

Vaccine Preventable Diseases

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Disclosures

- **None**

Objectives

- **Recognize vaccine preventable diseases**
- **Interpret epidemiological patterns of vaccine preventable diseases in WV and surrounding states**
- **Integrate strategies for revaccination as adults for childhood vaccines**

Vaccine Preventable Disease – Recognize Overview

Which disease, now preventable by vaccine, once inspired a popular nursery rhyme that includes the line “Ring Around the Rosie”?

A. Measles

B. Smallpox

C. Influenza

D. Bubonic Plague

Vaccine Preventable Disease – Recognize Overview

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D. Bubonic Plague

Vaccine Preventable Diseases – Recognize Vaccine Development

What are the Key Elements for Vaccine Development?

Element	Importance	Example
Stable/Identifiable Antigens	Immune recognition	Spike Protein in SARS-CoV-2
Limited Antigenic Variation	Frequent mutation	HIV
Significant Disease Burden	Prioritization	Limited progress with Neglected Tropical Diseases
Trials and Post-market	Safety and efficacy	Intussusception with previous rotavirus vaccines
Logistics	Production, distribution, and administration	Inactivated vaccines

Vaccine Preventable Disease – Recognize Question

Which of the following vaccine platforms is generally considered the least effective in overall protection (especially without adjuvants/boosters)?

A. Viral Vector

B. Subunit

C. Whole Pathogen

D. Nucleic Acid

Vaccine Preventable Disease – Recognize Question

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Vaccine Preventable Disease – Recognize Question

Platform Type	Estimated Protection
Nucleic Acid	***
Subunit	***
Whole Pathogen	***
Viral Vector	***

Modern adjuvants can greatly increase efficacy

Vaccine Preventable Diseases – Recognize Vaccine Development

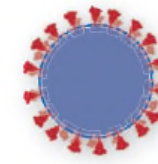
Source: <https://asm.org/resource-pages/vaccine-resources>

WHOLE-PATHOGEN VACCINES

VIRAL VECTORS

SUBUNIT VACCINES

NUCLEIC ACIDS



	ATTENUATED	INACTIVATED	REPLICATING	NON-REPLICATING	PROTEIN SUBUNIT	POLYSACCHARIDE/ CONJUGATE	TOXOID	VIRUS-LIKE PARTICLES	RNA	DNA
DESCRIPTION	Living pathogen that has been weakened (but not killed) in the laboratory	Whole pathogen killed by heat, chemicals or radiation	A carrier virus that is able to infect human cells (such as an adenovirus) is introduced carrying genetic material that codes for the specific viral antigen in order to elicit the immune response.	A carrier virus (such as an adenovirus) that is able to infect human cells but cannot replicate is introduced carrying genetic material that codes for the specific viral antigen in order to elicit the immune response.	Purified viral antigens	Surface polysaccharide antigens, primarily from bacterial pathogens	Chemically inactivated toxins from pathogen	Particles that contain virus surface proteins that can elicit an immune response, but lack viral genetic material (so cannot replicate)	mRNA injected directly into muscle tissue and translated into specific pathogen protein antigens by host cellular machinery.	Plasmid containing pathogen DNA that encodes for specific antigens, injected directly into cellular tissue.
EXAMPLES	MMR vaccine	Polio vaccine, Rabies vaccine, Typhoid vaccine	Animal vaccines such as for Rift Valley fever virus, avian influenza	Animal vaccines such as for Rift Valley fever virus, avian influenza	Candidate Zika vaccine	Candidate vaccines for SARS, Bird flu (H5N1, H1N1), Zika	Diphtheria vaccine, Tetanus vaccine	Human papillomavirus vaccine	Candidate Zika vaccine	Candidate vaccines for SARS, Bird flu (H5N1, H1N1), Zika
PROS	Elicits strong immune response	Contains actual pathogen so will direct proper immune response	Efficient delivery of genetic material into host cells and tissues	Efficient delivery of genetic material into host cells and tissues	No chance of infection by pathogen	No chance of infection by pathogen	Raise direct immune response to pathogenic component	Easy access into cells	Directs the expression of viral antigens without threat of viral infection or need for integration into host DNA	Directs the expression of viral antigens without threat of viral infection
CONS	Slight potential for microbe reactivation	May require an adjuvant to stimulate complete immune response	May be suppressed by existing host immune response	May be suppressed by existing host immune response	Requires efficient delivery mechanism that protects against degradation	May require an adjuvant to stimulate complete immune response	May require an adjuvant to stimulate complete immune response	May be suppressed by existing host immune response	Difficult delivery into cells	Difficult delivery into cells

Vaccine Preventable Diseases – Recognize Vaccine Development

Source: <https://asm.org/resource-pages/vaccine-resources>

WHOLE-PATHOGEN VACCINES



Whole-Pathogen Vaccines

- **Attenuated**
 - Weakened pathogen
 - Example: MMR, Varicella, Yellow Fever
 - Pros: Elicits strong response
 - Cons: Slight potential for reactivation
- **Inactivated**
 - Killed pathogen
 - Example: Polio, Influenza Rabies, Typhoid
 - Pros: Contains actual pathogen (direct immune)
 - Cons: May require adjuvant/boosters

	ATTENUATED	INACTIVATED
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Vaccine Preventable Diseases – Recognize Vaccine Development

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VIRAL VECTORS



Viral Vectors

- **Replicating**
 - Carrier virus introduces genetic material
 - Example: animal vaccines (RVF, Ebola)
 - Pros: Efficient delivery to host cell
 - Cons: Vector immunity; Safety concerns
- **Non-replicating**
 - Carrier virus that cannot replicate introduces genetic material
 - Example: some COVID-19
 - Pros: Efficient delivery to host cell
 - Cons: Vector immunity

	ATTENUATED	INACT	REPLICATING	NON-REPLICATING
DESCRIPTION	Living pathogen that has been weakened (but not killed) in the laboratory	Whole pathogen killed by heat, chemicals or radiation	A carrier virus that is able to infect human cells (such as an adenovirus) is introduced carrying genetic material that codes for the specific viral antigen in order to elicit the immune response.	A carrier virus (such as an adenovirus) that is able to infect human cells but cannot replicate is introduced carrying genetic material that codes for the specific viral antigen in order to elicit the immune response.
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Vaccine Preventable Diseases – Recognize Vaccine Development

Source: <https://asm.org/resource-pages/vaccine-resources>

Viral Vectors

- Protein subunit
 - Purified viral antigen
 - Example: Hep B, Zoster
 - Pros: Safe; target response
 - Cons: Delivery/Adjuvants
- Polysaccharide | Conjugate
 - Surface antigens
 - Example: Hib, Pneumococcal, Neisseria
 - Pros: Safe; target response
 - Cons: May need adjuvant

SUBUNIT VACCINES				GENETIC VACCINES	
PROTEIN SUBUNIT	POLYSACCHARIDE/ CONJUGATE	TOXOID	VIRUS-LIKE PARTICLES	RNA	DNA
Purified viral antigens	Surface polysaccharide antigens, primarily from bacterial pathogens	Chemically inactivated toxins from pathogen	Particles that contain virus surface proteins that can elicit an immune response, but lack viral genetic material (so cannot replicate)	RNA injected directly into muscle tissue and translated into specific pathogen protein antigens by host cellular machinery.	Plasmid containing pathogen DNA that encodes for specific antigens, injected directly into cellular tissue.
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No chance of infection by pathogen	No chance of infection by pathogen	Raise direct immune response to pathogenic component	Easy access into cells	Directs the expression of viral antigens without threat of viral infection or need for integration into host DNA	Directs the expression of viral antigens without threat of viral infection
Requires efficient delivery mechanism that protects against degradation	May require an adjuvant to stimulate complete immune response	May require an adjuvant to stimulate complete immune response	May be suppressed by existing host immune response	Difficult delivery into cells	Difficult delivery into cells

Vaccine Preventable Diseases – Recognize Vaccine Development

Source: <https://asm.org/resource-pages/vaccine-resources>

Viral Vectors

- **Toxoid**
 - Chemically inactivated toxin
 - Example: Diphtheria; Tetanus
 - Pros: Safe; direct target
 - Cons: Adjuvant/Boosters
- **Virus-like Particles**
 - Virus surface proteins
 - Example: HPV; Hep B
 - Pros: Easy cell access
 - Cons: Cost; complex production

SUBUNIT VACCINES				VIRAL VECTORS	
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No chance of infection by pathogen	No chance of infection by pathogen	Raise direct immune response to pathogenic component	Easy access into cells	Expression of antigens without viral infection	Directs the expression of viral antigens without threat of viral infection
Requires efficient delivery mechanism that protects against degradation	May require an adjuvant to stimulate complete immune response	May require an adjuvant to stimulate complete immune response	May be suppressed by existing host immune response	Delivery	Difficult delivery into cells

Vaccine Preventable Diseases – Recognize Vaccine Development

Source: <https://asm.org/resource-pages/vaccine-resources>

Viral Vectors

• RNA

- Injected mRNA translated to pathogen antigens
- Example: COVID-19
- Pros: Direct viral antigen suppression without infection
- Cons: Difficult cell delivery; storage; new technology

• DNA

- Plasmid containing pathogen DNA injected → antigens
- Example: COVID-19
- Pros: Direct viral antigen expression without viral infection
- Cons: Difficult cell delivery; lower efficacy

NUCLEIC ACIDS



RNA

mRNA injected directly into muscle tissue and translated into specific pathogen protein antigens by host cellular machinery.

DNA

Plasmid containing pathogen DNA that encodes for specific antigens, injected directly into cellular tissue.

Candidate Zika vaccine

Candidate vaccines for SARS, Bird flu (H5N1, H1N1), Zika

Directs the expression of viral antigens without threat of viral infection or need for integration into host DNA

Directs the expression of viral antigens without threat of viral infection

Difficult delivery into cells

Difficult delivery into cells

Vaccine Preventable Diseases – Recognize Core Vaccine-Preventable Diseases

Disease	Pathogen	Target Audience
Measles	Measles virus	Infants, children, travelers
Mumps	Mumps virus	Children, adolescents
Rubella	Rubella virus	Children, women of childbearing age
Diphtheria	<i>Corynebacterium diphtheriae</i>	Children, adults
Tetanus	<i>Clostridium tetani</i>	All age groups
Pertussis (Whooping Cough)	<i>Bordetella pertussis</i>	Infants, children, pregnant women
Polio	Poliovirus	Children, travelers
Hepatitis B	Hepatitis B virus	Infants, healthcare workers, adults
Hepatitis A	Hepatitis A virus	Children, travelers, food handlers

Vaccine Preventable Diseases – Recognize Core Vaccine-Preventable Diseases

Disease	Pathogen	Target Audience
HPV (Human Papillomavirus)	Human papillomavirus	Adolescents, young adults
Influenza	Influenza virus	All age groups, especially elderly
Pneumococcal Disease	<i>Streptococcus pneumoniae</i>	Infants, elderly, immunocompromised
Meningococcal Disease	<i>Neisseria meningitidis</i>	Adolescents, college students
Varicella (Chickenpox)	Varicella-zoster virus	Children, non-immune adults
Herpes Zoster (Shingles)	Reactivated varicella-zoster virus	Adults ≥50 years
Rotavirus	Rotavirus	Infants and young children
COVID-19	SARS-CoV-2	All age groups

Vaccine Preventable Diseases – Recognize Non-Routine Vaccine-Preventable Diseases

Pathogen	Target Audience
Adenovirus	Military personnel (live vaccine used in barracks settings)
Anthrax	Military, lab workers, and individuals at occupational risk
Chikungunya	Travelers to endemic areas (e.g., Caribbean, Africa, Asia)
Cholera	Travelers to areas with active cholera transmission
Ebola	Lab workers, healthcare responders in outbreak zones
Japanese Encephalitis (JE)	Travelers to rural Asia and Western Pacific regions for ≥ 1 month
Mpox (Monkeypox)	Individuals at risk (e.g., lab workers, MSM, outbreak exposure)

Vaccine Preventable Diseases – Recognize Non-Routine Vaccine-Preventable Diseases

Pathogen	Target Audience
Rabies	Travelers, veterinarians, animal handlers, post-exposure prophylaxis
Smallpox	Lab workers handling orthopoxviruses, military, outbreak response
Tick-borne Encephalitis (TBE)	Travelers to endemic areas in Europe and Asia engaging in outdoor activities
Tuberculosis (TB)	Not routinely used in U.S.; given in countries with high TB prevalence, especially for infants
Typhoid Fever	Travelers to South Asia, Africa, Latin America, and areas with poor sanitation
Yellow Fever	Required for travel to certain countries in Africa and South America; proof often needed

Vaccine Preventable Diseases – Recognize Question

An immunocompetent patient presents with malaise of 3 days and is now presenting with a descending rash (pictured). For what period are they contagious?

- A. Seven days prior to rash; seven days after rash**
- B. Four days prior to rash; four days after rash**
- C. One day prior to rash; seven days after rash**
- D. One day after rash; seven days after rash**



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Vaccine Preventable Diseases – Recognize Measles

Measles

IT ISN'T JUST A LITTLE RASH



Measles can be dangerous, especially for babies and young children.

MEASLES SYMPTOMS TYPICALLY INCLUDE

- High fever (may spike to more than 104° F)
- Cough
- Runny nose
- Red, watery eyes
- Rash breaks out 3-5 days after symptoms begin



Measles Can Be Serious



About 1 out of 4 people who get measles will be hospitalized.



1 out of every 1,000 people with measles will develop brain swelling due to infection (encephalitis), which may lead to brain damage.



1 or 2 out of 1,000 people with measles will die, even with the best care.

You have the power to protect your child.



Provide your children with **safe** and **long-lasting protection** against measles by making sure they get the **measles-mumps-rubella (MMR) vaccine** according to CDC's recommended immunization schedule.

WWW.CDC.GOV/MEASLES



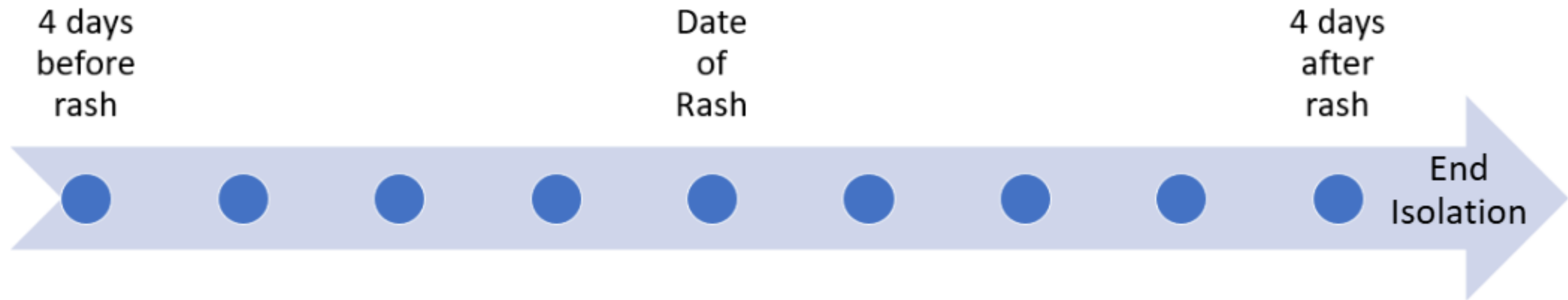
American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™



AMERICAN ACADEMY OF FAMILY PHYSICIANS
STRONG MEDICINE FOR AMERICA

Symptoms

Vaccine Preventable Diseases – Recognize Measles



*****Immunocompromised patients with measles should remain in Airborne + Standard precautions for the duration of illness due to prolonged virus shedding in these individuals**

Contagiousness

Vaccine Preventable Diseases – Interpret Overview

What are Key Strategies for staying updated on vaccine preventable diseases?

- Surveillance tools
- Trends
- Mapping
- Policy
- Collaboration


Vaccine Preventable Diseases – Interpret Surveillance Tools

West Virginia Specific:

- **West Virginia Electronic Disease Surveillance System (WVEDSS)**
- **WV Vaccine-Preventable Disease Tables**
- **WV Immunization Information System (WVSIIS)**
- **Breathe easy West Virginia**

Vaccine Preventable Diseases – Interpret Surveillance Tools

WV.gov State Agency Directory | Online Services



Office of Epidemiology
& Prevention Services

A to Z Immunizations How Do I...? About Us Data and Reports

WVEDSS

OEPS > WVEDSS

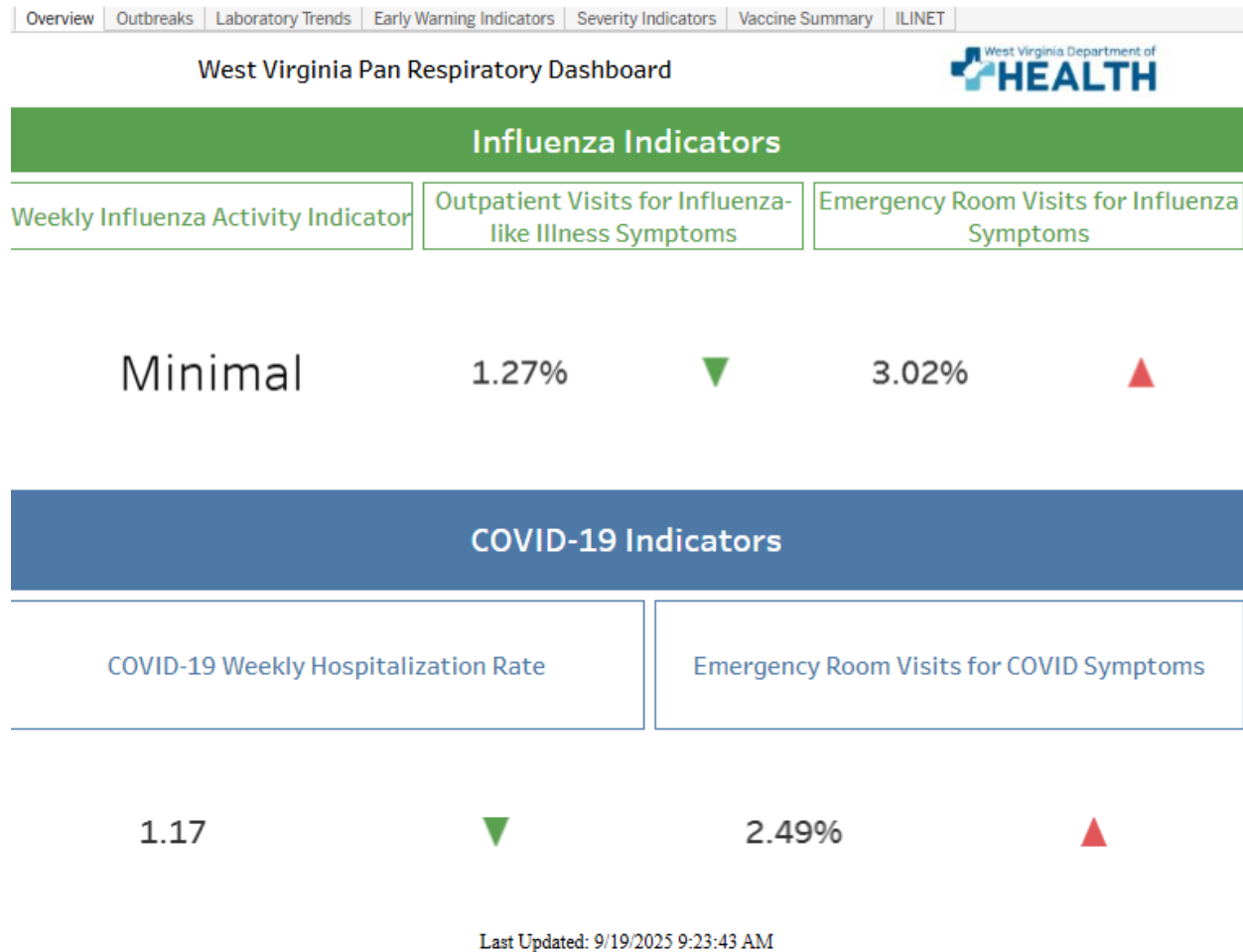
WEST VIRGINIA ELECTRONIC DISEASE SURVEILLANCE SYSTEM (WVEDSS)

QUICK LINKS

- ABOUT
- CURRENT USERS
- NEW USERS
- DATA AND SURVEILLANCE

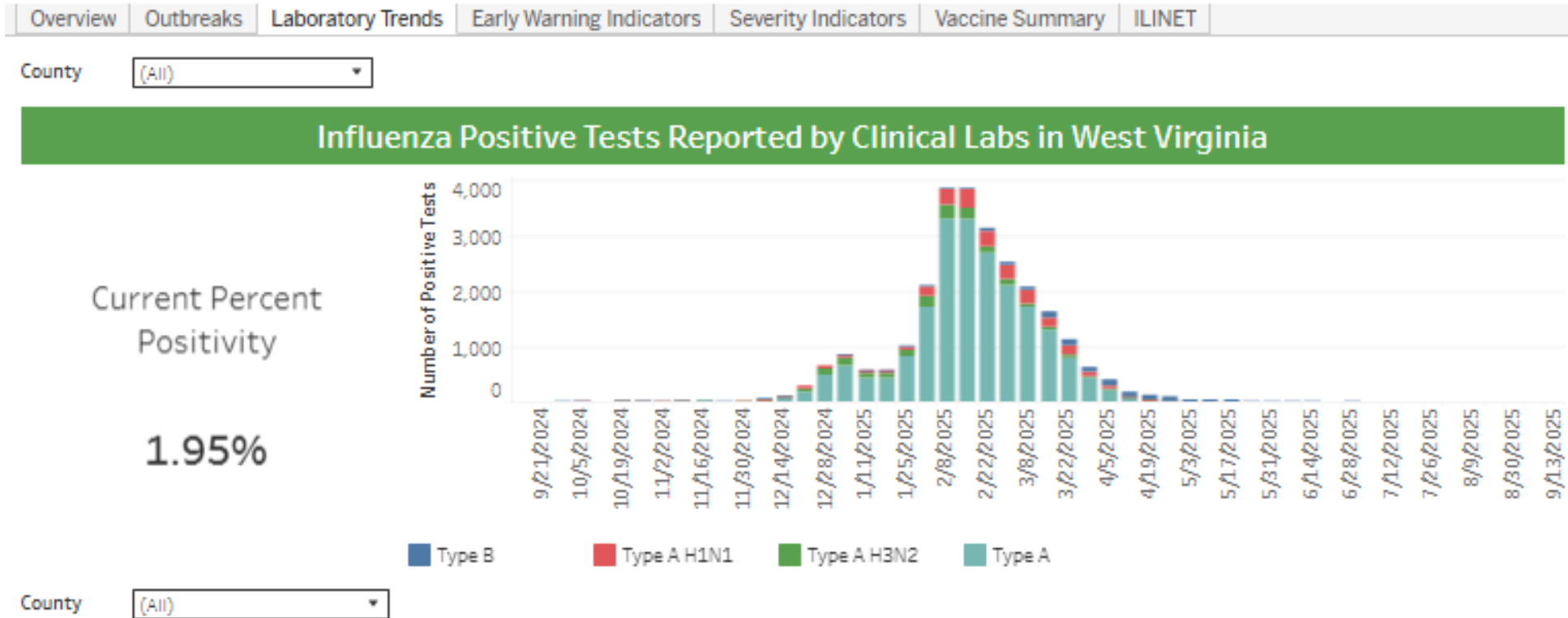
West Virginia Electronic Disease Surveillance System (WVEDSS) website

Vaccine Preventable Diseases – Interpret Surveillance Tools



Breathe Easy WV Dashboard

Vaccine Preventable Diseases – Interpret Surveillance Tools



Breathe Easy WV Dashboard

Vaccine Preventable Diseases – Interpret Surveillance Tools

The screenshot shows the homepage of the West Virginia Statewide Immunization Information System (WVSIS) web application. At the top left is the State of West Virginia seal. The date "September 24, 2025" is displayed in the top right. The main heading reads "Welcome to the West Virginia Statewide Immunization Information System (WVSIS) Web Application". A navigation menu on the left includes links for Main, Patient, Vaccinations, Scheduled Reports, Job Queue, Change Password, FAQs, and Answers. A central banner advertises "WeVax LMS Training". Below this, a "Useful Tools" section lists links to a Meaningful Use Guide, HL7 Guide, enrollment form, provider agreement form, and medical exemption request form. A "Valuable Links" section provides links to immunization information, county lookup, the American Immunization Registry Association, VIS statements, the CDC website, and the VAERS reporting portal. The bottom left features the IWeb logo, version 5.148.0, a help desk contact number (877-408-8930), and an email button. The STC|ONE logo is at the bottom center.

STATE OF WEST VIRGINIA
MONTANI SEMPER LIBERI

Date: September 24, 2025

Welcome to the West Virginia Statewide Immunization Information System (WVSIS) Web Application

This web application allows enrolled users to conveniently search for patients in the WVSIS Central Registry and to view the patients' vaccination record. In addition, authorized users can add and edit patient records and vaccination records, as well as maintain facility, physician, and lot number data.

Navigation Menu:

- Main
 - Home
 - Login
- Patient
- Vaccinations
- Scheduled Reports
- Job Queue
- Change Password
- FAQs
- Answers

WeVax LMS Training

Useful Tools

- [West Virginia Meaningful Use Guide](#)
- [West Virginia HL7 Guide](#)
- [New User enrollment form](#)
- [Provider Agreement Form](#)
- [New Approved Medical Exemption Request Form](#)

Valuable Links

- [West Virginia Immunization information](#)
- Lookup county [by zip](#).
- Visit the [American Immunization Registry Association](#) homepage.
- Get the latest VIS statements from the [Immunization Action Coalition](#) homepage.
- For the latest Immunization Schedule and more visit the [CDC](#) website.
- Vaccine [VAERS reporting portal](#)

IWeb
Version: 5.148.0
Help Desk
877-408-8930
[E-Mail](#)

STC|ONE

West Virginia Statewide Immunization Information System (WVSIS)

Vaccine Preventable Diseases – Interpret Surveillance Tools

Regional/National/Global:

- **CDC Surveillance Systems:**

- **National Notifiable Diseases Surveillance System (NNDSS)**
- **VaxView**
- **Manual for Surveillance of Vaccine-Preventable Diseases**

- **WHO**

- **Dashboards**
- **Surveillance Strategies**

Vaccine Preventable Diseases – Interpret Trend Analysis

- **Disease incidence trends**
- **Impact of vaccine mandates**
- **Outbreak detection**

Vaccine Preventable Diseases – Interpret Trend Analysis

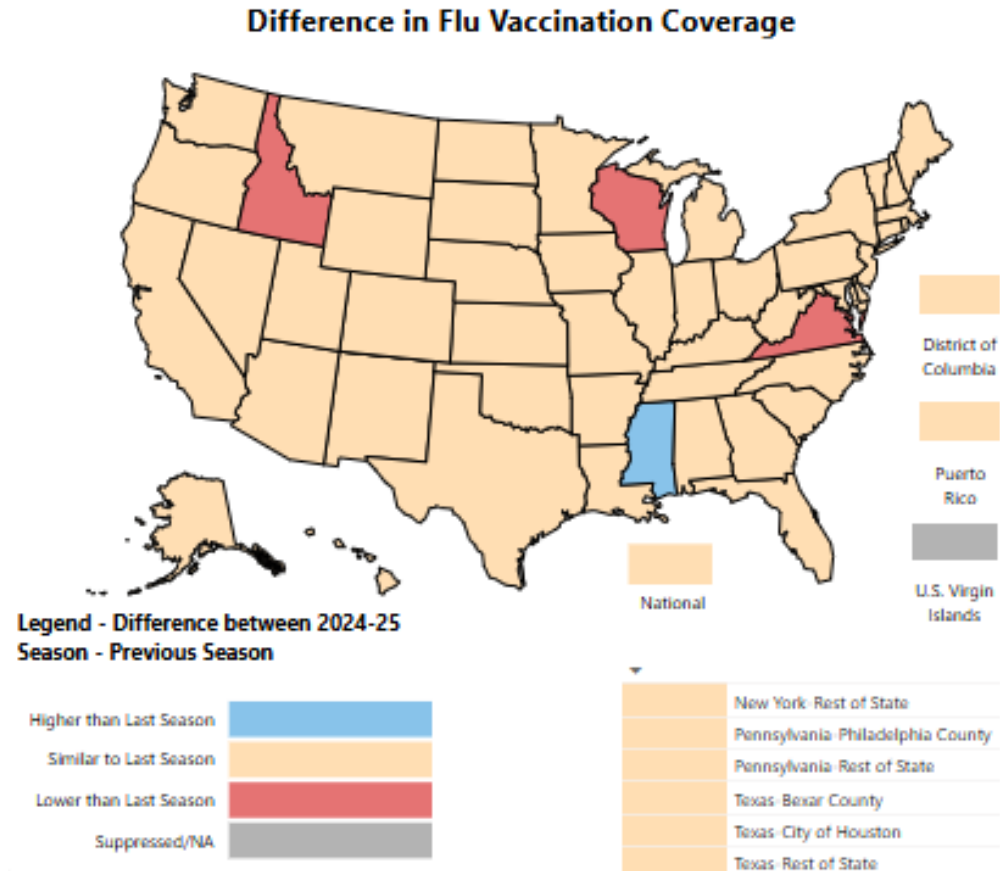
Acute Hepatitis B	
Year	Number of Reported Cases
2008	83
2009	84
2010	88
2011	113
2012	141
2013	195
2014	186
2015	272
2016	268
2017	212
2018	132
2019	76
2020	56
2021	56

WV Vaccine-Preventable Disease tables

Vaccine Preventable Diseases – Interpret Geographic Mapping

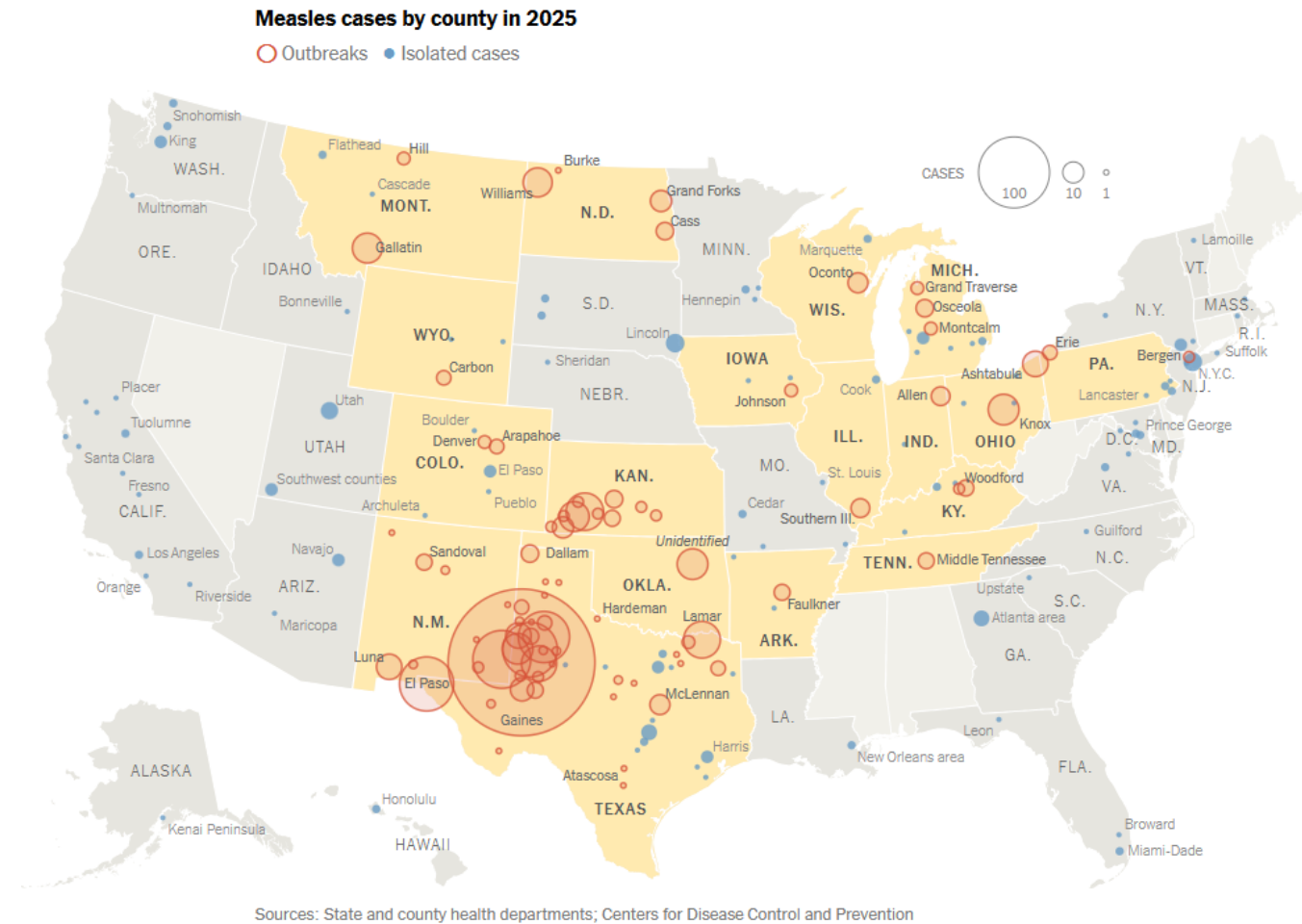
- **Visualize county, regional, or state disparities**
- **Locate hotspots for under vaccination or disease resurgence**

Vaccine Preventable Diseases – Interpret Geographic Mapping



FluVaxView

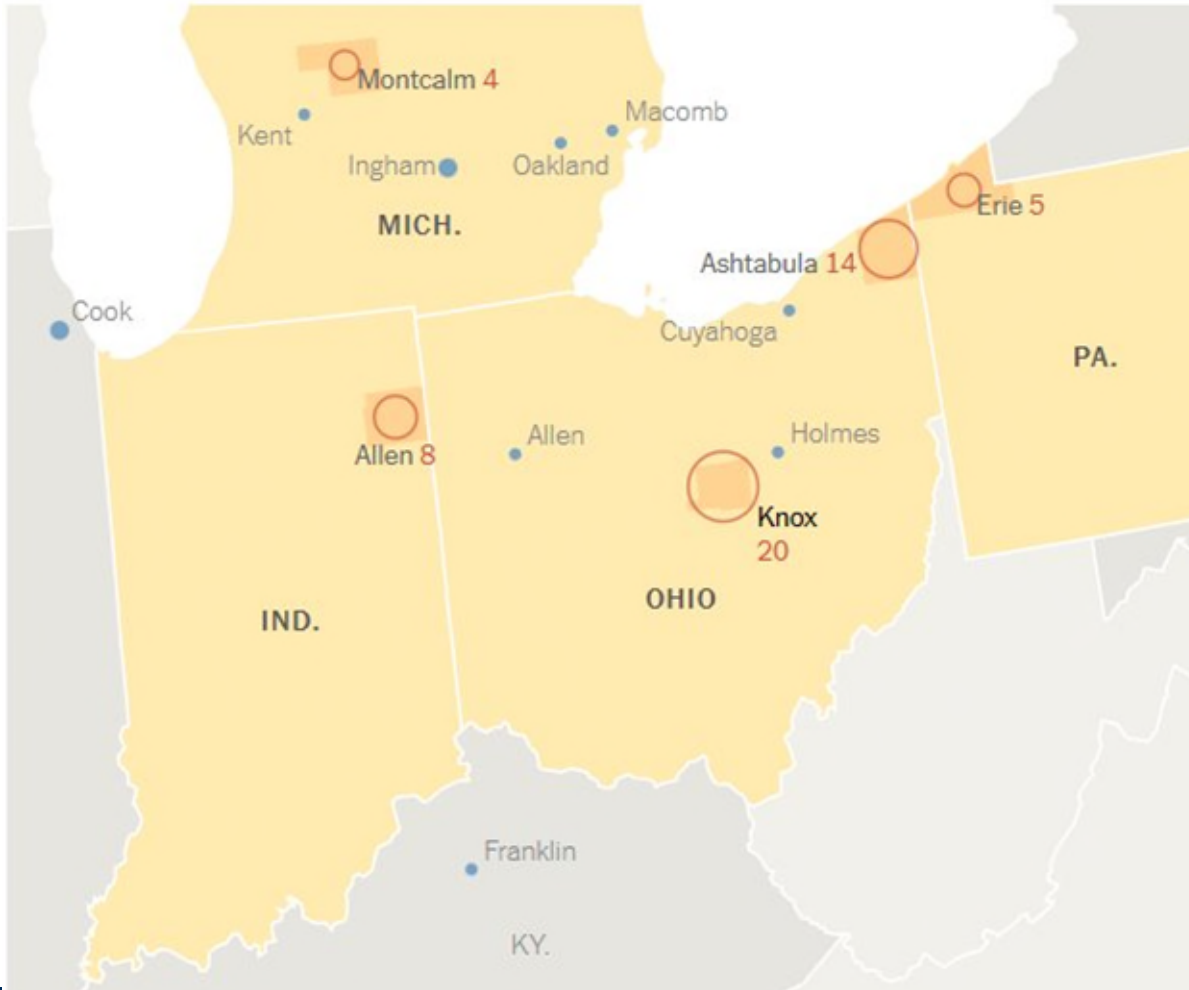
Vaccine Preventable Diseases – Interpret Measles



Source:
CDC
New York Times
Updated as of 8/9/25

Contagiousness

Vaccine Preventable Diseases – Interpret Measles

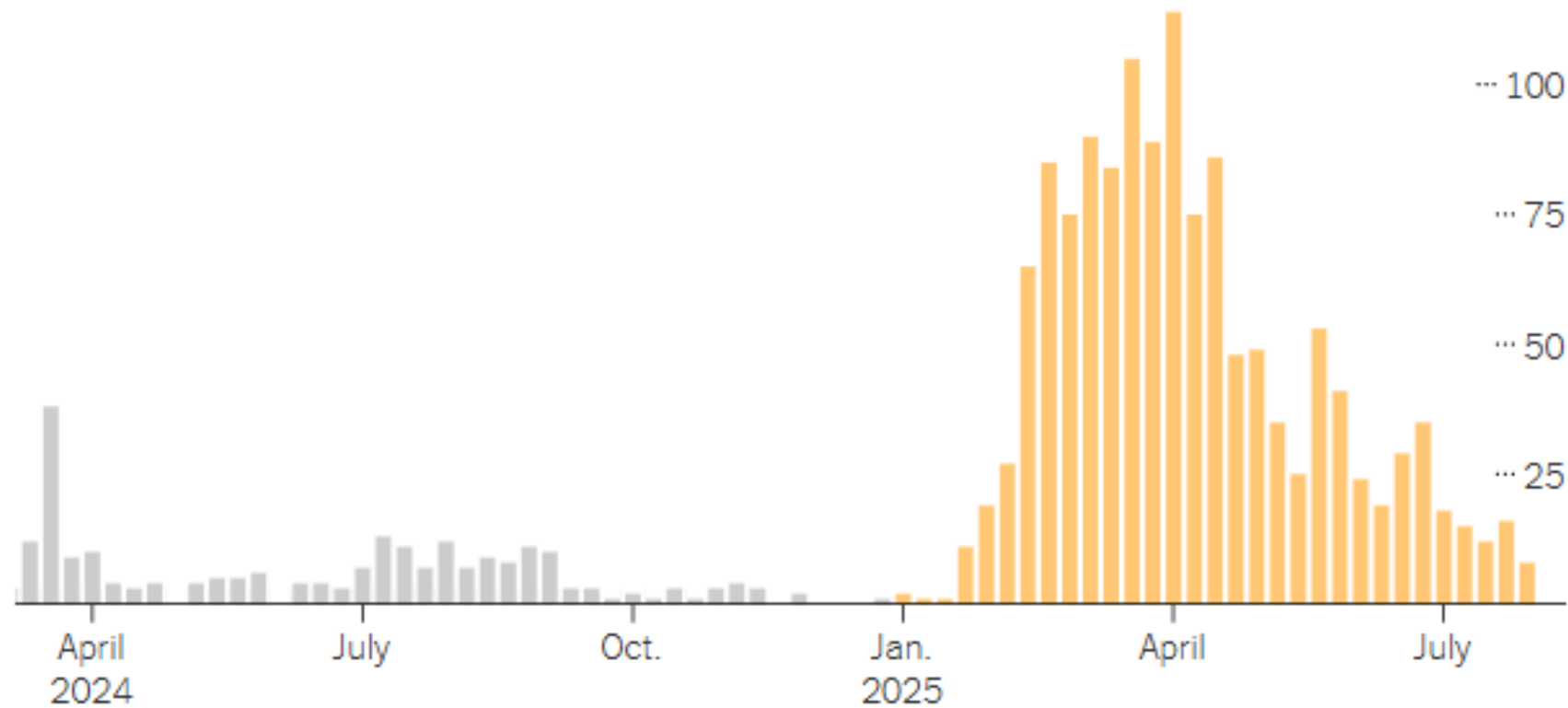


Source:
CDC
New York Times
Updated as of 6/2/25

Contagiousness

Vaccine Preventable Diseases – Interpret Measles

New measles cases by week



Source:
CDC
New York Times
Updated as of 8/9/25

Source: C.D.C. confirmed cases through Aug. 5

Contagiousness

Vaccine Preventable Diseases – Interpret Policy

- **Current Vaccine Mandate Law (State Code §16-3-4)** West Virginia law requires all children entering school or state-regulated childcare to be immunized against:
 - **Chickenpox (varicella)**
 - **Hepatitis B**
 - **Measles, mumps, rubella (MMR)**
 - **Meningitis**
 - **Diphtheria, tetanus, pertussis (DTaP/Tdap)**
 - **Polio**

Vaccine Preventable Diseases – Interpret Policy

- **Governor's Executive Order (1/2025) directed the West Virginia Department of Health to begin accepting religious and philosophical exemptions to school vaccine mandates.**
 - **Based on the Equal Protection for Religion Act (EPRA) passed in 2023**
- **West Virginia Board of Education (BOE) has voted to enforce state law regarding vaccination requirements for students.**
- **Multiple lawsuits in play**

Vaccine Preventable Diseases – Interpret Collaboration

Local Health Departments

Community engagement



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West Virginia Immunization Network

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About West Virginia Immunization Network



Vaccine Preventable Diseases – Integrate Overview

What are Key Points for considering revaccination of adults on vaccine preventable diseases?

- Identifying gaps
- Implement standards
- Address vaccine hesitancy and misinformation

Vaccine Preventable Diseases – Integrate Vaccines Requiring Routine Boosters

Pathogen	Frequency	Why
Influenza	Every year	New strains emerge annually
COVID-19	Annually or as updated	Protection wanes and variants evolve
Pneumococcal Disease	Varies (age and health status)	Protection wanes, distinct vaccines,
Tetanus, Diphtheria, Pertussis	Every 10 years	Protection wanes; public health threat
Meningococcal Disease	Every 5 years for high-risk groups	Protection wanes; needed if ongoing risk

Vaccine Preventable Disease – Integrate Question

A 42-year-old man presents to the emergency department with fever, malaise, and rapidly progressive cellulitis of the lower extremity following a minor dog bite. PMH significant for abdominal trauma 10 years prior. Blood cultures note a gram-negative bacillus. He is stabilized and treated with appropriate antibiotics. What vaccines should be considered?

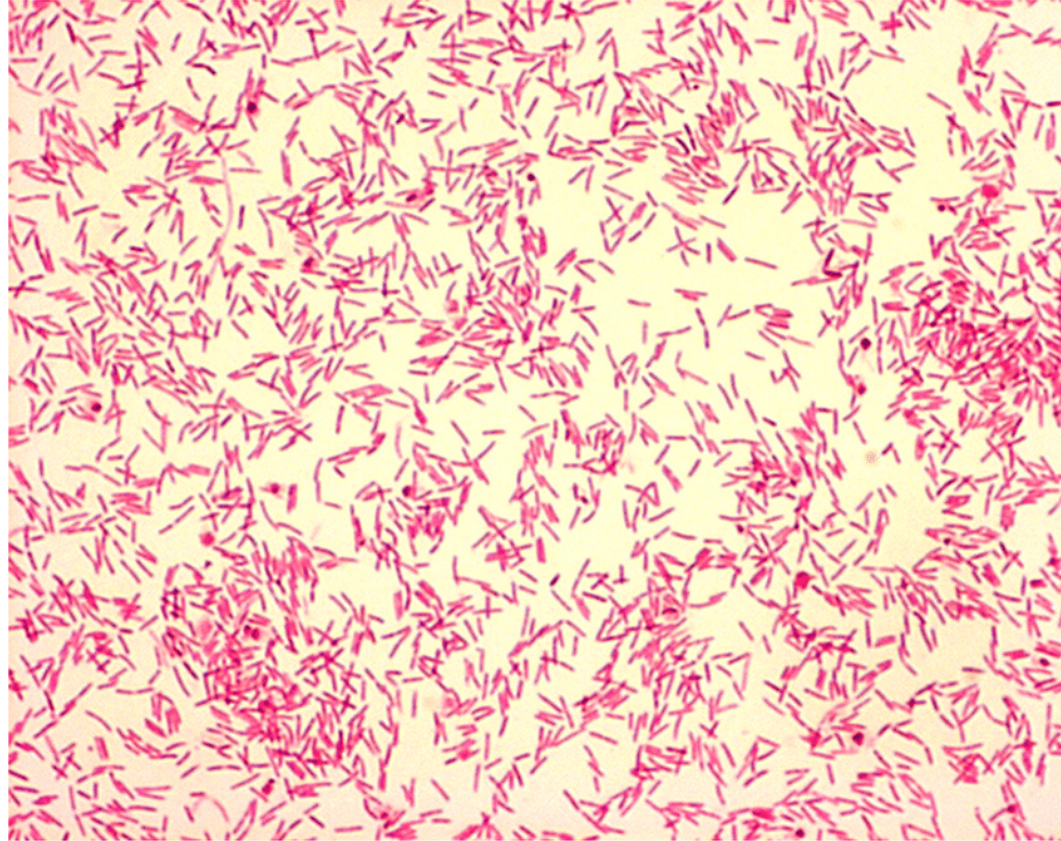
- A. *Streptococcus pneumoniae*, *Haemophilus influenzae* type b, and *Neisseria meningitidis* serogroups A, C, W, Y, and B
- B. *Streptococcus pneumoniae*, *Haemophilus influenzae* type b, *Neisseria gonorrhoeae*, and influenza virus
- C. *Listeria monocytogenes* and *Bordetella pertussis*
- D. *Capnocytophaga canimorsus* and *Clostridium tetani*

Vaccine Preventable Disease – Integrate Question

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- B. *Streptococcus pneumoniae*, *Haemophilus influenzae* type b, *Neisseria gonorrhoeae*, and influenza virus**
- C. *Listeria monocytogenes* and *Bordetella pertussis***
- D. *Capnocytophaga canimorsus* and *Clostridium tetani***

Vaccine Preventable Disease – Integrate Question



Capnocytophaga canimorsus Gram stain image

Vaccine Preventable Disease – Integrate Question

- ***Capnocytophaga*:**
 - Gram negative bacillus found in oropharyngeal tract of dogs
 - Not vaccine-preventable
 - Highlights the vulnerability of asplenic patients to severe infections.
- Asplenic patients are at high risk for infections from encapsulated organisms, especially:
 - *Streptococcus pneumoniae* → Pneumococcal vaccines
 - *Haemophilus influenzae* type b → Hib vaccine
 - *Neisseria meningitidis* → MenACWY and MenB vaccines

Vaccine Preventable Disease – Integrate Identify Gaps and Implement Standards

- **Routine assessments with incorporation of CDC and National Advisory Committee recommendations**
- **Utilize data sources**
- **Leverage EMR**

Vaccine Preventable Disease – Integrate Question

A 32-year-old pregnant patient presents at 30 weeks gestation for routine prenatal care. She reports receiving a Tdap booster 8 years ago. She has no contraindications to pertussis-containing vaccines. Which of the following is the most appropriate immunization strategy for this patient during her current pregnancy?

- A. Administer Td now and Tdap postpartum
- B. Administer Tdap now**
- C. Administer Td now and repeat Tdap at 36 weeks gestation
- D. Administer Tdap only if she develops a wound requiring tetanus prophylaxis.

Vaccine Preventable Disease – Integrate Question

- **Tdap is recommended during each pregnancy, regardless of prior Tdap**
 - **Td only used if contraindication to pertussis-containing vaccines**
- **Ideally between 27–36 weeks gestation**
 - **Preference for the earlier part of that window**
 - **Maximize maternal antibody production and passive transfer to the newborn**
- **Postpartum Tdap is only recommended if the patient did not receive Tdap during pregnancy and has never received it before**

Vaccine Preventable Disease – Integrate Educate

- <https://epiengage-measles.tacc.utexas.edu/>
- <https://cdcposit.cdc.gov/measles-simulator/>
- <https://fred.publichealth.pitt.edu/measles>
- <https://www.immunize.org/>

Vaccine Preventable Disease – Integrate Educate

Model Inputs

School enrollment

Students initially infected

Vaccination rate (%)

Enter value or select from Lookup.

OR

School/District Lookup ▾

ISD rates are district averages.

Rates at individual schools may be higher or lower.

School enrollment doesn't change automatically.

Please update the value manually.

Select State

Select County

Select School/District

School Outbreak Projections

Projections assume no interventions and do not account for infections among non-students in the surrounding community. Active measles control measures could lead to substantially smaller and shorter outbreaks than these projections suggest.

Chance of exceeding 10 new infections

89%

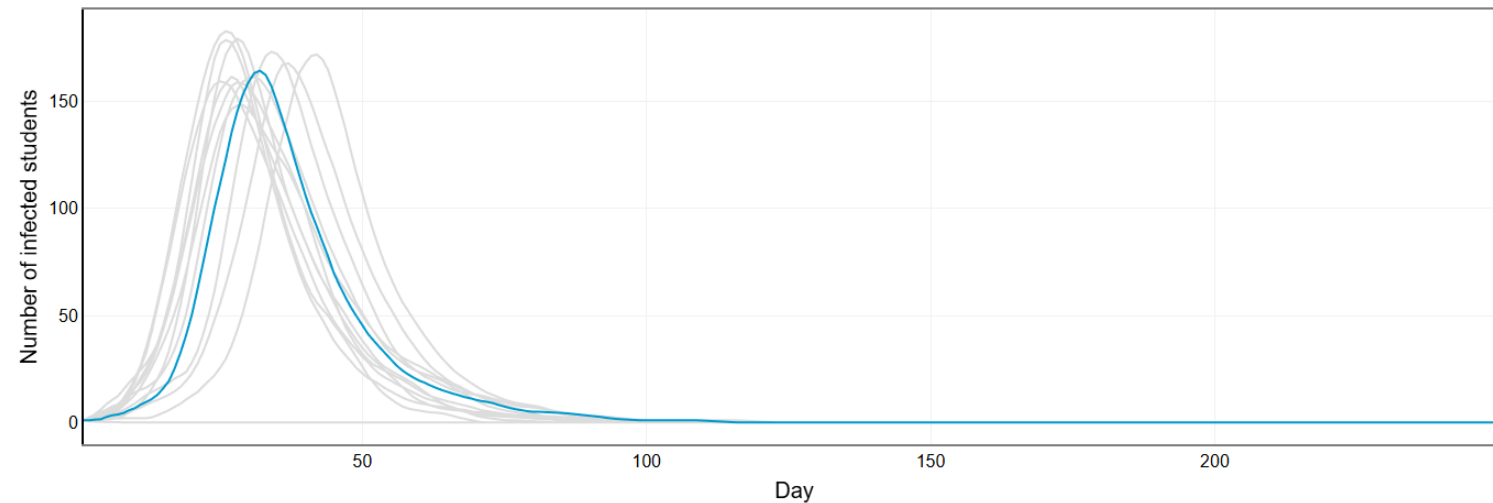
Likely outbreak size

if exceeds 10 new infections

Unvaccinated cases: 269 - 270

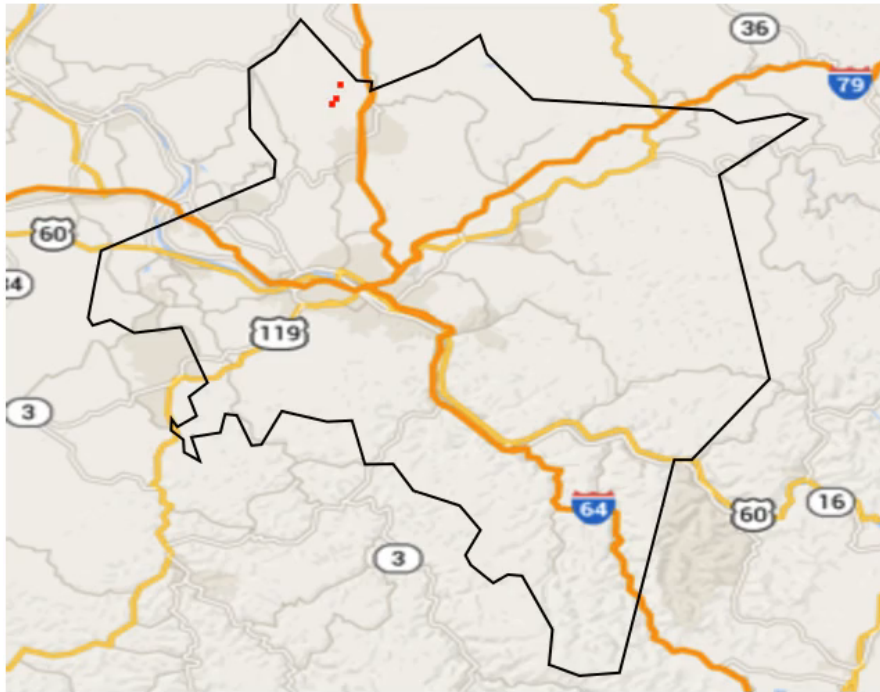
Vaccinated cases: 2 - 11

This graph shows 20 plausible school outbreak curves.



Vaccine Preventable Disease – Integrate Educate

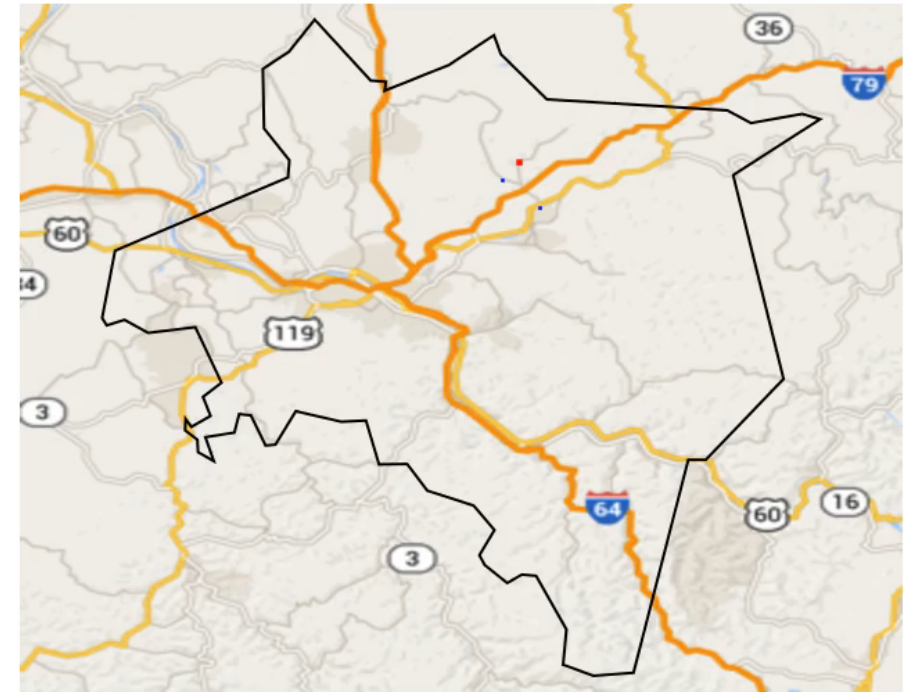
Measles in Kanawha County, WV
Coverage = 80%
Day 30



Red Dot = Infectious Case

Blue Dot = Recovered Case

Measles in Kanawha County, WV
Coverage = 95%
Day 30



Red Dot = Infectious Case

Blue Dot = Recovered Case

<https://fred.publichealth.pitt.edu/measles>

Vaccine Preventable Disease - Integrate Educate

- Educational Tools
- Ask the Experts for FAQs
- Incorporate Visual Aids (visual library)
- IZ Express (weekly newsletter)
- Handouts and Infographics

Vaccination Anxiety



Immunize.org

Vaccine Preventable Diseases

References

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- <https://www.immunize.org/>

Vaccine Preventable Diseases

Thank You

Questions?

Vaccine Preventable Diseases Supplementary