COVID-19 Vaccine Update
Project ECHO

Lisa Costello, MD, MPH, FAAP
Christopher Martin, MD, MSc
Meera Mehta, PharmD, BCIDP
Kara Willenburg, MD, FACP

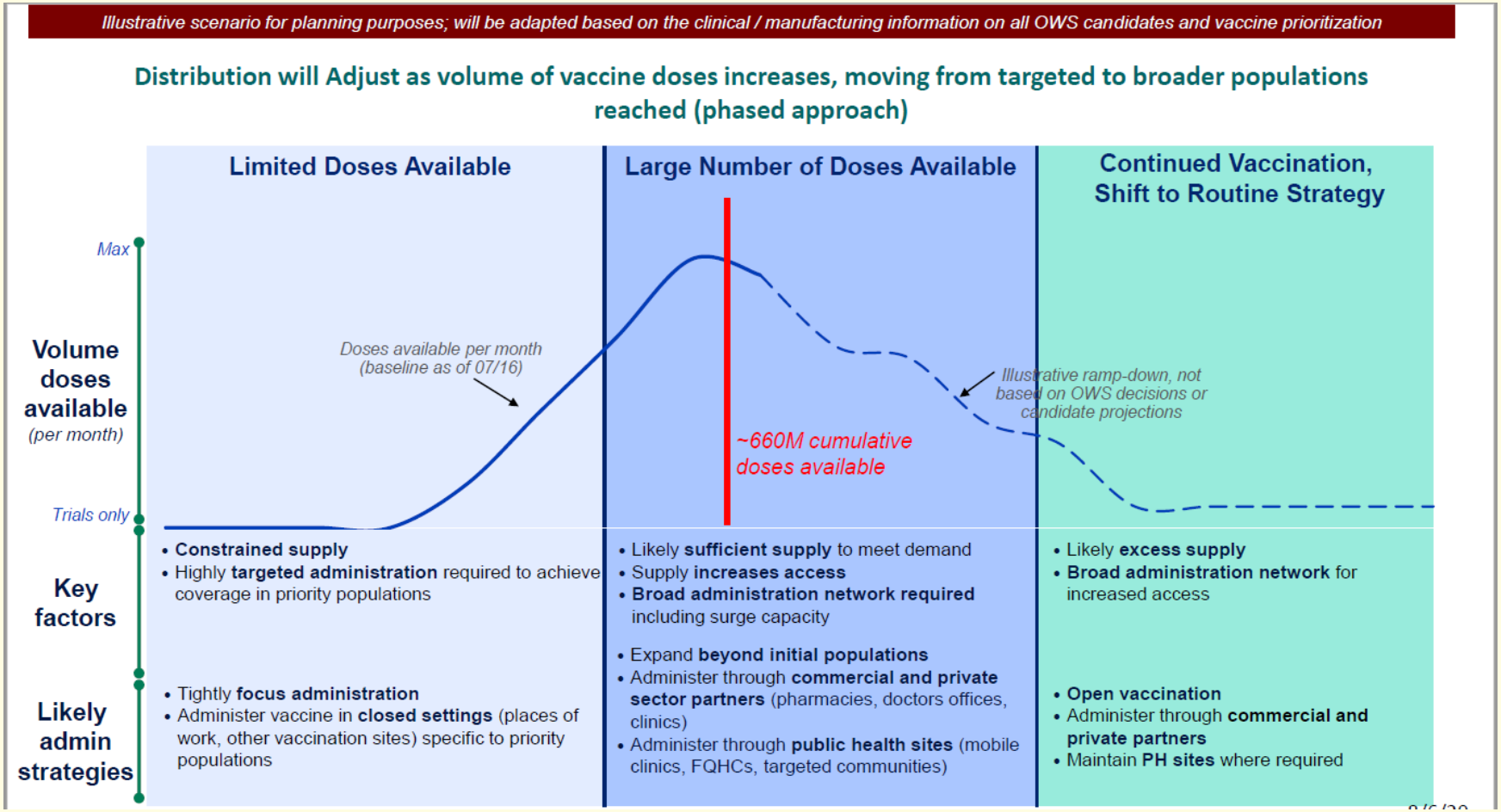
November 19, 2020

WEST VIRGINIA Department of Health & Human Resources

Planning Assumptions

- A limited supply of vaccine will be available to jurisdictions as early as December 2020, with supply increasing substantially in early 2021.
- Cold chain storage and handling requirements of the vaccine candidates in Phase 3 clinical trials vary from refrigerated to frozen to ultra-cold temperatures.
- Vaccination will require a 2-dose series separated by 21 or 28 days. Products are not interchangeable.
- Centers for Disease Control and Prevention (CDC) is providing ancillary kits with each shipment.
  - Needles, syringes, alcohol prep pads, vaccination record cards, and a minimal supply of PPE, including surgical masks and face shields.
- Vaccine will be sent directly from federally managed distribution centers to vaccination provider locations.
- Minimum order size is likely 100 doses
- Ultra-cold vaccine may be shipped from the manufacturer in special shipping containers packed with dry ice. Must be recharged after 10 days.

3 Phases of COVID-19 Vaccination Program



3 Phases of COVID-19 Vaccination Program

Phase 1:

- Very limited supply.

- Vaccine highly targeted to specific populations.
  - **Phase 1-A: Healthcare Personnel**
    - Paid and unpaid people serving in healthcare settings who have the potential for direct or indirect exposure to patients or infectious materials and are unable to work from home.
  - **Phase 1-B: Critical Infrastructure/Essential Workers**
    - People who play a key role in keeping essential functions of society running and cannot socially distance in the workplace.
    - *Note: Initial populations for vaccination are subject to change based on release of final recommendations from CDC and ACIP.*

- Inventory, distribution, and any repositioning of vaccine will be closely monitored through reporting to ensure end-to-end visibility of vaccine doses.

Role of Primary Care: Coordinating vaccination of your entire workforce.

3 Phases of COVID-19 Vaccination Program

Phase 2:

- Large number of vaccine doses available. Supply likely sufficient to meet demand.
- Shift from highly targeted vaccination to mass vaccination strategies.
- Expanded vaccination provider network.
- Vaccine available to the public with emphasis on target populations (e.g., persons at increased risk for severe illness, persons at increased risk of acquiring/transmitting disease).

Role of Primary Care: Work with local partners to conduct or support mass vaccination events.

Phase 3:

- Shift to routine vaccination.
- All providers will be able to order and receive vaccine.

Role of Primary Care: Offer vaccine to their patient population in various settings.

Reporting

Reporting Requirements:

- Doses administered must be reported within 24 hours of vaccination and capture all data elements required by CDC and the West Virginia Department of Health and Human Resources (DHHR).

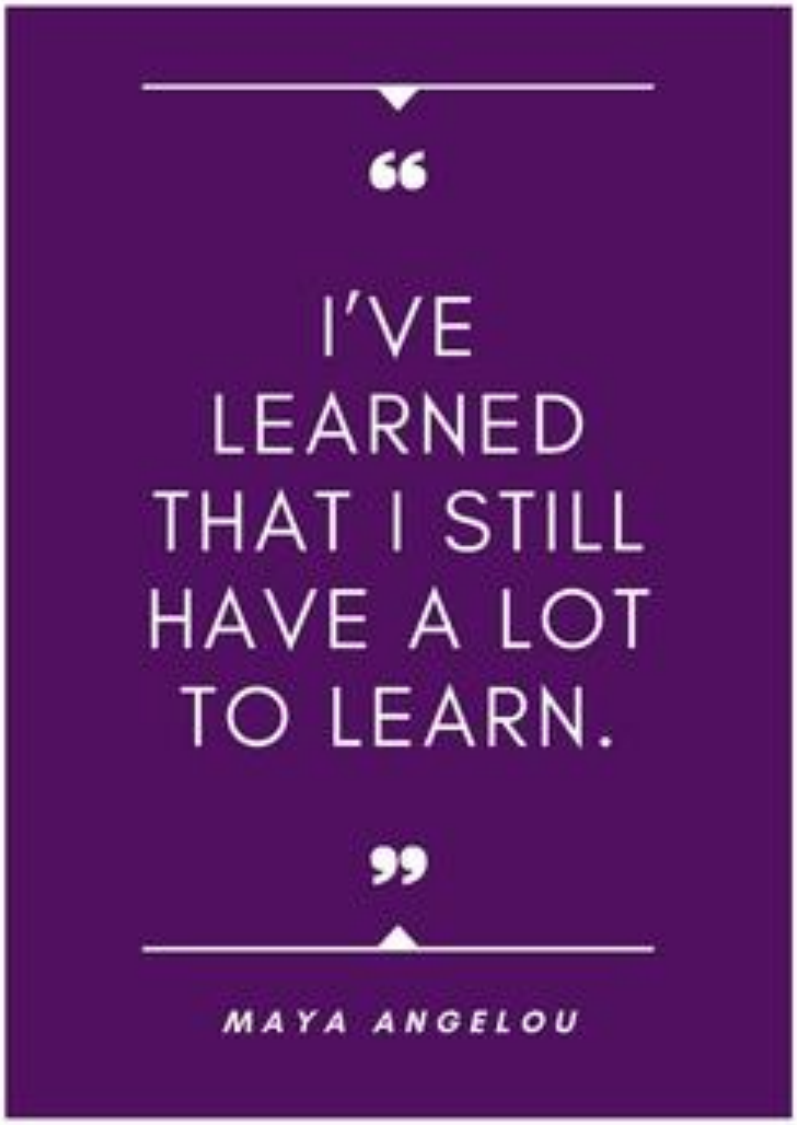
- Facility-level inventory and reporting will be closely monitored by DHHR for end-to-end visibility.

Reporting

Data Systems:

- Currently working to build functionality for electronic data exchange between EHRs and IIS (HL7 messaging).
- It is likely that all facilities will be required to submit data via direct data entry during Phase 1 of the program.
- Data can be reported using the WV Statewide Immunization Information System (WVSIIS) OR Vaccine Administration Management System (VAMS).
- VAMS is a vaccination clinic mobile application provided by CDC.
    - VAMS allows patients to register and schedule appointments and record dose-level vaccination data that meets CDC reporting requirements.
    - Additional information about the VAMS will be shared once available.

What We Know

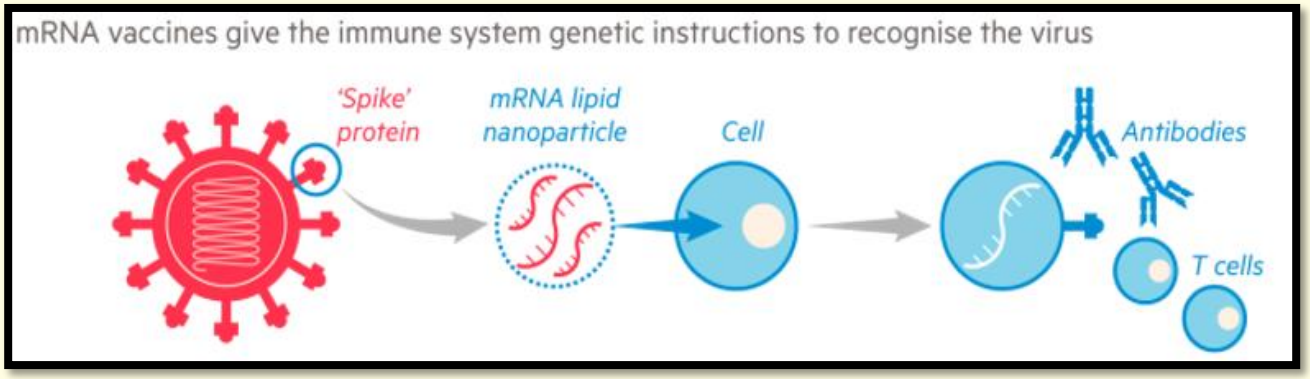


Leading Vaccine Candidates

Developer	Technology	Phase 3 Trial Participants	Doses
Pfizer	mRNA	44,000	2 doses 21 days apart
Moderna	mRNA	30,000	2 doses 28 days apart
Johnson & Johnson	Viral Vector	60,000	1 dose
Oxford/AstraZeneca	Viral Vector	30,000	2 doses 28 days apart

Application for EUA for leading vaccine candidate within days.

What Do We Know About mRNA Vaccines?



- Benefits to mRNA based vaccine technology:
  - Not made with particles derived from the pathogen; non-infectious.
  - Does not enter the host cell nucleus so it is unlikely to be integrated into human DNA.
  - They do not have an oncogenic potential.
  - Rapidly degraded during antigen expression, theoretically reducing concerns of long-term adverse effects.
  - Faster and cheaper to produce, a benefit during an active pandemic.

What Do We Know About COVID Vaccine Safety?

Safety:

- Local and systemic reactions
  - Mild to moderate in severity
  - Early on after receiving the vaccine

- Serious adverse effects that occur during Phase 3 trials are thoroughly investigated.

- Historically, long lasting adverse effects from vaccines have been rare.

- COVID vaccine safety will be monitored closely after approval.
  - **Vaccine Adverse Events Reporting System (VAERS**) provides data on the safety profile of new vaccines when they are introduced into the population.
  - **Vaccine safety assessment for essential workers (V-SAFE):** a smartphone based surveillance program which conducts health checks on vaccine recipients via text messages and email.

What Do We Know About COVID Vaccine Efficacy?

Efficacy:

- The FDA requires that a COVID vaccine must be at least 50% effective to be approved.
  - A vaccine with 50% efficacy is more effective at disease prevention than no vaccine.
- Pfizer
  - Final efficacy analysis
    - 95% efficacy rate 7 days after second dose
    - Consistent across age, gender, race, ethnicity
    - 94% in adults >65
- Moderna
  - Interim results
    - 94.5% efficacy rate 14 days after second dose
    - Consistent across age, gender, race, ethnicity
    - Final efficacy percentage may vary
- Influenza vaccine
  - 45% effectiveness last year
  - The influenza vaccine is known to prevent illness, hospitalization and death.

FDA U.S. FOOD & DRUG ADMINISTRATION

Update from the Vaccines and Related Biologics Products Advisory Committee (VRBPAC) Meeting of October 22, 2020

Doran Fink, MD, PhD

Deputy Director – Clinical, Division of Vaccines and Related Products Applications,
Office of Vaccines Research and Review, Center for Biologics Evaluation and Research, FDA

October 30, 2020

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-10/COVID-Fink.pdf

Introduction

- The Vaccines and Related Biological Products Advisory Committee (VRBPAC) reviews and evaluates data concerning the safety, effectiveness, and appropriate use of vaccines and related biological products
  - VRBPAC is a committee of experts external to FDA that provides input upon request by FDA on certain regulatory actions (e.g., licensure of new vaccines) and on more general topics critical to advancing regulatory science
  - VRBPAC recommendations are non-binding but usually followed by FDA
- The VRBPAC met on October 22, 2020, for a general discussion of the development, authorization and/or licensure of vaccines to prevent COVID-19
  - Open meeting with live webcast accessible to public
  - No discussion of specific COVID-19 vaccine candidates or vote on recommendations

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-10/COVID-Fink.pdf

Clinical Considerations for EUA

- An EUA for a COVID-19 vaccine may be requested to allow for the vaccine's rapid and widespread deployment for administration to millions of individuals, including healthy people, following a planned interim analysis in an ongoing Phase 3 trial
- A favorable benefit/risk determination to support issuance of an EUA in this scenario would require, in addition to adequate manufacturing information:
  - Efficacy data showing protection against SARS-CoV-2 infection or disease with a point estimate of least 50% vs. placebo comparator and an appropriately alpha-adjusted confidence interval lower bound >30%
  - At least half of Phase 3 study subjects followed for both safety and efficacy for at least 2 months following completion of the full vaccination regimen
  - Safety data from throughout clinical development (including well over 3,000 Phase 3 vaccine recipients) to evaluate reactogenicity, serious AEs, and AEs of special interest
  - Sufficient cases of severe COVID-19 to assess for signals of enhanced disease

www.fda.gov

5

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-10/COVID-Fink.pdf

Clinical Considerations for EUA

- Reasons for a median follow-up of at least 2 months after completion of the full vaccination regimen to support issuance of an EUA for a COVID-19 vaccine:
  - Allows time for potential immune-mediated adverse reactions to be evaluated (uncommon but clinically significant immune-mediated adverse reactions to preventive vaccines generally have onset within 6 weeks following vaccination)
  - Ensures that vaccine efficacy is assessed during the time period when adaptive/memory immune responses (rather than innate responses) are mediating protection
  - Allows for early assessment of waning protection and signals of enhanced disease

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-10/COVID-Fink.pdf

Clinical Considerations for EUA

- Following a successful efficacy analysis that supports issuance of an EUA, further evaluation of a COVID-19 vaccine would be needed:
  - For ongoing benefit/risk assessments for continuation of the EUA
  - To accrue additional data to support licensure and/or to inform labeling
- Continued evaluation of a COVID-19 vaccine made available under EUA would include:
  - Longer-term follow-up for safety, including in larger numbers of vaccine recipients and in populations with lower representation in clinical trials
  - More precise estimation of vaccine effectiveness
  - More robust assessment of effectiveness against specific aspects of SARS-CoV-2 infection or disease
  - Characterization of duration of protection
  - Investigation of immune biomarkers that might predict protection
  - Ongoing monitoring for signals of enhanced disease

www.fda.gov

7

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-10/COVID-Fink.pdf

Clinical Considerations for EUA

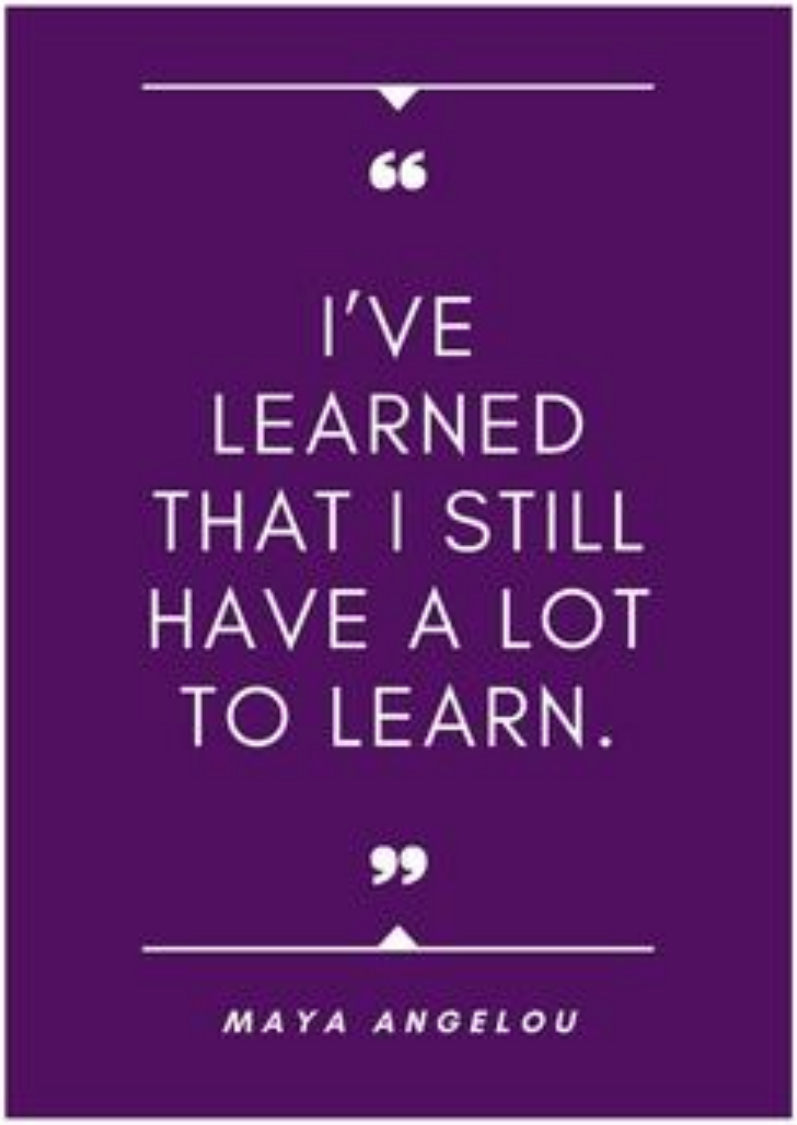
- Issuance of an EUA for a COVID-19 vaccine would be contingent upon the ability to conduct further vaccine evaluation through a combination of:
  - Active follow-up of vaccine recipients under the EUA
  - Passive monitoring for clinically significant adverse reactions using established reporting mechanisms (e.g., VAERS)
  - Observational studies, including those that leverage healthcare claims databases
  - Continuation of blinded, placebo-controlled follow-up in ongoing clinical trials for as long as is feasible and strategies to handle loss of follow-up
- FDA does not consider issuance of an EUA for a COVID-19 vaccine to necessitate immediate unblinding of ongoing clinical trials or offering vaccine to all placebo recipients
  - Trial participants may choose to withdraw from follow-up for any reason, including to receive vaccine made available under EUA

www.fda.gov

8

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-10/COVID-Fink.pdf

What We Know



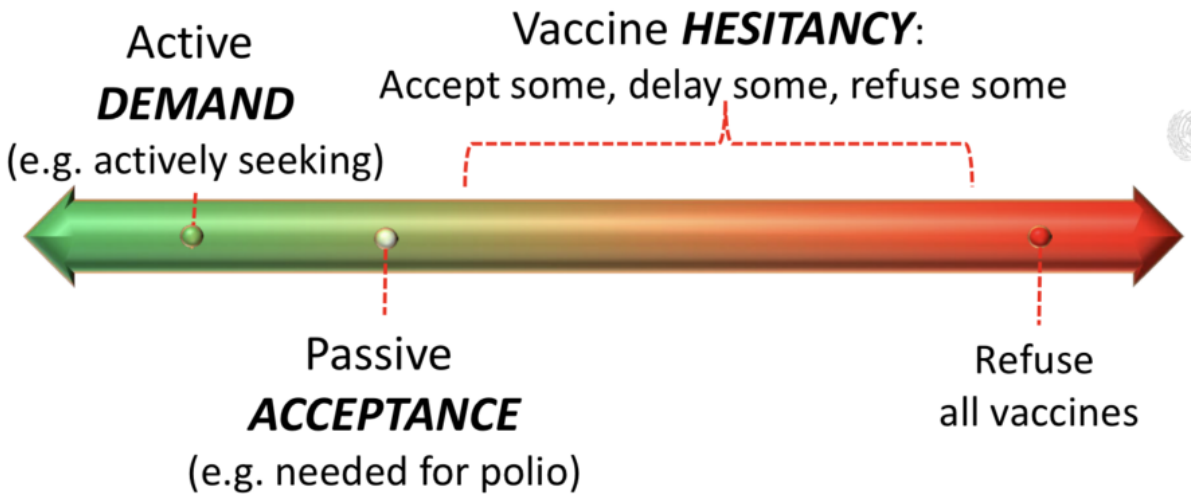
Vaccine Communication and Messaging

- Coordinated communication strategy being developed in partnership with the Center for Rural Health Development and DHHR, Bureau for Public Health, Division of Immunization Services.
- Messaging research underway - surveys and focus groups
- Working to develop clear, consistent messages to be distributed and shared by partners
- Addressing vaccine hesitancy and misinformation

Vaccine Messaging

Core concepts:
A continuum of attitudes and behaviours

World Health Organization



Vaccine hesitancy: a delay in acceptance or refusal of vaccines, despite available services.
Is complex and context specific, varying across time, place, and vaccine

Questions?

If you have any questions or concerns regarding the enrollment process or the WV COVID-19 Vaccination Program, please email: COVIDVaccinationProg@wv.gov

Caitlin Cohn
Caitlin.R.Cohn@wv.gov

Lisa Costello, MD, MPH
lmcostello@hsc.wvu.edu

References

- Centers for Disease Control and Prevention. Ensuring the safety of COVID-19 vaccines in the United States. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations-process.html
- Centers for Disease Control and Prevention. Interim estimates of 2019-20 seasonal influenza vaccine effectiveness - United States, February 2020. Morbidity and Mortality Weekly Report. Feb 2020; 69(7): 177-82
- Folegatti P et al. Safety and immunogenicity of the ChAdOx1 nCoV-19 vaccine against SARS-CoV-2: a preliminary report of a phase 1/2, single blind, randomized control trial. The Lancet. July 2020. 396: 467-78
- Jackson L, et al. An mRNA vaccine against SARS-COV-2- preliminary report. New Engl J Med. July 2020. DOI: 10.1056/NEJMoa2022483
- Mulligan M, et al. Phase 1/2 study to describe the safety and immunogenicity of a COVID-19 RNA Vaccine Candidate (BNT162b1) in adults 18 to 55 years of age: Interim report. July 2020. MedRxiv 2020.06.30.20142570; doi: https://doi.org/10.1101/2020.06.30.20142570
- Slaoui M, Hepburn M. Developing safe and effective Covid vaccines- Operation Warp Speed's Strategy and Approach. New Engl J Med 2020; 383: 1701-1703

References

- US Department of Health and Human Services. Food and Drug Administration. Center for Biologics Evaluation and Research. Development and licensure to prevent COVID-19. June 2020. https://www.fda.gov/media/139638/download
- Pfizer. Pfizer and BioNtech announce vaccine candidate against COVID-19 achieved success in first interim analysis from phase 3 study. Nov 2020. https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-announce-vaccine-candidate-against
- Moderna. Moderna's COVID-19 Vaccine Candidate Meets its Primary Efficacy Endpoint in the First Interim Analysis of the Phase 3 COVE Study. Nov 2020. https://investors.modernatx.com/news-releases/news-release-details/modernas-covid-19-vaccine-candidate-meets-its-primary-efficacy
- Zhang et al. Advances in mRNA vaccine for infectious diseases. Front. Immunol. March 2019; 10:594