When Measles Strikes:

Engaging Community Partners in Outbreak Response

Presented by:

Lynn Bahta, MPH, BSN, PHN &
Danni Pinnick, MPH
on behalf of **Molly Howell, MPH**

NDSU CENTER FOR IMMUNIZATION RESEARCH AND EDUCATION

MINNESOTA MEDICAL ASSOCIATION

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Disclosure

- Molly Howell, MPH, Danni Pinnick, MPH, and Lynn Bahta, MPH, BSN, PHN, have no relevant financial relationships with ineligible companies to disclose.

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Objectives:

1. Review the current measles landscape and its impact on communities.

2. Describe strategies to collaborate with affected communities to enhance outbreak response.

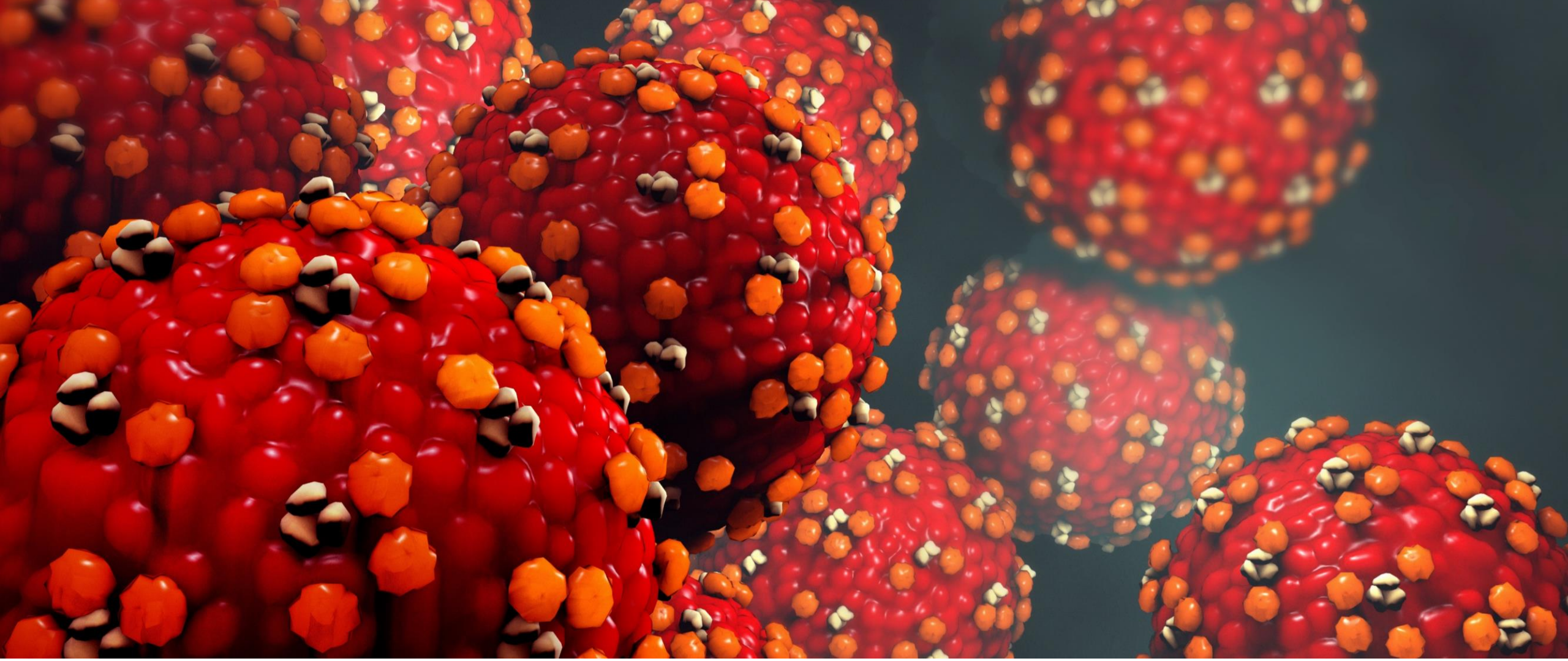
3. Recognize the role of trust and communication in promoting vaccination and containment efforts.

Meet our speaker:

Danni Pinnick, MPH

is the Immunization Surveillance Coordinator for the North Dakota Department of Health and Human Services (ND HHS) Immunization Unit.

Her job includes serving as a vaccine-preventable disease epidemiologist and subject matter expert, managing the perinatal hepatitis B prevention program, and assessing school and childcare vaccination coverage and compliance. She has served in this role for over three years and has been with ND HHS since 2020. She has worked in the public health field for ten years; prior to this, she worked with Prevent Child Abuse North Dakota and the North Dakota State University Department of Public Health. Danni lives in Fargo with her husband and two children.



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March 27, 2025

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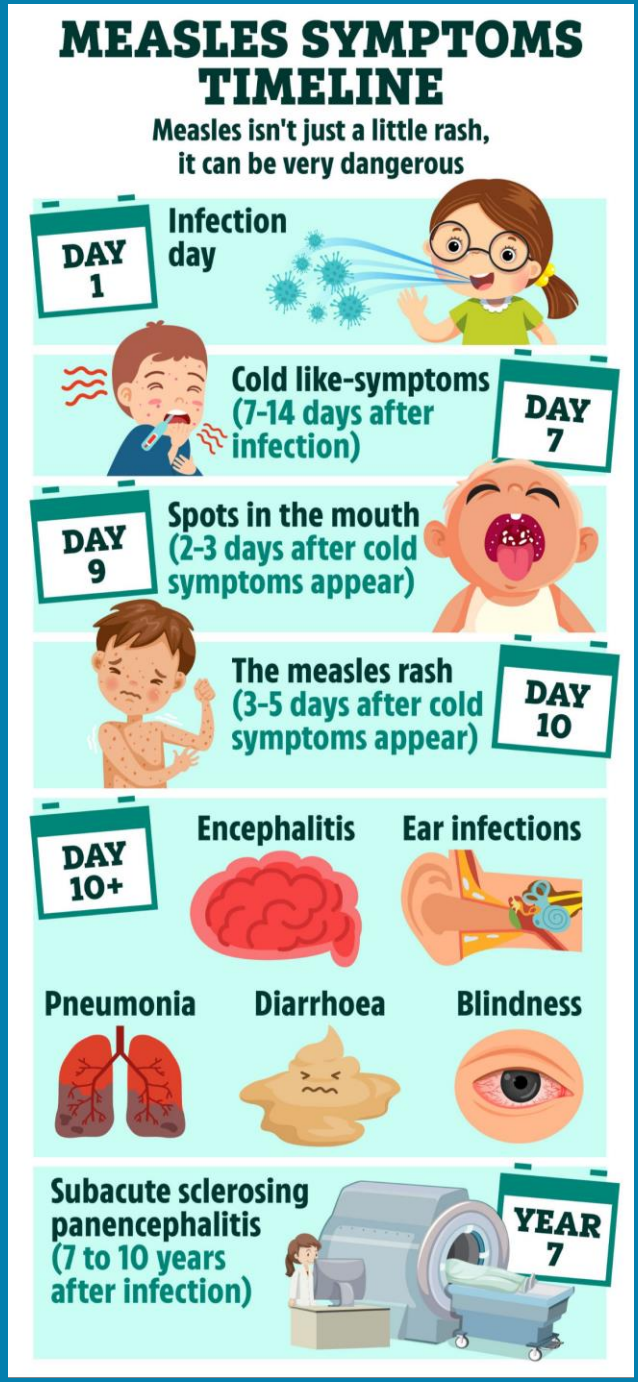
Signs and symptoms of Measles

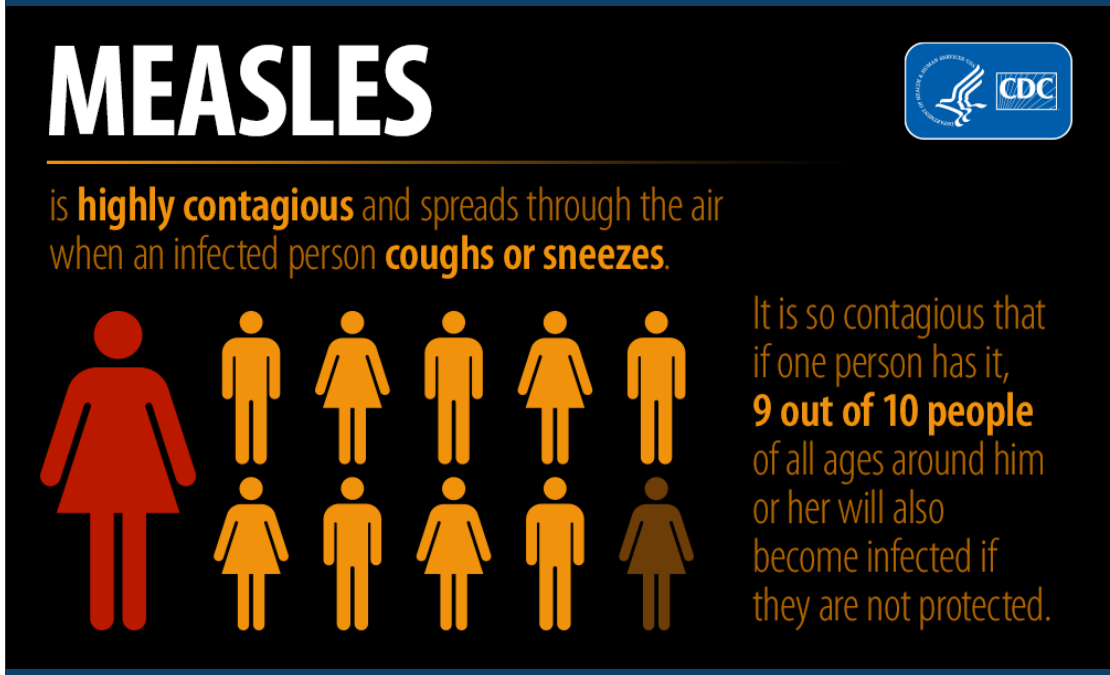
- The symptoms of measles generally appear about seven to 14 days after a person is infected.
- Measles typically begins with
  - high fever,
  - cough,
  - runny nose (coryza), and
  - red, watery eyes (conjunctivitis).
- Two or three days after symptoms begin, tiny white spots (Koplik spots) may appear inside the mouth.
- Three to five days after symptoms begin, a rash breaks out. It usually begins as flat red spots that appear on the face at the hairline and spread downward to the neck, trunk, arms, legs, and feet. Small raised bumps may also appear on top of the flat red spots. The spots may become joined together as they spread from the head to the rest of the body. When the rash appears, a person's fever may spike to more than 104° Fahrenheit.



Source: CDC

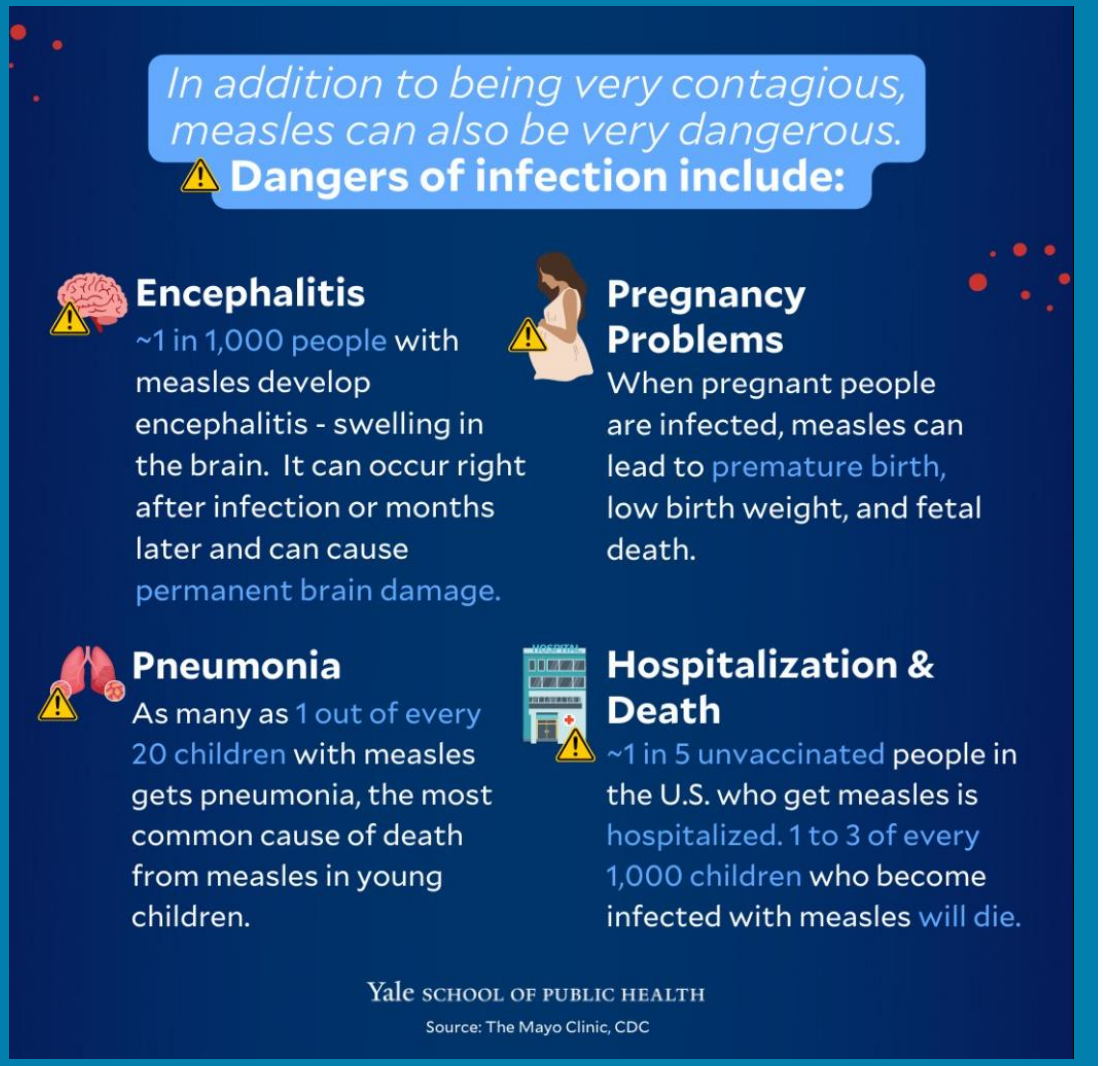
Transmission

- Measles is a highly contagious virus that lives in the nose and throat mucus of an infected person.
- It can spread to others through coughing and sneezing.
- Also, measles virus can live for up to **two hours** in an airspace where the infected person coughed or sneezed.
- If other people breathe the contaminated air or touch the infected surface, then touch their eyes, noses, or mouths, they can become infected.
- Measles is so contagious that if one person has it, up to **90%** of the people close to that person who are not immune will also become infected.
- Infected people can spread measles to others from four days before through four days after the rash appears.
- Measles is a disease of humans; measles virus is not spread by any other animal species.



Source: CDC

Complications



Source: Yale School of Public Health – Mayo and CDC

- Bronchitis, laryngitis, or croup
- Ear infections
- Immune amnesia: destroy immunological memory and increase vulnerability to other diseases you were previously immune to
- Subacute sclerosing panencephalitis (SSPE) is a rare, but fatal degenerative disease of the central nervous system characterized by behavioral and intellectual deterioration and seizures that generally develop 7 to 10 years after measles infection.
- People at high risk for severe illness and complications from measles include:
  - Infants and children aged <5 years
  - Adults aged >20 years
  - Pregnant women
  - People with compromised immune systems, such as from leukemia and HIV infection

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Treatment

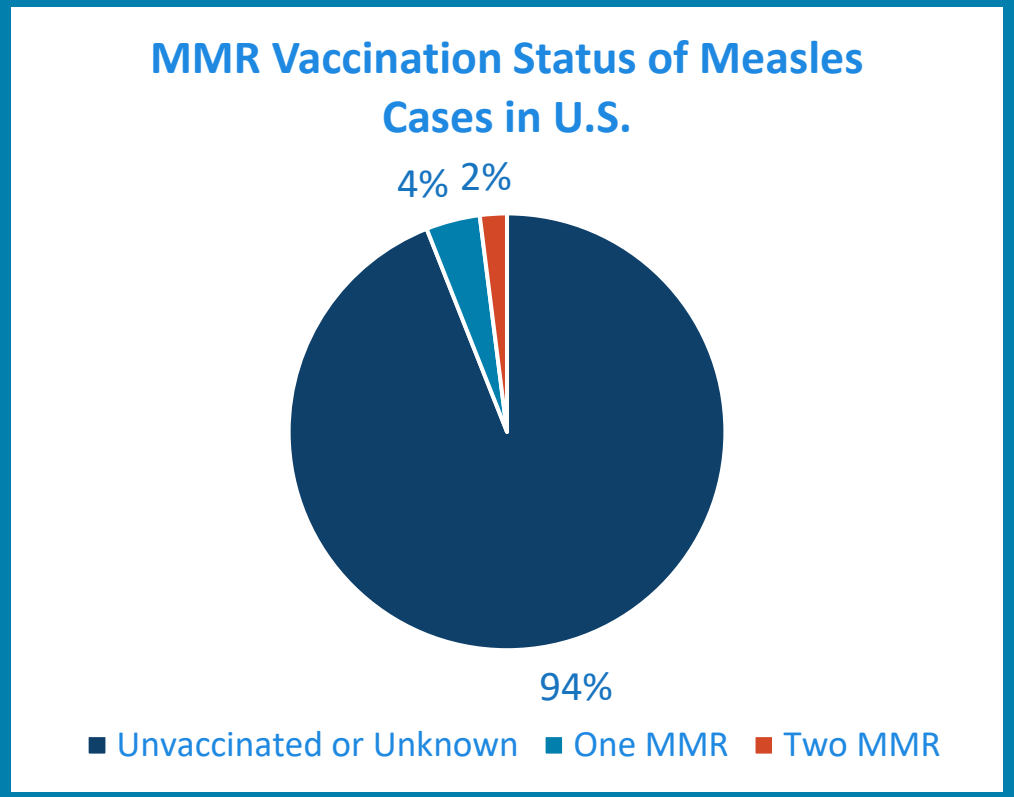
- There is no specific antiviral therapy for measles. Medical care is supportive and to help relieve symptoms and address complications such as bacterial infections.
- Severe measles cases among children, such as those who are hospitalized, should be treated with vitamin A. Vitamin A should be administered immediately on diagnosis and repeated the next day. The recommended age-specific daily doses are
  - 50,000 IU for infants younger than 6 months of age
  - 100,000 IU for infants 6–11 months of age
  - 200,000 IU for children 12 months of age and older
- Vitamin A is NOT a replacement for measles vaccination!

An undated image provided by the U.S. Centers for Disease Control and Prevention shows a child with a characteristic rash associated with measles.

Courtesy of the U.S. Centers for Disease Control and Prevention

Source: CDC

Measles in the United States



Source: CDC

- 2025 (as of 03/27/2025): 378 cases
  - Age Breakdown:
    - 33% under 5 years
    - 42% 5-19 years
    - 23% 20+ years
    - 2% unknown
  - Hospitalizations: 17% of cases hospitalized
  - Deaths:
    - Unvaccinated child in TX
      - confirmed
    - Unvaccinated adult in NM
      - under investigation

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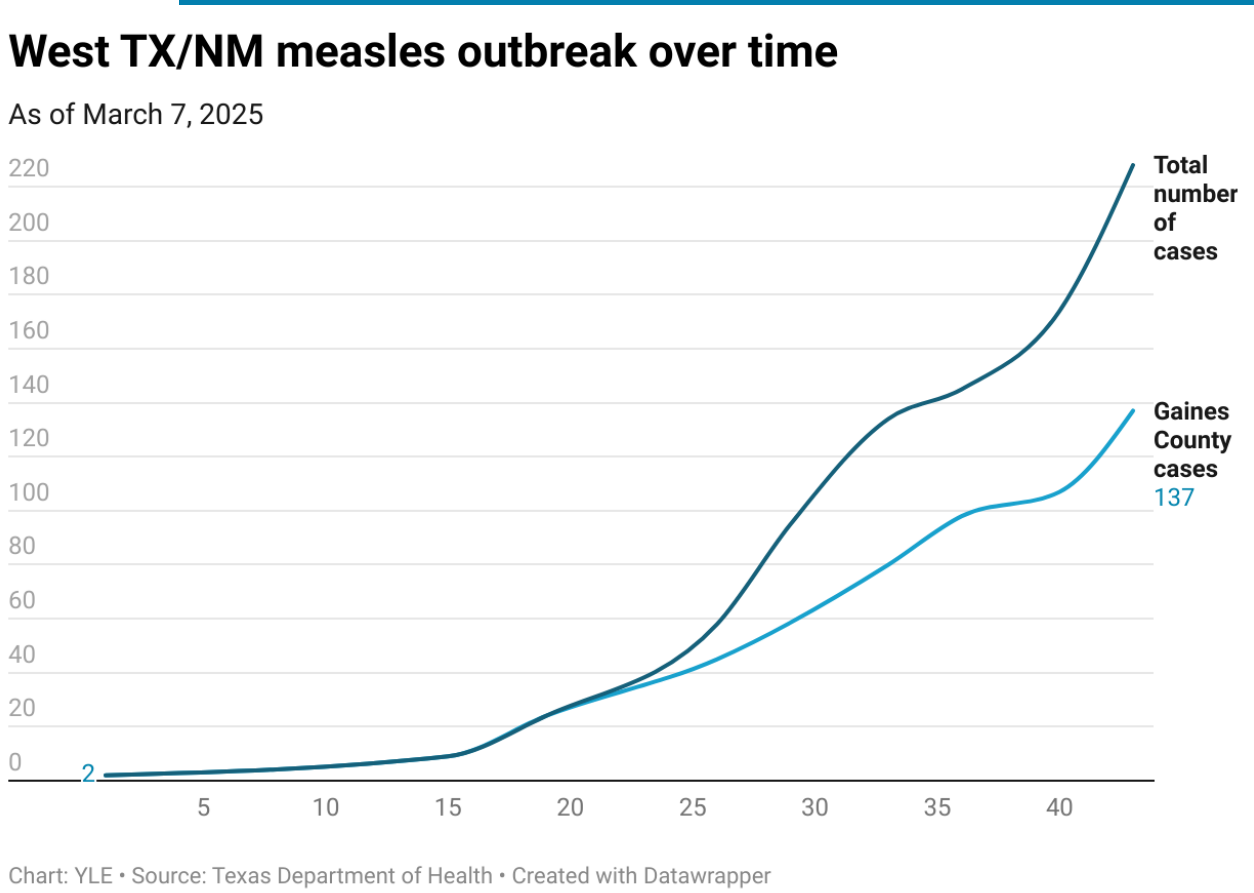
Measles in Texas and New Mexico

- At this time, 370 cases across 17 counties in TX and NM have been identified since late January.
  - Vast majority not vaccinated
  - Forty-two of the patients have been hospitalized.
  - Two deaths



Source: Your Local Epidemiologist

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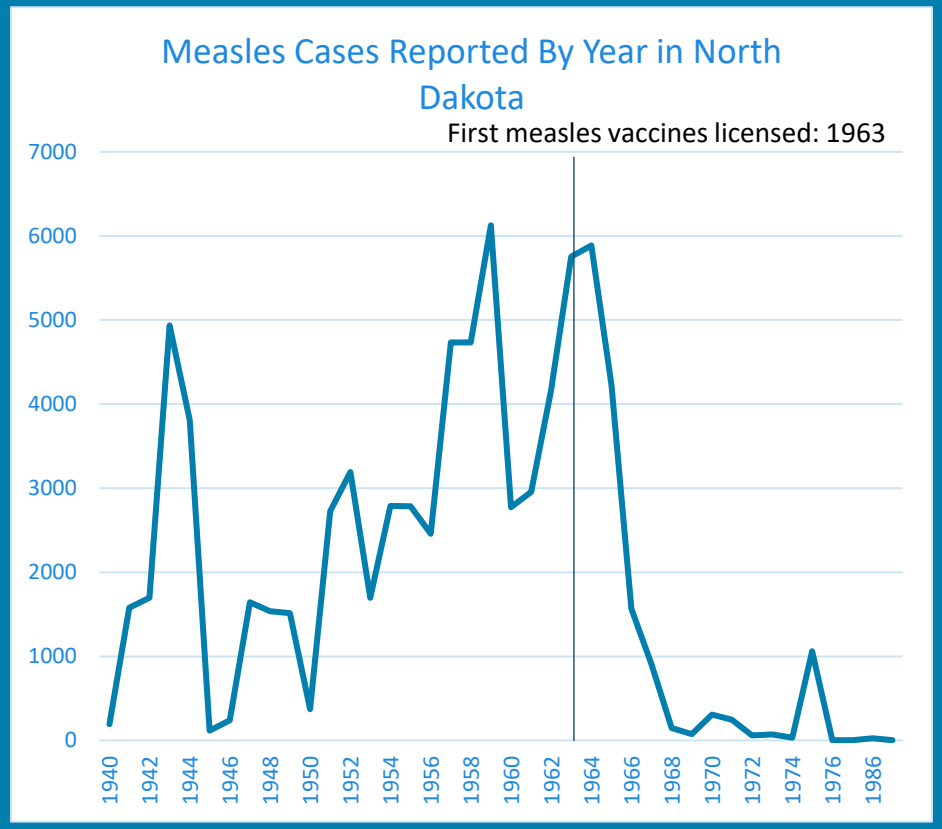
Epidemiology of Cases before Vaccine



Source: North Dakota Department of Health and Human Services and CDC

- In the decade before the live measles vaccine was licensed in 1963, an average of 549,000 measles cases and 495 measles deaths were reported annually in the United States.
- However, it is likely that, on average, 3 to 4 million people were infected with measles annually; most cases were not reported.
- Of the reported cases, approximately 48,000 people were hospitalized from measles and 1,000 people developed chronic disability from acute encephalitis caused by measles annually.

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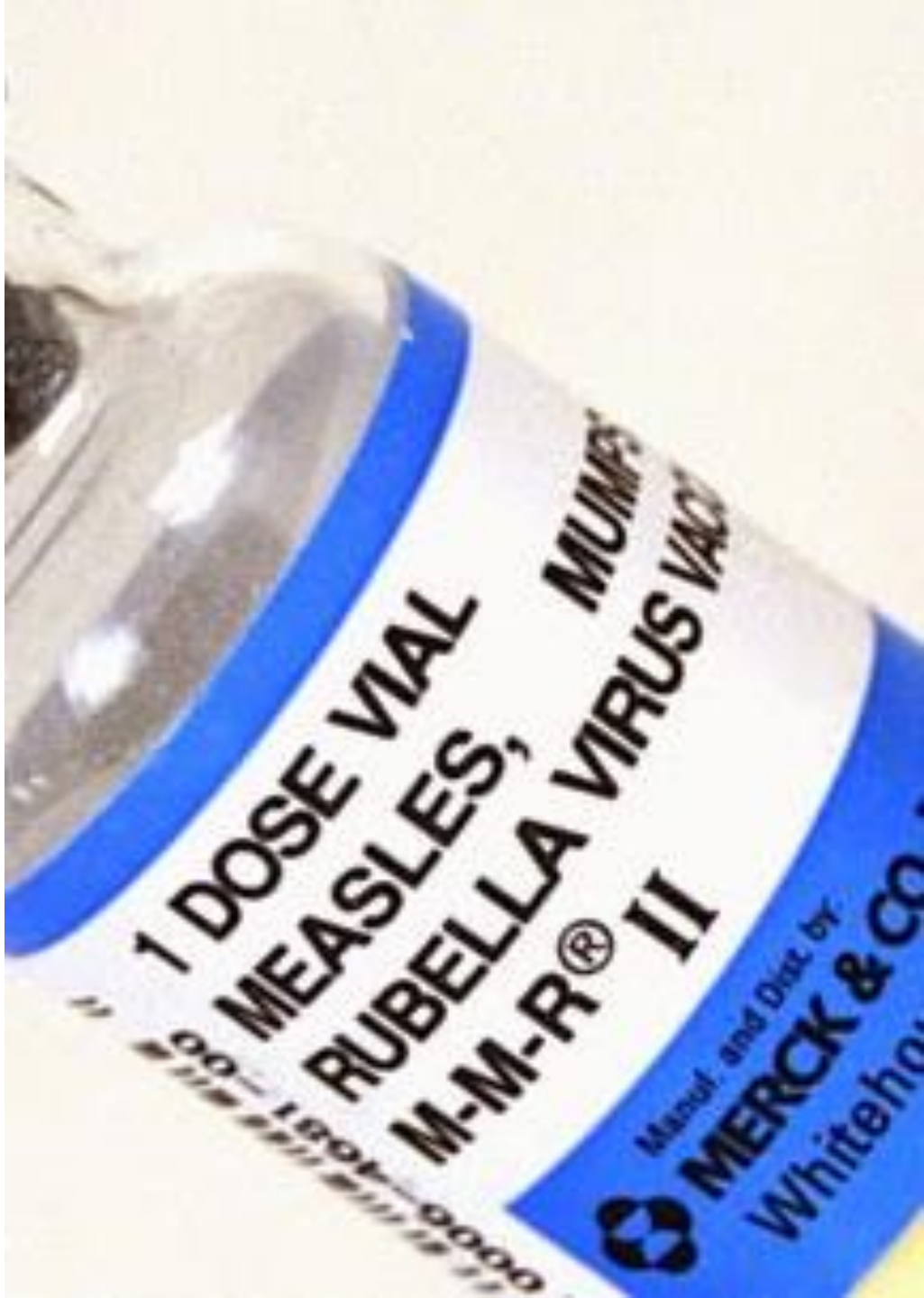
MMR Vaccine

- The MMR vaccine is very effective.
  - About **93** percent of people who receive one dose of vaccine will develop immunity to measles.
  - About **97** percent of people who receive two doses of vaccine will develop immunity to measles.



Source: CDC

MMR Routine Recommendations

- MMR (measles, mumps and rubella) vaccine is routinely recommended for children.
  - First dose should be given at 12 to 15 months.
  - Second dose should be given at four to six years.

Source: CDC

MMR Recommendations for Adults

- Adults born before 1957 are presumed to be immune to measles and are therefore not recommended to receive MMR vaccine.
- All adults born in 1957 or later should have at least one documented dose of MMR vaccine or laboratory evidence of immunity.

Source: CDC

High Risk Recommendations

- Adults who are considered high risk are recommended to have two documented doses of MMR vaccine or laboratory evidence of immunity.
- High Risk groups include:
  - Health Care Workers
  - College Students
  - International Travelers
    - Including infants ages 6-11 months
  - Close contacts of immunocompromised
  - People living with HIV

Source: CDC

Contraindications to MMR Vaccine

- Certain individuals should not receive MMR vaccine.
  - History of a severe (anaphylactic) reaction to neomycin (or other vaccine component) or following previous dose of MMR
  - Pregnancy
  - Severe immunosuppression from either disease or therapy
  - Younger than 6 months of age

Source: CDC

Benefits of Vaccination Outweigh Risks

- **Complications from 10,000 children getting measles infections:**
  - **2,000** hospitalizations
  - **10** cases of brain swelling
  - **10-30** child deaths
  - **1,000** ear infections with potential permanent hearing loss
  - **500** cases of pneumonia
- **Complications from 10,000 children getting the MMR vaccine:**
  - **3** fever-related seizures
  - **0-1** cases of abnormal blood clotting
  - **0.035** allergic reactions

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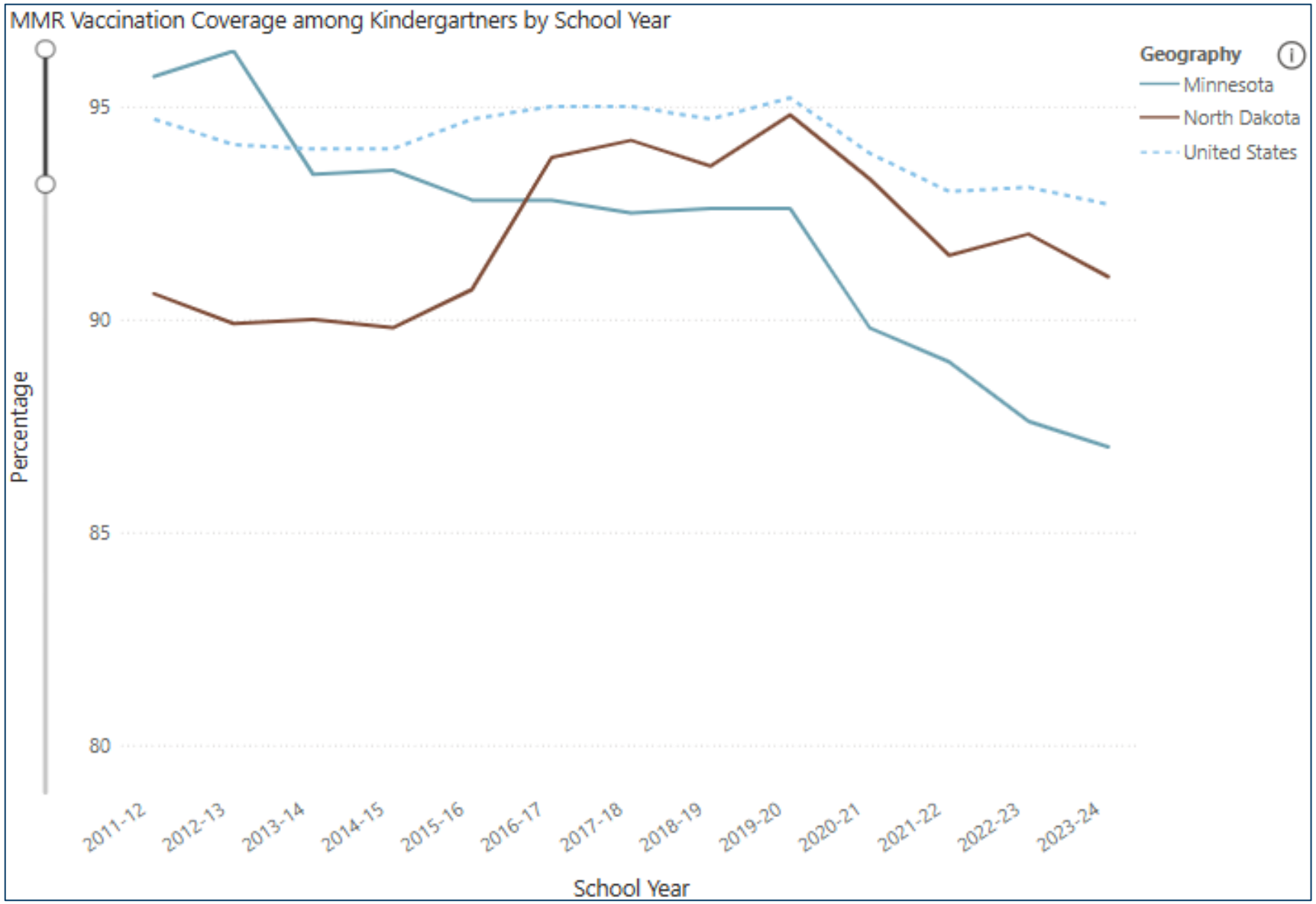
Source: Your Local Epidemiologist

MMR Immunization Coverage Rates in the U.S.



Source: CDC SchoolVaxView

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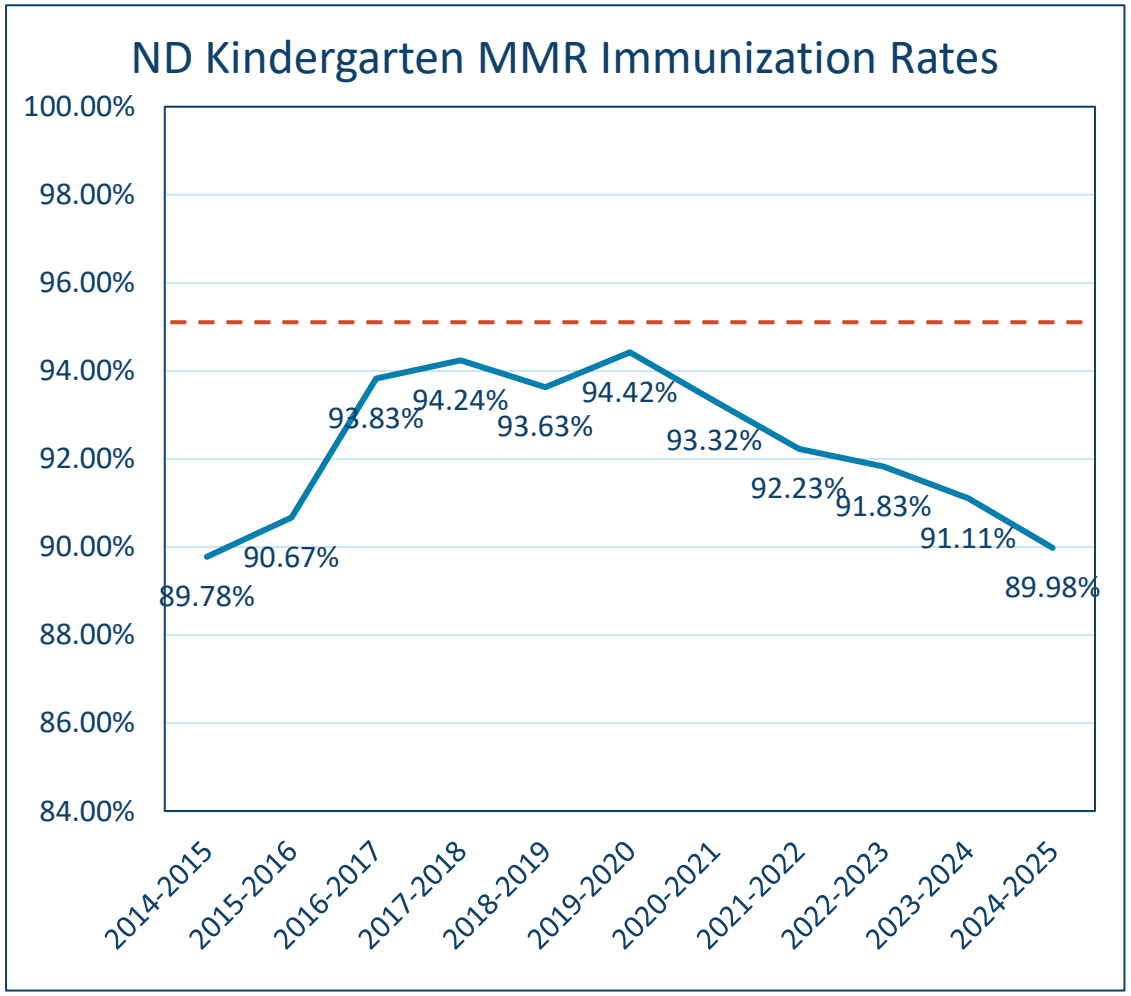
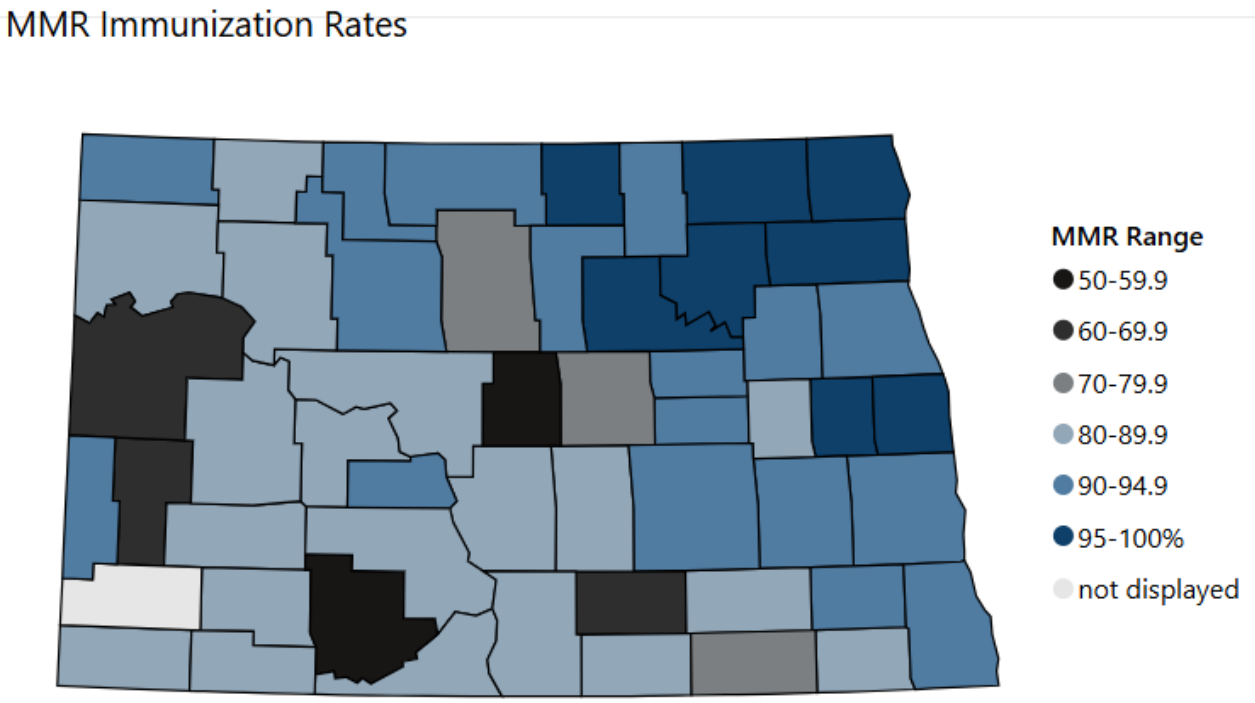
MMR Immunization Coverage Rates in ND





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Source: North Dakota Department of Health and Human Services

What Providers Can Do Now…

- Vaccinate at every opportunity
- Vaccinate international travelers
- Reminder/recall for MMR
- Have a high suspicion for measles
- Review infection control procedures

Thanks

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Knowledge Check

If one person has measles, ___% of individuals around that person who are not immune will likely also become infected.

A. 30%
B. 50%
C. 70%
D. 90%

Meet our speaker:

Lynn Bahta, MPH, BSN, PHN

is a public health nurse who recently retired after more than 25 years of work in the field of immunization.

She served as the Immunization Clinical Consultant for the Minnesota Department of Health (MDH). She has been a frequent invited speaker to various public health and immunization-related events. Ms. Bahta served as a member of the national Advisory Committee on Immunization Practices (ACIP) from 2019-2023, and continues ad hoc work for ACIP in an expert capacity.

Community Engagement

Outbreak action considerations

- What is the context of the case/s?
- Minimize impact of public health measures to the affected community
  - What degree of action is necessary?
  - How involved must the community be?

Community response to public health measures

- Response is influenced by past experience with disease (measles)
  - Perception of seriousness
  - Perception of social status/stigma
  - Understanding of public health measures
  - Current status of relationships with public health and clinicians
- Approach by health professionals and public health officials
  - Previous relationship
  - What is the focus of the response?
  - How are instructions communicated?
  - How well are family needs are identified?

Response: Initial contact

- Ensure there is adequate time
- Ensure there is a professional interpreter present
- Assessment of immediate needs
  - Childcare
  - Food/supplies
  - Work

Response: Isolation and Quarantine for measles

- Different than COVID – lengthier quarantine, highly infectious disease, time sensitive prophylaxis option
- Exclusion causes serious hardship for families
  - Jobs with less flexibility
  - Some non-compliance, intentional and unintentional
  - Possible social stigma

Response in a community outbreak

Response begins before an outbreak

- Develop a communication action plan
  - Include guides regarding breadth of approach
  - Have messengers identified
- Message effectiveness necessitates awareness of the range of community attitudes:
  - Vaccination
  - Perception of disease
- Awareness of how information flows:
  - Who are the influencers and trusted messengers?
  - What is the source of misinformation
  - What venues provide the best information dissemination

Partnering with an impacted community

Why?

- You need trusted messengers
- Effective access to the community
- Provides effective framing of the issue

How?

- Humility
- Flexibility

Partnering with impacted communities

- Identify and meet with community leaders – faith leaders, political leaders, health professionals
  - Solicit ideas for action
  - What actions can the leaders take now?
    - Reimbursement is often expected
  - What messages are meaningful? How should they be delivered?
- Use existing community outreach resources
  - Childcare directors
  - School administrators
  - Housing venues
  - Faith centers

One state’s response

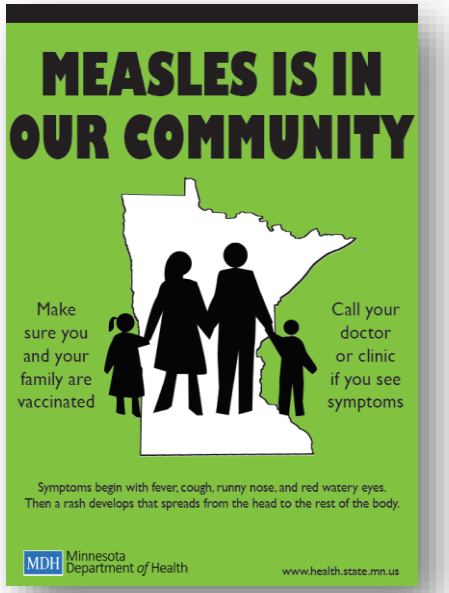
- An outbreak primarily impacting a close-knit immigrant community
- Enlisted Somali Public Health Advisors (pre-existing group)
- Developed and directed specific key messages

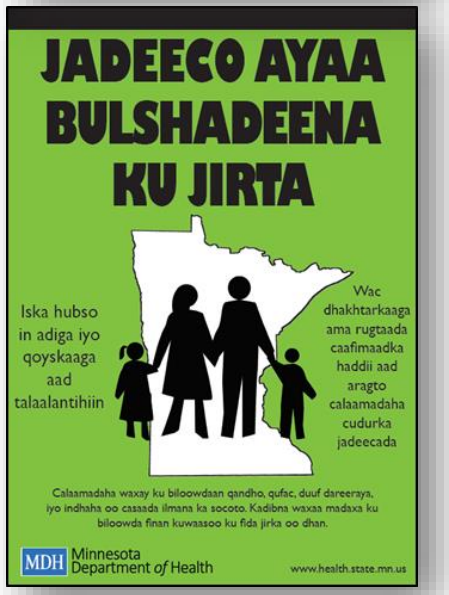
Community Partnerships

- Health professionals representing affected community
- Faith leaders
- Child care center administrators
- Somali Public Health Advisors and other community leaders
- Greater Minnesota communities

Developing messages

- Clear, succinct messages – less is more
- Oral and written information
  - Radio
  - TV – use local popular personalities
  - Community meetings: schools, childcare centers, faith centers, anywhere that is familiar and accessible to the community





Partner resources: example from MN Department of Health

- TV shows
- Radio shows
- Telephone conference calls
- “Coffee and Kulan“ (gathering) with Minnesota State Representative
- Unique venues such as call-ins, webinars, relevant social media
- Disseminated prevention messages in certain settings:
  - Childcare centers
  - Schools/dugsi (religious school)
  - Malls (where community shops)
  - Faith community/mosques

Challenges

Perception by some Somali Minnesotans that they were being targeted

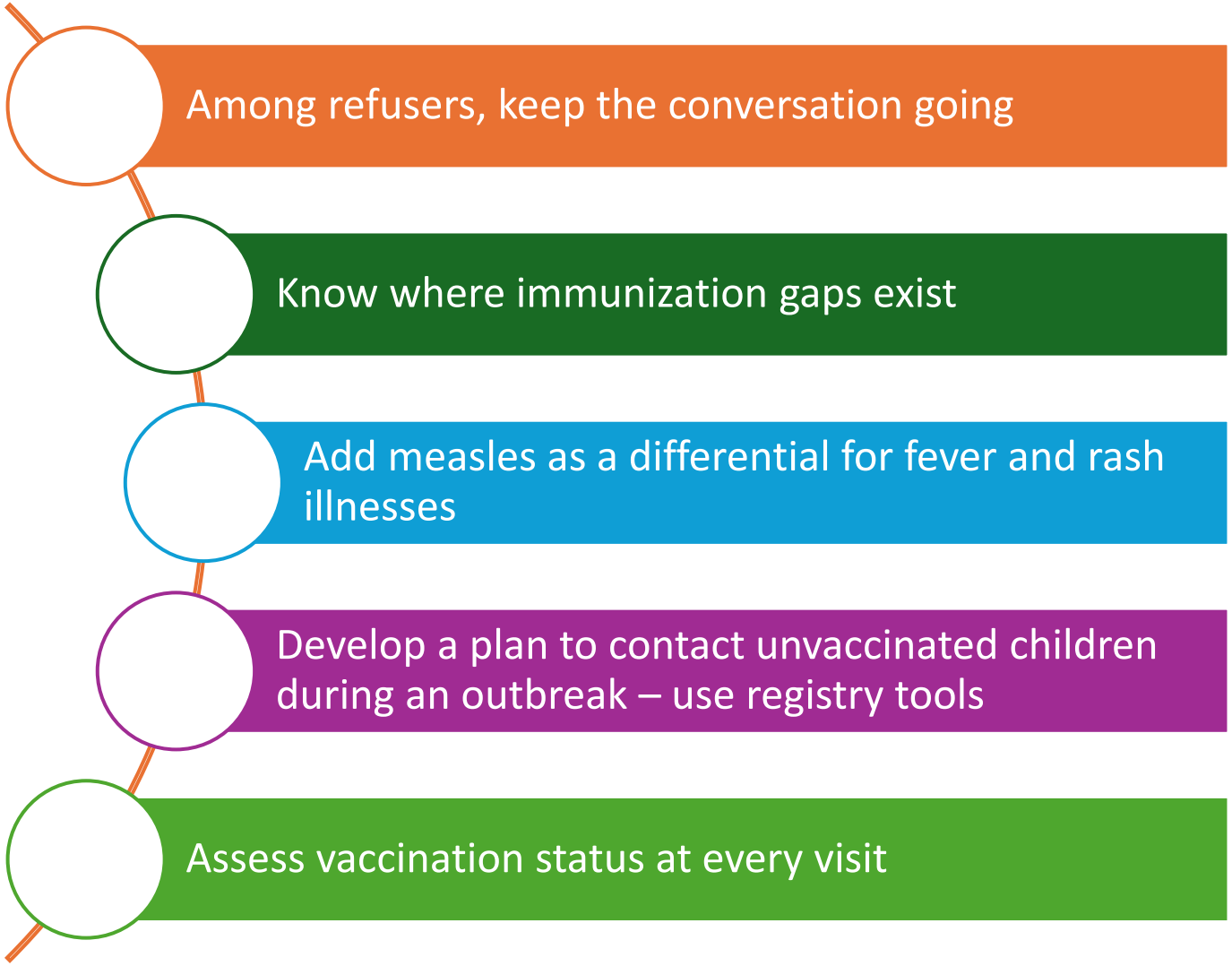
Communication was challenging

- Complex message (legal aspects, exclusion specifics)
- Difficult to hear and understand
- Exposure versus illness

Vocal parents allied with anti-vaccine groups - powerful stories

Outbreak message focused solely on preventing measles and did not address why parents did not vaccinate

Action steps for clinicians and vaccinators: pre-measles (i.e., right now)

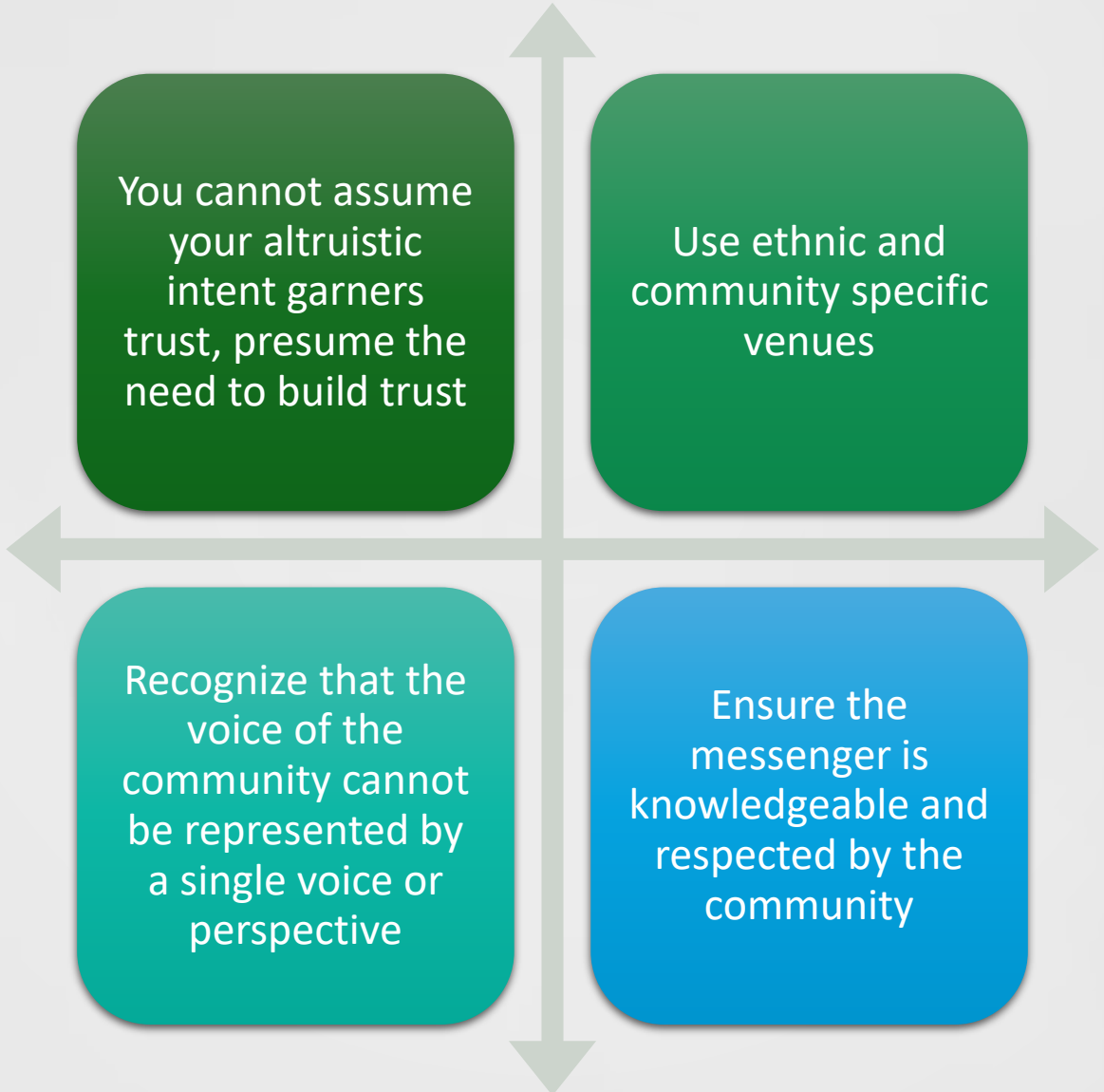


Clinicians and vaccinators: outbreak time

- Review MMR vaccine inventory
- Execute your recall plan
- Stay informed with state guidelines
- Determine reasons for vaccination request exposure vs taking action
- Consider off hour clinics & work with community to plan and advertise
- Review customer service practices with all staff

Public Health Action

More considerations: Public Health



Thank you

Lynn Bahta, MPH, BSN, PHN

Lynn.bahta@outlook.com

Acknowledgements: Minnesota Dept of Health, Vaccine Preventable Disease Section

Which of the following is a key strategy for collaborating with affected communities to enhance outbreak response?

A. Implementing mandatory vaccination without engaging community leaders.

B. Utilizing culturally tailored communication and working with trusted community figures.

C. Relying solely on digital public health messaging campaigns.

D. Providing medical care only to individuals who agree to immediate vaccination.