frequent institutional or occupational exposure to SARS-CoV-2

Dose: HALF Dose (50mcg)

Dose Timeline: ≥ 6 months after completing primary series

"Dose-sparing strategies...reduce overall exposure to antigen but can make additional doses available for distribution worldwide"



Moderna Booster Data

EFFICACY

N= 149
Boosted

N = 1055
Unboosted

Antibody Response

-15.1 (95% CI 13.4, 16.9)
fold increase in GMT

-19 (95% CI: 16.7, 21.6)
fold increase in antibody titers
observed vs. Delta from pre-booster levels

SAFETY

N = 171
Boosted

Followed x6 months

Common ADRs:
-Pain at injection site
-Tiredness
-Headache
-Muscle and/or joint pain
-Chills
-Swollen lymph nodes in
injection arm

(Note: more frequent following booster than
after the primary dose series)

mRNA Booster Data: Myocarditis

*The 3rd doses of the vaccine given several months after the initial 2 [doses] **did not appear to be associated with any greater incidence of myocarditis** than the second dose. In fact the profile of myocarditis/pericarditis was much more like the first dose.... It **may be that the additional time between doses helped reduce risk of myocarditis.***

-Peter Marks, MD, PhD

Director, FDA Center of Biologics, Evaluation, and Research

FDA Media Call: COVID-19 Vaccine Booster Doses. Oct 20, 2021.

<https://www.youtube.com/watch?v=rou7tf4vaUU>



Janssen Booster

- ≥ 18 years
(i.e. everyone who initially received a single-dose Janssen vaccine)

Dose: Full Dose

Dose Timeline: ≥ 2 months after completing primary series



Janssen Booster Data

Table 10: Number of Subjects with Local Solicited Adverse Events by Derived Term; Safety Subset (Study VAC31518COV3009)

Analysis set: Safety Subset	Ad26 5e10 vp Double-Blind 3016	Placebo Double-Blind 3052
Post-booster	1559	1425
Subjects with 1 or more Local AEs		
Any	896 (57.5%)	252 (17.7%)
Grade 3	10 (0.6%)	3 (0.2%)
Vaccination Site Erythema		
Any	128 (8.2%)	56 (3.9%)
Grade 3	7 (0.4%)	2 (0.1%)
Vaccination Site Pain		
Any	877 (56.3%)	225 (15.8%)
Grade 3	3 (0.2%)	1 (0.1%)
Vaccination Site Swelling		
Any	88 (5.6%)	18 (1.3%)
Grade 3	2 (0.1%)	0

Key: AE = adverse event

Note: Ad26 5e10: Ad26.COV2.S 5×10¹⁰ vp.

Adapted from: [TSFAESOLLOC02.RTF] [VAC31518\VAC31518COV3009\DBR IA1\RE IA1\PROD\TSFAESOLLOC-SYS02.SAS]
14SEP2021, 23:41

Systemically: Fatigue, headache, and myalgia were observed in 35-41% of subjects after a booster dose (39-45% experienced these ADRs after the 1st dose)

Side note in placebo booster: Fatigue (21%), Headache (19%, and Myalgia (13%)



Janssen Safety Data

33.5 million doses administered worldwide since FDA EUA
<14.5 million in the US>

Safety data thru 24 Aug 2021

Thrombosis with
Thrombocytopenia
Syndrome

Reported frequency: 5-6 per million doses
Median time to onset: 12 days

Guillain-Barre
Syndrome

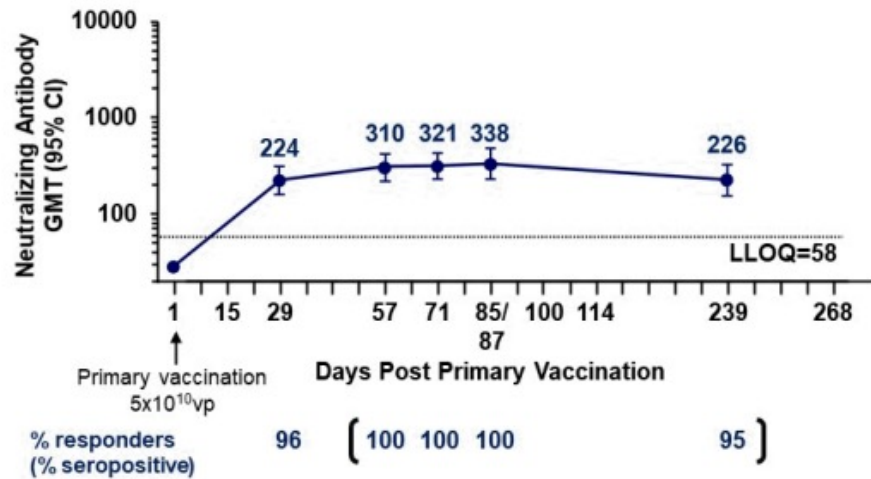
Reported frequency: 0.21 per million doses
Median time to onset: 1 day



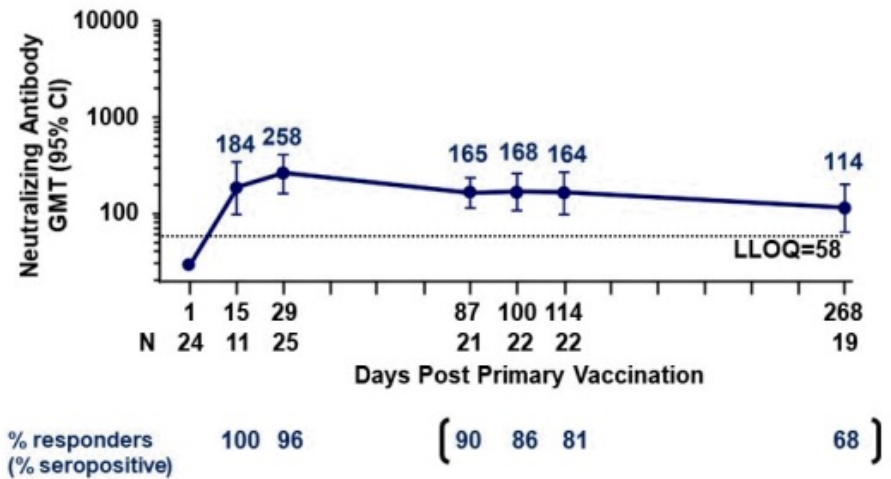
Janssen Humoral Immune Response over Time (single dose)

Figure 6: Humoral Immune Responses Over Time Following a Single Dose of Ad26.COV2.S (StudyCOV1001)

**wtVNA: Durability up to 8 months – Day 239
(Cohort 1a: 18-55 yrs)**

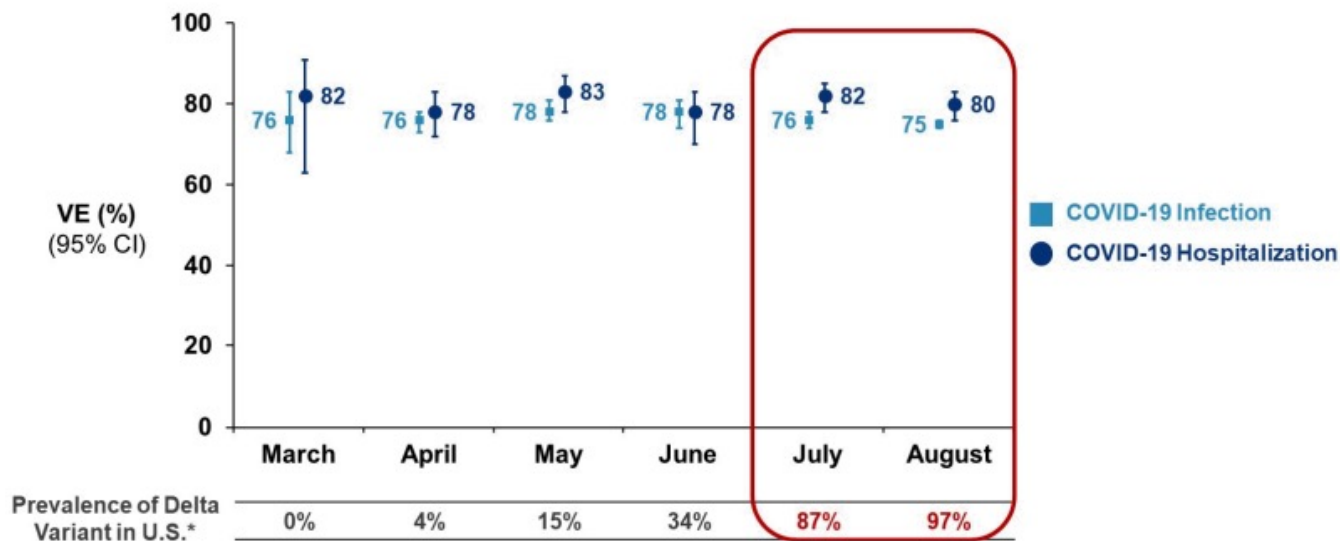


**wtVNA: Durability up to 9 months – Day 268
(Cohort 3: ≥ 65 yrs)**



Janssen Vaccine Effectiveness (single dose)

Figure 7: Month-Over-Month Vaccine Effectiveness (March 2021 – August 2021) - RWD

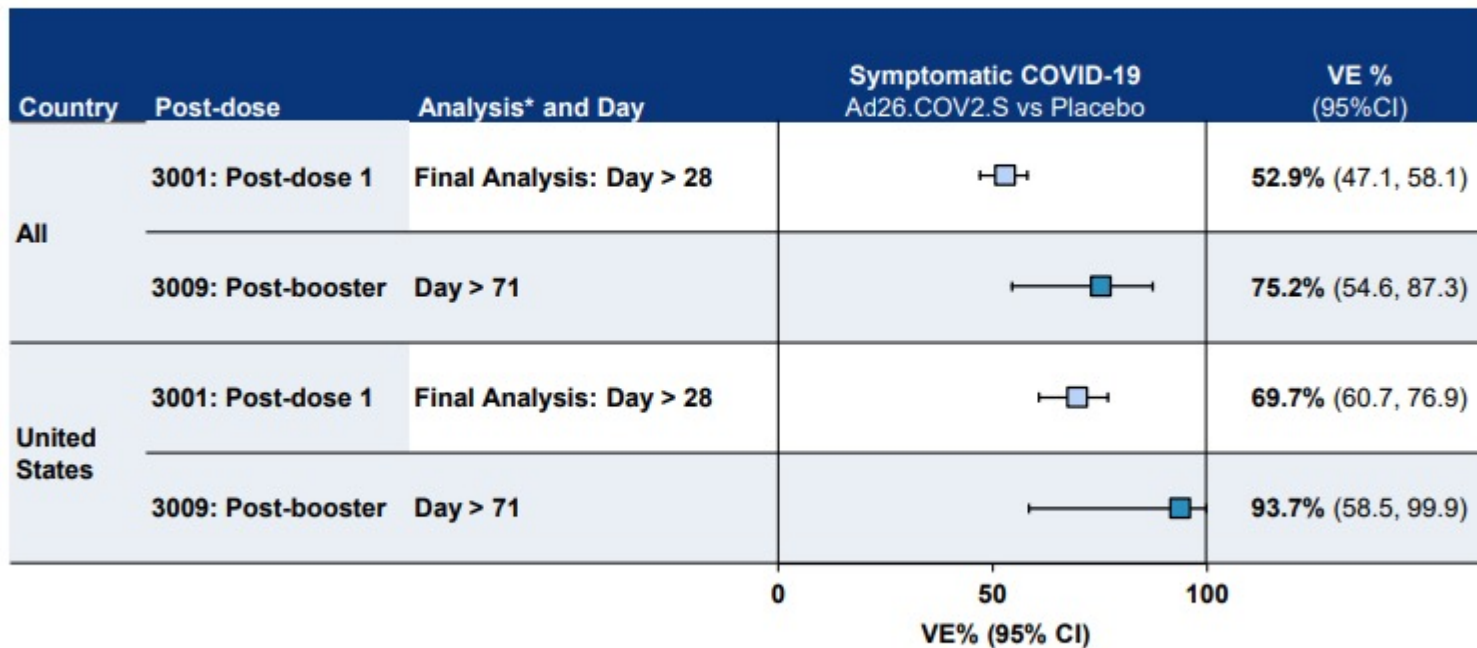


* Nextstrain 2021



Janssen Vaccine Effectiveness (single dose vs two doses)

Figure 21: VE Against Symptomatic COVID-19: Single Dose (COV3001) vs Booster Dose 2 Months After First Dose (COV3009)



*COV3001 primary analysis cut-off data: January 2021; COV3001 final analysis cut-off date: July 2021 (of note: in this analysis, the last available onset primary endpoint for US was in April 2021); COV3009 primary analysis cut-off date: June 2021.



Janssen Booster Data

Neutralizing antibodies against SARS-CoV-2 variants of concern, ie, Alpha (B.1.1.7, VUI2020 12/01, Kent), Beta (B.1.351, 20H/501Y.V2, RSA) and Delta (B.1.617.2) after 1 dose of Ad26.COV2.S at the of 5×10^{10} vp level, were measured in selected samples from participants aged 18-55. Immune sera from obtained 28 days after a single dose of Ad26.COV2.S showed **lower neutralizing activity against the Alpha, Beta and Delta variants**, respectively, compared to the original strain. Specifically **for the Delta variant, neutralization at Day 29 was more than 37-fold lower** than neutralization of the original strain.



Heterologous Boosting

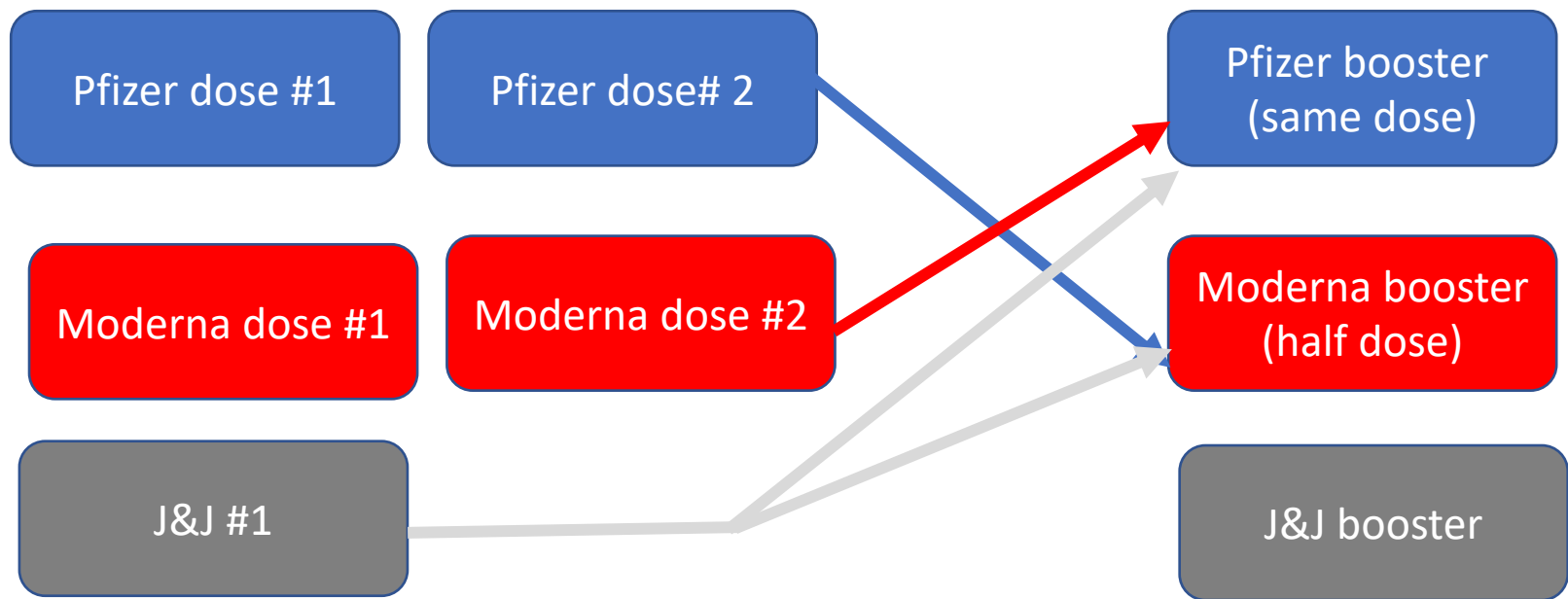
*A single booster dose of **any of the available COVID-19 vaccines** may be administered as a **heterologous booster** dose following completion of primary vaccination with a different available COVID-19 vaccine.*

*Eligible population(s) and dosing interval for a heterologous booster dose are the **same as those authorized for a booster dose of the vaccine used for primary vaccination.***



Heterologous Boosting

Received FDA & ACIP approval



How COVID-19 Vaccine Boosters Compare

How do Covid-19 vaccine boosters compare?¹

Initial Vaccine Administered				moderna [®]					
Initial Dose Regime	2			2			1		
Booster Shot Type	moderna [®]				moderna [®]		moderna [®]		
Binding & Neutralizing Antibody Assays (Geometric mean fold rise)	17.3 x	14.9 x	6.2 x	9.7 x	7.9 x	4.7 x	56.1 x	32.8 x	4.6 x
Rank	1 st	2 nd	3 rd	1 st	2 nd	3 rd	1 st	2 nd	3 rd

¹ Reference: "Heterologous SARS-CoV-2 Booster Vaccinations - Preliminary Report" (SARS-CoV-2 Vaccine Booster Trial), Table 2, SARS-CoV-2 IgG Binding and Neutralizing Antibody Assays, Geometric mean fold rise

