WELCOME TO THE NILE WEBINAR FOR September 2021!

Immunize Nevada is a nonprofit 501c3 coalition that is widely recognized as Nevada’s trusted resource for immunization information and community health outreach for all ages. We accomplish this by fostering education and statewide collaboration with a variety of health partners and collaborators.

You may view upcoming web trainings at ImmunizeNevada.org/NILE-webinars

Thank you for joining us today!
**LAST MINUTE QUESTIONS & HOUSEKEEPING ITEMS REVIEW**

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DISCLAIMER

Immunize Nevada’s NILE webinars are made possible by the generosity of speakers who donate their time and expertise to benefit the coalition. The expectation and goal is for community partners to gain knowledge on immunization/infectious disease-related topics through a non-branded, unbiased presentation.

The opinions expressed are those of today’s presenter and do not necessarily reflect those shared by Immunize Nevada or its partners.
COVID-19 Vaccines and the Delta Variant:
Facts vs Misinformation

Katrine Wallace, PhD
September 30, 2021
OBJECTIVES

- Provide overview on delta variant
- Present the latest data on vaccine effectiveness against the delta variant
- Explain misinformation with regard to vaccine effectiveness, especially with regard to delta
What is a variant?

- **Viral mutations happen all the time** but sometimes the viral mutations cause changes that cause the virus to behave differently.

- As the virus spreads, it has new opportunities to change and may become more difficult to control.

- These changes can be monitored by comparing differences in physical traits (such as resistance to treatment) or changes in genetic code (mutations) from one variant to another.
ALL variants are mutations but not all mutations are variants!

Mutations are NORMAL!
WHO SARS-COV-2 VARIANT GRADING

- **Variants Being Monitored (VBM)**
  - Variants for which there are data indicating a potential or clear impact on approved or authorized medical countermeasures or that has been associated with more severe disease or increased transmission but are no longer detected or are circulating at very low levels.

- **Variant of Interest (VOI)**
  - Specific genetic markers that are predicted to affect transmission, diagnostics, therapeutics, or immune escape.
  - Evidence that it is the cause of an increased proportion of cases or unique outbreak clusters.
  - Limited prevalence or expansion in the US or in other countries.

- **Variant of Concern (VOC)**
  - Evidence of impact on diagnostics, treatments, or vaccines.
  - Evidence of increased transmissibility.
  - Evidence of increased disease severity.

- **Variant of High Consequence (VOHC)**
  - Impact on Medical Countermeasures (MCM).

Ref: who.int
## SARS-COV-2 VARIANTS

Delta variant is the only variant of concern now.

<table>
<thead>
<tr>
<th>WHO Label</th>
<th>Date of Designation</th>
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<tr>
<td>Alpha</td>
<td>VOC: December 29, 2020</td>
<td>VBM: September 21, 2021</td>
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<tr>
<td>Beta</td>
<td>VOC: December 29, 2020</td>
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<tr>
<td>Gamma</td>
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<tr>
<td>Epsilon</td>
<td>VOC: March 19, 2021</td>
<td>VBM: September 21, 2021</td>
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<td>Eta</td>
<td>VOI: February 26, 2021</td>
<td>VBM: September 21, 2021</td>
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<td>Iota</td>
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<td>Kappa</td>
<td>VOI: May 7, 2021</td>
<td>VBM: September 21, 2021</td>
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Ref: who.int
IS THERE A TEST FOR THE DELTA VARIANT?

- Genomic sequencing

Ref: https://www.cdc.gov
HOW COMMON IS THE DELTA VARIANT?

June 2021

Ref: https://www.cdc.gov
HOW COMMON IS THE DELTA VARIANT?

Ref: https://www.cdc.gov

Sept 2021
Increase in delta resulted in increase in cases
INCREASED TRANSMISSIBILITY

- The Delta variant is more contagious
- Increased reproducibility

POSSIBLY INCREASED SEVERITY

- Some data suggest the Delta variant might cause more severe illness than previous variants
- In two different studies from Canada and Scotland, patients infected with the Delta variant were more likely to be hospitalized than patients infected with Alpha or the original virus that causes COVID-19

INCREASED VIRAL LOAD

- Delta is associated with 1000x higher viral load than the original virus
INCREASED VIRAL LOAD – PROVINCETOWN

- In July 2021, following multiple large public events in a Barnstable County, Massachusetts, town, 469 COVID-19 cases were identified among Massachusetts residents who had traveled to the town during July 3–17; 346 (74%) occurred in fully vaccinated persons.

- Testing identified the Delta variant in 90% of specimens from 133 patients. Cycle threshold values were similar among specimens from patients who were fully vaccinated and those who were not.

Ref: https://www.cdc.gov/mmwr/volumes/70/wr/mm7031e2.htm
MASK GUIDANCE CHANGED DUE TO DELTA FINDINGS IN PROVINCETOWN
PROTECTIVE MEASURES ARE ADDITIVE

- Layer mitigations in areas & times of high transmission
- No vaccine is 100% effective
Fully vaccinated people with Delta variant breakthrough infections can spread the virus to others. However, vaccinated people appear to spread the virus for a shorter time.
Delta variant causes more breakthrough cases because of its increased transmissibility, but vaccinated people suffer less severe illness.

Antibody responses on the red scale: higher antibodies = more protection in the lungs (severe disease) AND nose (mild disease).
VACCINES PROTECT AGAINST SEVERE ILLNESS

- Delta variant causes more breakthrough cases because of its increased transmissibility, but **vaccinated people suffer less severe illness**

After vaccination, fully vaccinated people have both types of protection.
VACCINES PROTECT AGAINST SEVERE ILLNESS

- Delta variant causes more breakthrough cases because of its increased transmissibility, but *vaccinated people suffer less severe illness*

Now with the delta variant and time, fully vaccinated people have less protection in upper airway, but still have SOLID protection in lower airway

[Image of diagrams showing virus and antibody distribution across upper and lower airways]
VACCINE EFFECTIVENESS AND THE DELTA VARIANT

- The media widely reports every data point that comes out about the vaccines and the delta variant

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**Forbes**

EDITORS' PICK | Jul 23, 2021, 08:31am EDT | 522,608 views

**Pfizer Shot Just 39% Effective Against Delta Infection, But Largely Prevents Severe Illness, Israel Study Suggests**

*Robert Hart*  Forbes Staff

Business

*I cover breaking news.*
DO THE VACCINES WORK AGAINST THE DELTA VARIANT?

Vaccine Effectiveness Across Studies - Any Infections

- 60% UK REACT Pfizer
- 76% US Mayo Pfizer
- 86% US Mayo Moderna
- 85% Qatar Moderna
- 54% Qatar Pfizer
- 39% Israel Pfizer

Range 39-86%

Public health data from UK, US, Qatar, Israel
DO THE VACCINES WORK AGAINST THE DELTA VARIANT?

Vaccine Effectiveness against Severe Infection / Hospitalization

- 96% UK REACT Pfizer
- 90% Israel Pfizer
- 91% US Mayo Moderna
- 85% US Mayo Pfizer

Range 85-96%

Public health data from UK, US, Israel
VACCINES AND THE DELTA VARIANT - NY

Ref: https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e1.htm
UNVACCINATED PEOPLE ARE THE GREATEST CONCERN WITH DELTA

- There are more COVID-19 cases in unvaccinated people

UNVACCINATED PEOPLE ARE THE GREATEST CONCERN WITH DELTA

- The risk of severe disease is greatest in unvaccinated people

MISINFORMATION ABOUT VACCINES AND THE DELTA VARIANT

- “Delta variant was caused by vaccination”
- “The vaccines don’t work against the delta variant”
- “Vaccinated people are now super spreaders”
MISINFORMATION DURING COVID-19

• “Co-epidemic of misinformation”
• Drives mistrust in public health recommendations
• Erodes public confidence in vaccines
• Must counter false information with real information
MISINFORMATION DURING COVID-19

- Misinformation leads to Vaccine hesitancy
  - Vaccines are saving lives now and are the best way out of this pandemic
  - Misinformation about vaccines is causing people to question, delay vaccination, costs lives, and is slowing recovery from the pandemic
MISINFORMATION DURING COVID-19


DELTA VARIANT AND THE BASE RATE FALLACY

- Comparing numbers of vaccinated cases versus unvaccinated COVID-19 cases in a highly vaccinated population provides a misleading view of vaccine effectiveness.

“Pfizer vaccine now completely worthless in Israel as >80% of all COVID-19 patients were previously vaccinated.”

BASE RATE FALLACY AND VACCINE MISINFORMATION

If we look at the raw numbers of severe cases 60+ it looks like the vaccine is not protecting against severe disease in this age group, but this is misleading when adjusting for the base rate (rate per 100,000 in each population), the rate of severe COVID-19 is lower in vaccinated people.

BASE RATE FALLACY GOING VIRAL!

1. Concept video

2. Example of concept

3. Mainstream adoption

Base Rate Fallacy
- Base rate fallacy (Also known as neglecting base rates, base rate neglect, base rate bias) is an error in thinking. You tend to ignore information about a topic, in favor of other information.

ICELAND OUTBREAK And the base rate fallacy

numbers of people that are getting delta variant vaccinated and vaccinated

Planet Money
Investigates The Base Rate Fallacy As It Pertains To The Pandemic

The district now reports more than 9,000 breakthrough coronavirus cases in Clark County since vaccines were made available. Out of those 9,080 cases, 137 people died.

For the month of September, about one out of every five new COVID-19 cases involves a person who was vaccinated.
BASE RATE FALLACY IN NV!

Vaccinated case rate $\frac{9,080}{1,071,777} = 0.0085$ or 0.8%
Vaccinated death rate $\frac{137}{1,071,777} = 0.01\%$

Ref: https://www.southernnevadahealthdistrict.org/
BASE RATE FALLACY IN NV!

Headline was misleading because rate is exactly as expected.

*After Delta became the most common variant, fully vaccinated people had reduced risk of...

- Infection: 5X
- Hospitalization: >10X
- Death: >10X

Vaccination offers strong protection against COVID-19.

[Link to MMWR article](https://bit.ly/MMWR960021)
SOCIAL MEDIA MISINFORMATION

- Pandemic information coming out all the time
- Rapidly changing landscape
- Need a way to communicate data and information to many people quickly but also accurately
- Attention spans on social media are short
- Competition is fierce
- Algorithm-driven platforms
SOCIAL MEDIA ALGORITHMS

• Engagement drives how often you see specific content
  • Someone with anti-science engagement will be shown more anti-science content

• Algorithm driven platforms are designed to keep people on the app
  • Favors sensational viral content
  • Misinformation always wins over real info
Misinformation goes viral

Misinformation is dangerous
Take care before you share

United Nations Misinformation awareness campaign

SOCIAL MEDIA AND VICTIMS OF MISINFORMATION

• Disinformation on social media about COVID-19 and the vaccines resulted in:
  • Poor pandemic health choices
  • Disease
  • Death
CONCLUSION

• The delta variant changed the landscape for everyone
• The vaccines work against the delta variant
• Misinformation that the vaccines caused delta or do not work against delta are FALSE
• Misinformation is a public health problem and is a risk factor for additional disease and death
## HOUSEKEEPING ITEMS

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