

NC Department of Health and Human Services

# Measles Update for Clinical Providers

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July 9, 2025



# Measles

IT ISN'T JUST A LITTLE RASH

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

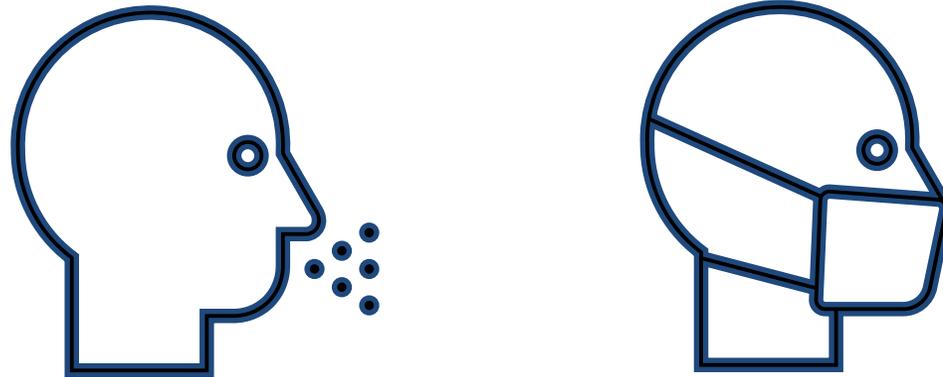
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# Measles Update Agenda

- **Clinical and Epidemiologic Features**
- **National and State Outbreaks and Trends**
- **Preparedness for Healthcare Facilities**
- **Testing**
- **Immunizations**
- **Post-Exposure Prophylaxis**
- **Q&A**

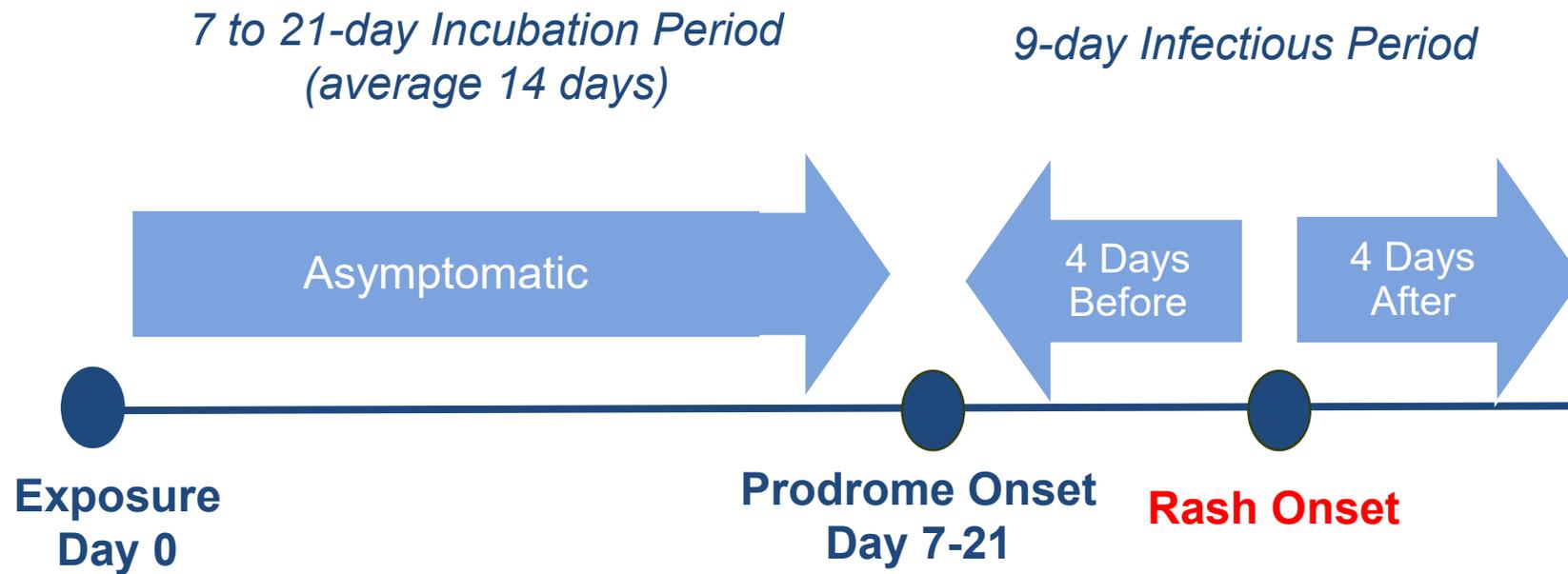
# Measles Clinical and Epidemiologic Features

Airborne virus that can remain infectious for **up to 2 hours** after a case occupied that space



[https://www.cdc.gov/measles/hcp/clinical-overview/?CDC\\_AAref\\_Val=https://www.cdc.gov/measles/hcp/index.html](https://www.cdc.gov/measles/hcp/clinical-overview/?CDC_AAref_Val=https://www.cdc.gov/measles/hcp/index.html)

# Measles Timeline



[https://www.cdc.gov/surv-manual/php/table-of-contents/chapter-7-measles.html#cdc\\_generic\\_section\\_10-case-and-contact-investigation](https://www.cdc.gov/surv-manual/php/table-of-contents/chapter-7-measles.html#cdc_generic_section_10-case-and-contact-investigation)

# Clinical Presentation

- **Prodrome (typically lasts 2–4 days)**
  - High fever (up to 105°)
  - 3 Cs: cough, coryza (runny nose), conjunctivitis
  - Koplik spots (white spots on inner cheek)
- **Rash (typically lasts 4–7 days)**
  - Begins a few days after prodrome
  - Maculopapular (flat lesions and small, solid raised lesions)
  - Begins on head and face
  - Spreads to trunk and extremities
  - Fades in order of appearance
- **When investigating, be sure to note timing and order of symptoms**
- **Presentation can be modified in vaccinated individuals**



Public health image library <https://phil.cdc.gov/default.aspx>

Koplik Spots

## Consider Other Causes of Fever/Rash

- **Fifth Disease (parvovirus)**
- **Hand, Foot and Mouth Disease (coxsackie virus)**
- **Roseola (human herpesvirus 6, 7)**
- **Scarlet fever (strep)**
- **Rocky Mountain Spotted Fever**
- **Recent antibiotic use**
- **Syphilis (in sexually active adolescents/adults)**
- **Contact dermatitis**
- **Heat rash**
- **Kawasaki syndrome**
- **Recent MMR vaccination**

# Measles Complications

- **More common**
  - Otitis media (1 in 10)
  - Diarrhea (1 in 10)
  - Pneumonia (up to 1 in 20)
  
- **Uncommon**
  - Acute encephalitis (1 per 1,000)
  - Subacute sclerosing panencephalitis (SSPE)
  
- **1–3 per 1,000 children die from respiratory or neurologic complications**
  - >100,000 deaths per year globally, most in unvaccinated children <5 years old
  
- **Prolonged damage to immune system**

## Treatment

No specific antiviral therapy

Medical care is supportive

## Vitamin A

Should be administered only under the supervision of a healthcare provider as part of supportive management especially in children with severe measles

**Not** a substitute for vaccination

### Vitamin A Guidance

AAP RedBook: <https://publications.aap.org/redbook/book/755/chapter/14079321/Measles?autologincheck=redirected>

NFID: <https://www.nfid.org/wp-content/uploads/2023/04/Call-to-Action-Vitamin-A-for-the-Management-of-Measles-in-the-US-FINAL.pdf>

CDC: [https://www.cdc.gov/measles/hcp/clinical-overview/index.html#cdc\\_clinical\\_overview\\_treat\\_pat-patient-management](https://www.cdc.gov/measles/hcp/clinical-overview/index.html#cdc_clinical_overview_treat_pat-patient-management)

## Control Measures

**Isolation:** separates sick people from people who are not sick

Confirmed cases should be isolated during their infectious period (4 days after rash onset)

Suspect cases should be isolated until measles has been ruled out, or until their presumed infectious period is over

**Quarantine:** restricts people who were exposed but are not sick

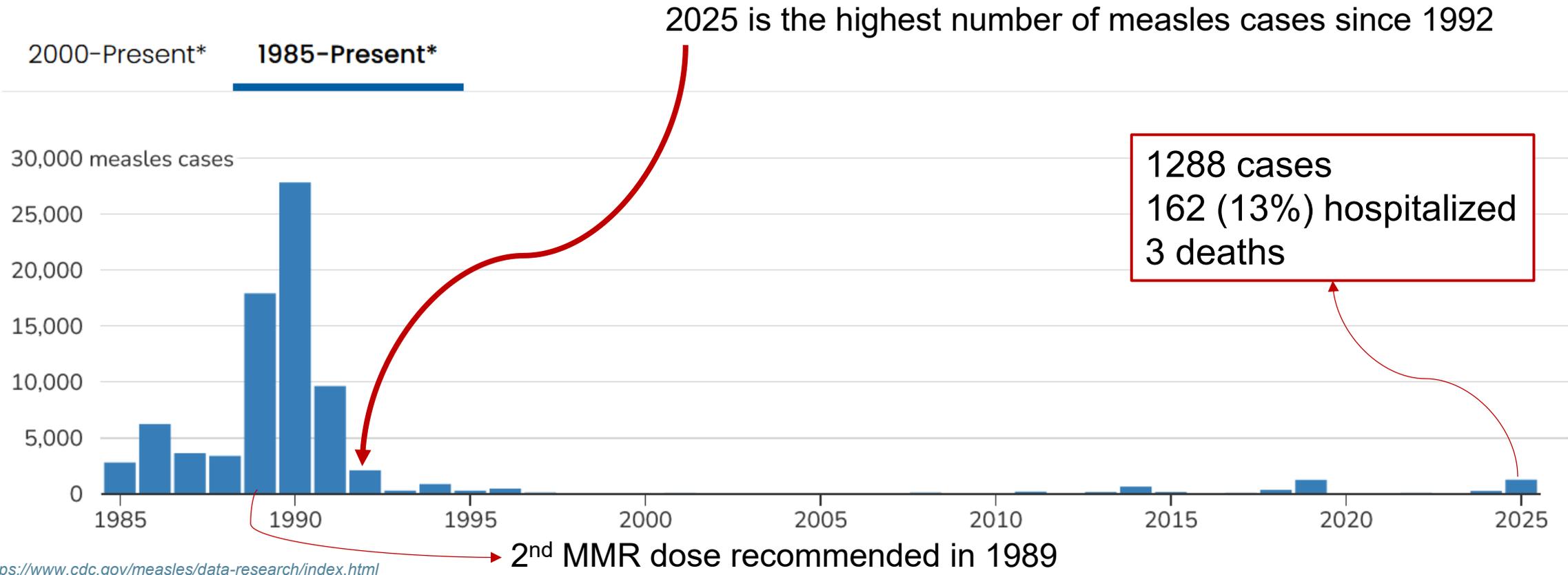
An exposed person without evidence of immunity does not receive PEP within the recommended timeframe must be quarantined until 21 days after the last exposure

# National and State Outbreaks and Trends

# Measles Trends: National, 2000-2025

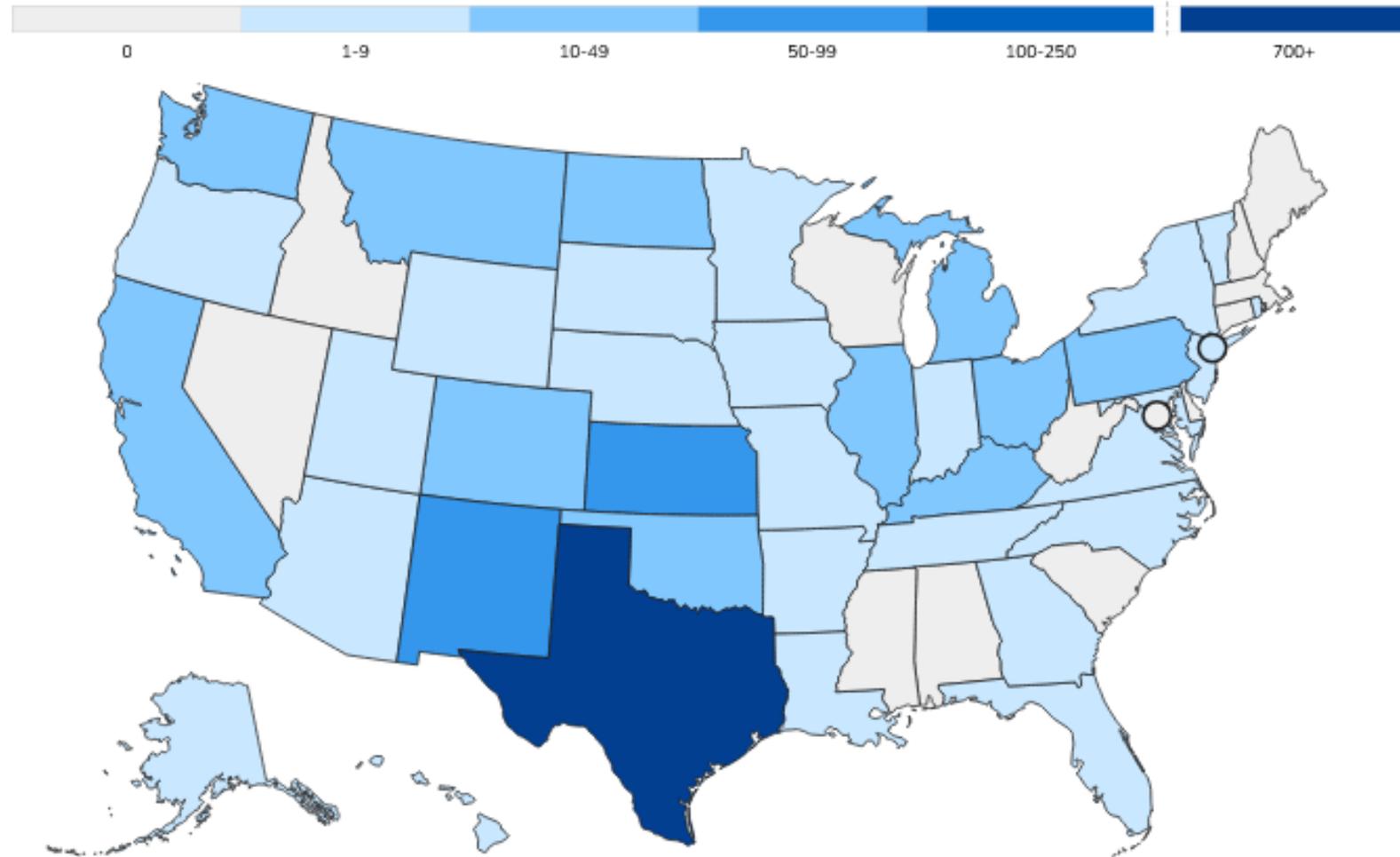
## Yearly measles cases

as of July 8, 2025



# Map of Measles Cases in 2025

As of July 8, 2025

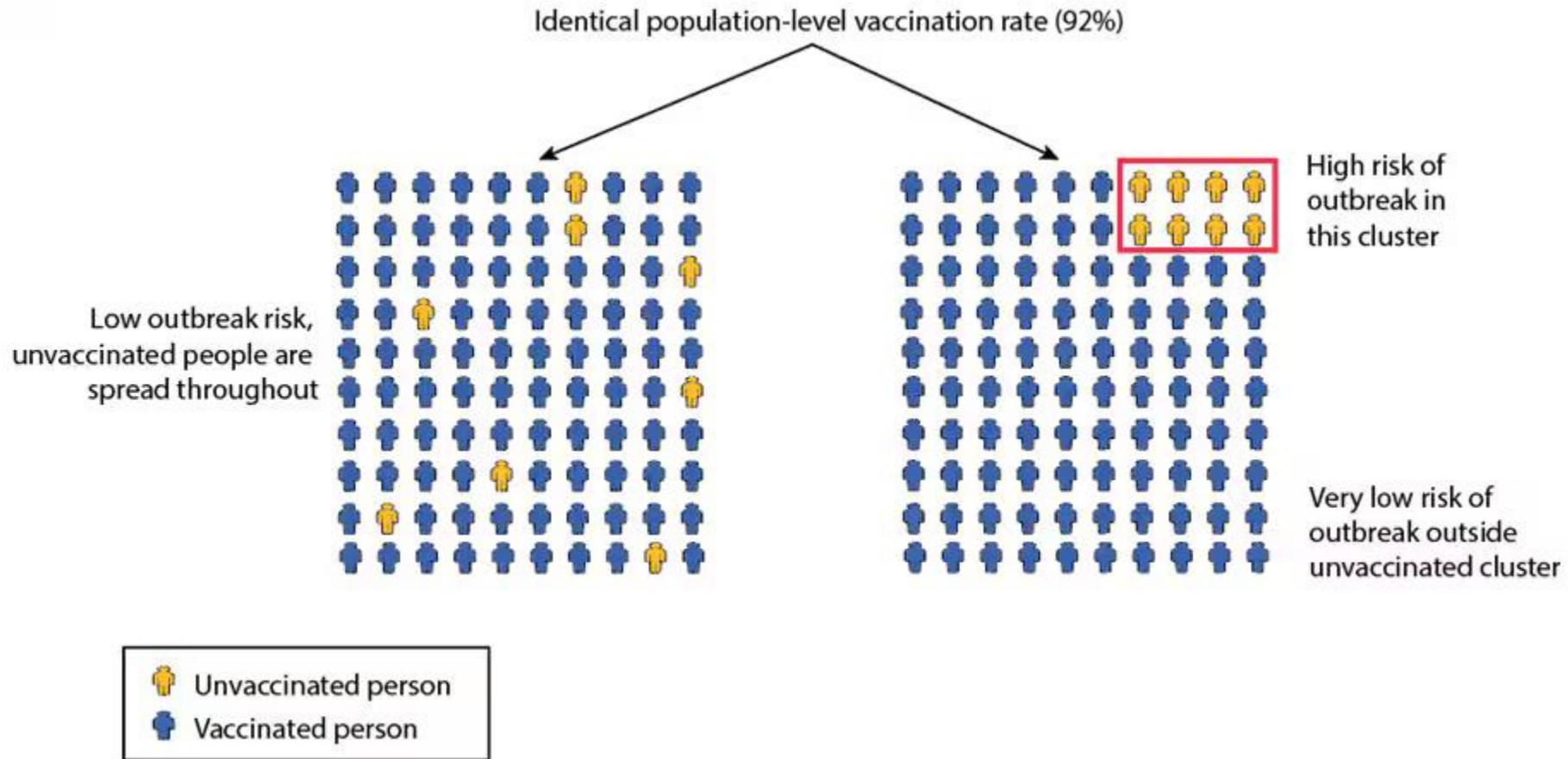


<https://www.cdc.gov/measles/data-research/index.html>



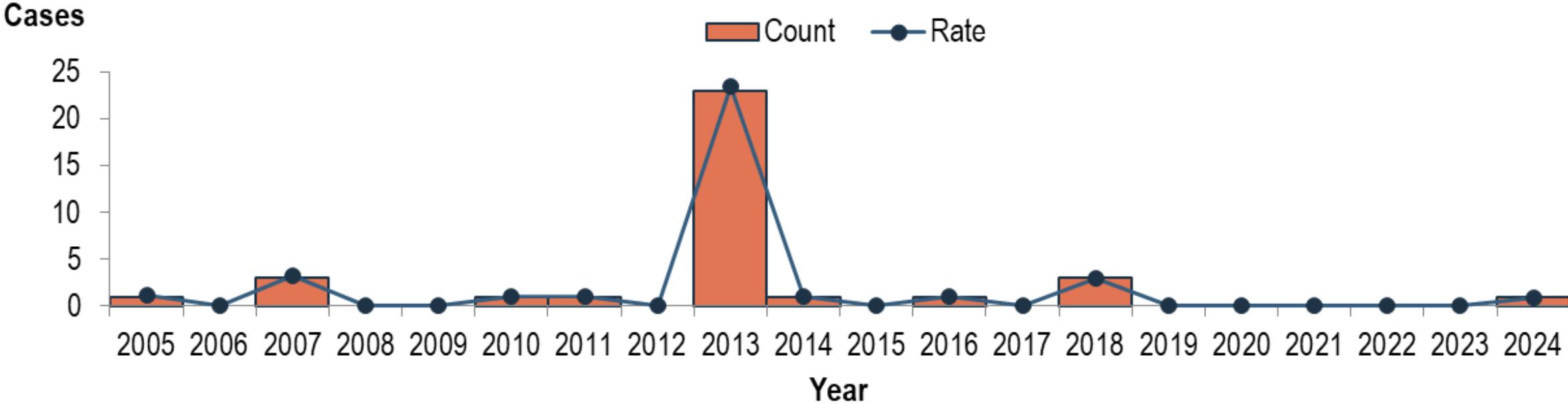
## Why is Measles Coming Back?

# Outbreak Risk



<https://www.cdc.gov/ncird/whats-new/measles-outbreak-risk-in-us.html>

# Low numbers of measles cases in NC, but we are at risk for outbreaks as seen in 2013



NC 2024 Annual Vaccine Preventable Disease Report: [https://epi.dph.ncdhhs.gov/cd/figures/Final\\_VPD\\_Report.pdf?ver=1.2](https://epi.dph.ncdhhs.gov/cd/figures/Final_VPD_Report.pdf?ver=1.2)



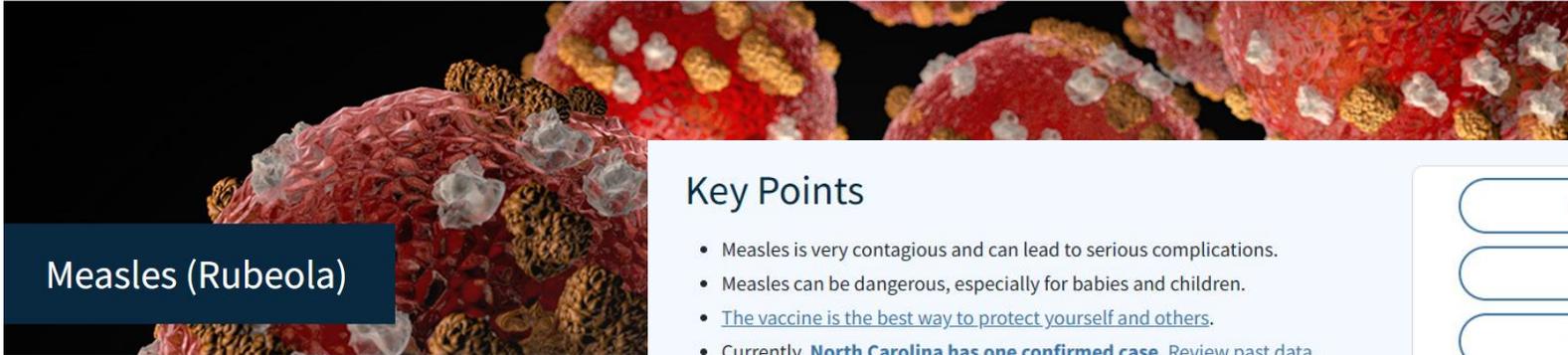
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TUESDAY, JUNE 24, 2025

# First Case of Measles Identified in North Carolina

Primer caso de sarampión identificado en Carolina del Norte

MEDIA ADVISORY — The North Carolina Department of Health and Human Services has confirmed a case of measles in a child who was visiting Forsyth and Guilford counties. The child became ill while traveling to NC from another country where measles outbreaks have recently been reported. To protect the individual and their family’s privacy, no additional information about this individual will be released. This is the first confirmed case of measles in the state in 2025. NCDHHS is recommending all unvaccinated individuals ages one year and older receive measles vaccination to protect themselves and those around them.



## Measles (Rubeola)

### Key Points

- Measles is very contagious and can lead to serious complications.
- Measles can be dangerous, especially for babies and children.
- [The vaccine is the best way to protect yourself and others.](#)
- Currently, **North Carolina has one confirmed case.** [Review past data.](#)

[Get answers to common questions about measles.](#)

[Measles symptoms, how it spreads and more](#)

[Resources for health care providers](#)

[Resources for child care, schools and colleges](#)



### Measles Vaccine: What to Know

- The MMR vaccine is the best way to protect you and your loved ones from measles. Two doses are 97% effective at preventing measles.
- Once vaccinated, most people are protected from measles for life. [How to know if you're immune to measles.](#)
- Most health insurance plans pay for MMR vaccines. [Need help paying?](#)

**Get more information:** [The MMR Vaccine](#)

# Wastewater Monitoring at 29 Sites Statewide



# Measles Preparedness for Healthcare Facilities



919-733-3419

Measles  
is immediately reportable

Includes any **suspicion of  
measles**, not just laboratory  
confirmed cases

## Basic Response Steps for Healthcare Setting

### Screen

**I**mmune status

**C**linical information

**E**pidemiology (travel, exposure history, activities)

### Isolate

Standard and airborne precautions for measles

2-hour timeframe even after patient leaves

### Report

Arrange for appropriate testing

Assure control measures are initiated

Begin contact investigation

# Is Your Healthcare Setting Ready?



## Infection prevention office plan

### **Should include:**

- Appropriate precautions and isolation for possible measles cases
- Safe specimen collection
- Contact tracing plan

# Is Your Healthcare Setting Ready?



Infection prevention office plan

**Staff immunization policy and records**

## **Presumptive Evidence of Immunity for Health Care Personnel**

- Written documentation of 2 doses of measles vaccine
- Laboratory evidence of immunity
- Laboratory confirmation of disease
- Birth before 1957\*

\*For unvaccinated health care personnel born before 1957 that lack laboratory evidence of measles immunity or laboratory confirmation of disease, health care facilities should consider vaccinating personnel with two doses of MMR vaccine at the appropriate interval.

# Is Your Healthcare Setting Ready?



Infection prevention office plan



Staff immunization policy and records



**Testing Supplies**

## **Should include:**

- Nasopharyngeal swab and VTM to test at SLPH
- Appropriate supplies for testing at a commercial lab

# Is Your Healthcare Setting Ready?



Infection prevention office plan



Staff immunization policy and records



Testing Supplies



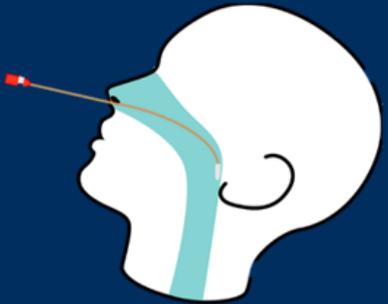
**Know your LHD and State partners**

**NC DPH Communicable Disease On Call**

**919-733-3419**

# Testing

# Do you have the materials to collect specimen for measles testing?



**Important to ensure materials are on hand for the collection of specimens for measles testing**

**Measles specimen collection kits for testing at the State Lab have been distributed to LHDs**

**Please reach out to your LHD if a situation arises where you do not have materials for measles testing at the State Lab**

**Remember to reach out to your commercial laboratory for specimen collection and handling questions/requirements as they may differ**

## Measles Testing Approval



Please call the CD-on-call (919-733-3419) or your local health department **as soon as measles is suspected** regardless of where testing is performed



Approval for testing at State Lab is based on risk assessment

Immunization status  
Clinical presentation  
Epidemiologic risk (exposures, travel)



Testing for measles at the State Lab must be **pre-approved** by the Communicable Disease Branch



Commercial lab testing is also available if testing is not approved at the State Lab and the health care provider still wishes to test

## Determination of Where to Test for Suspected Measles

### State Lab of Public Health

- Preapproval required, decision based on epidemiologic risk level
- Determined to be high risk
- Specimen collected in viral transport media (VTM)
- Faster results (<24hr)
- Additional reference testing needed (MeVA testing for vaccine strain, genotyping)

### Commercial Lab

- Must still notify CDB on suspicion of measles
- Should be used for lower risk individuals
- Specimen collected in transport media besides VTM

# Measles Testing Through State Lab & Send-Out Testing

## Real-Time PCR Detection of Measles

\*Nasopharyngeal (NP) swab in VTM

## Real-Time PCR Detection of Measles

Throat/OP Swab in VTM/UTM

NP swab in UTM

Urine in sterile cup

**Measles Serology**  
IgM ELISA & IgG ELISA  
Serum

**NC State Laboratory of  
Public Health**

**NCSLPH**  
Results within 24 hour after receipt

**VPD Reference Center  
Wisconsin State Lab**  
Results within 2-3 days after receipt

**CDC**  
Results within 7 days after receipt



NCDHHS

State Laboratory of Public Health



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Division of Public Health  
State Laboratory of Public Health

- SLPH Home
- A-Z Topics
- About / Administration
- Contact Us / Location
- Lab Test Results
- Biosafety

DHHS > DPH > SLPH

Measles Related Resources

Here

- [CDC HAN Guidance for Current Measles Outbreak](#)
- [NC Provider Memo for Current Measles Outbreak, 6/26/25](#)
- [Measles Specimen Collection and Shipping Guidance, 6/27/25](#)
- [Measles Specimen Collection Guidance Memo, 6/27/2025](#)

### Measles Specimen Collection and Shipment

#### North Carolina State Laboratory of Public Health

The Communicable Disease Branch must approve testing for Measles at the North Carolina State Laboratory of Public Health (NCSLPH) prior to specimen collection. All Measles specimens submitted to the NCSLPH must meet the testing criteria. This Measles guidance applies only to testing at the NCSLPH. Contact the NCDHHS Communicable Disease Branch (919-733-3419, available 24/7) immediately if Measles is suspected. Contact NCSLPH (919-733-3937) for testing guidance prior to specimen collection.

#### Specimen Collection

◆ **Real-Time PCR (RT-PCR) Detection of Measles**  
ALL swab specimens for testing at NCSLPH must be collected in [Viral Transport Media \(VTM\)](#).

**RT-PCR Specimens for Patients with Symptoms Preferred Specimens (Paired)**

- 1) \*Nasopharyngeal (NP) swab in VTM
- 2) Urine (15-50mLs) in a sterile cup

\*Swabs must be synthetic tipped, sterile swab of appropriate size with aluminum or plastic shaft

◆ **Measles-specific IgM Serologic Testing**  
A serum specimen can be collected with paired NP and Urine.

**Serologic Specimens for Patients with Symptoms Preferred Specimen**

- 1) 2-3mLs of serum in plastic screw-capped vial
- Note:** Detection of measles-specific IgM serology is optimal >3 days from rash onset.

◆ **Specimen Labeling**

Label specimens completely: Specimen Type  
Patient Name  
Date of Birth  
Date of Collection

◆ **Specimen Storage Until Shipment**  
Refrigerate at 2-8° C for shipment within 24hrs  
Freeze ≤ -20° C for storage longer than 72hrs

◆ **Specimen Submission Forms**

Please fill out completely  
[Virology submission form](#) (Swabs/Urine)  
[Special Serology form](#) & [CDC DASH form](#) (Serum)

#### Specimen Shipment

◆ Specimen collection, packaging, and shipment supplies can be ordered online at: [NCSLPH Online Supply Ordering System](#)

◆ Specimens shipped via commercial courier must meet [Category B, UN3373 requirements](#). Local Health Departments can use the NCDHHS Medical Courier for specimen shipment.

◆ Call NCSLPH Customer Service at 919-733-3937 for any questions related to specimen collection, storage, and shipment. After business hours, please contact the BTEP duty phone at 919-807-8600.

◆ **Specimens MUST be received cold/frozen**  
• Specimens received <72 hours after collection must be shipped on frozen ice packs and received cold (2-8°C).  
• Specimens received >72 hours after collection must be shipped and received frozen on dry ice.

◆ **Label the package completely:**

Attention: Virology/Serology Unit  
North Carolina State Laboratory of Public Health  
4312 District Drive  
Raleigh, NC 27607-5490

#### Result Reporting

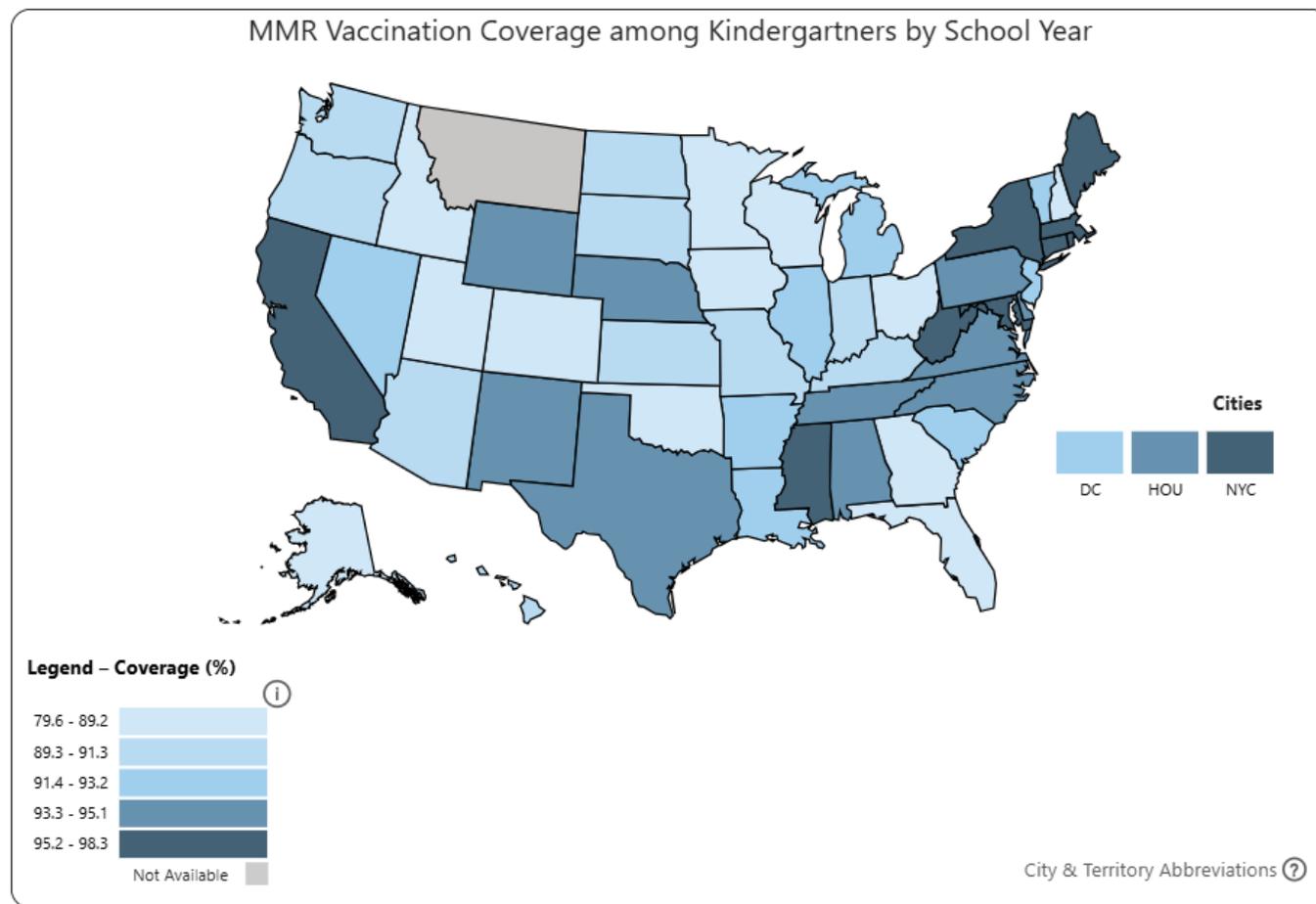
Results are posted electronically to the NCSLPH [Clinical and Environmental Lab Results](#) website associated with the submitter's EIN number. Visit the [NCSLPH website](#) for account setup and tutorials.



# North Carolina State Laboratory of Public Health (NCSLPH) Specimen Collection and Shipment Guidance

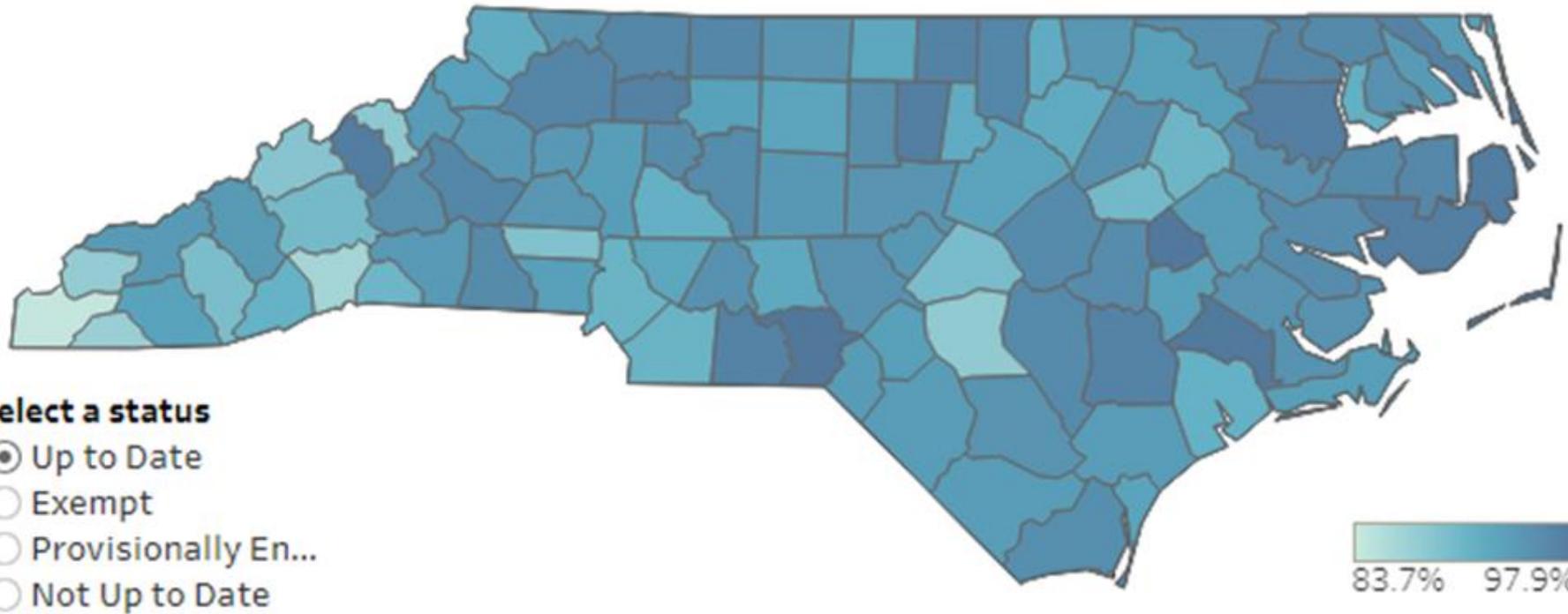
# Measles Immunizations

# 94%\* of kindergarteners in NC were up to date on MMR in fall 2023



**\*This rate is consistent with MMR coverage among NC Kindergarteners in the 2024-25 school year (94.3%).**

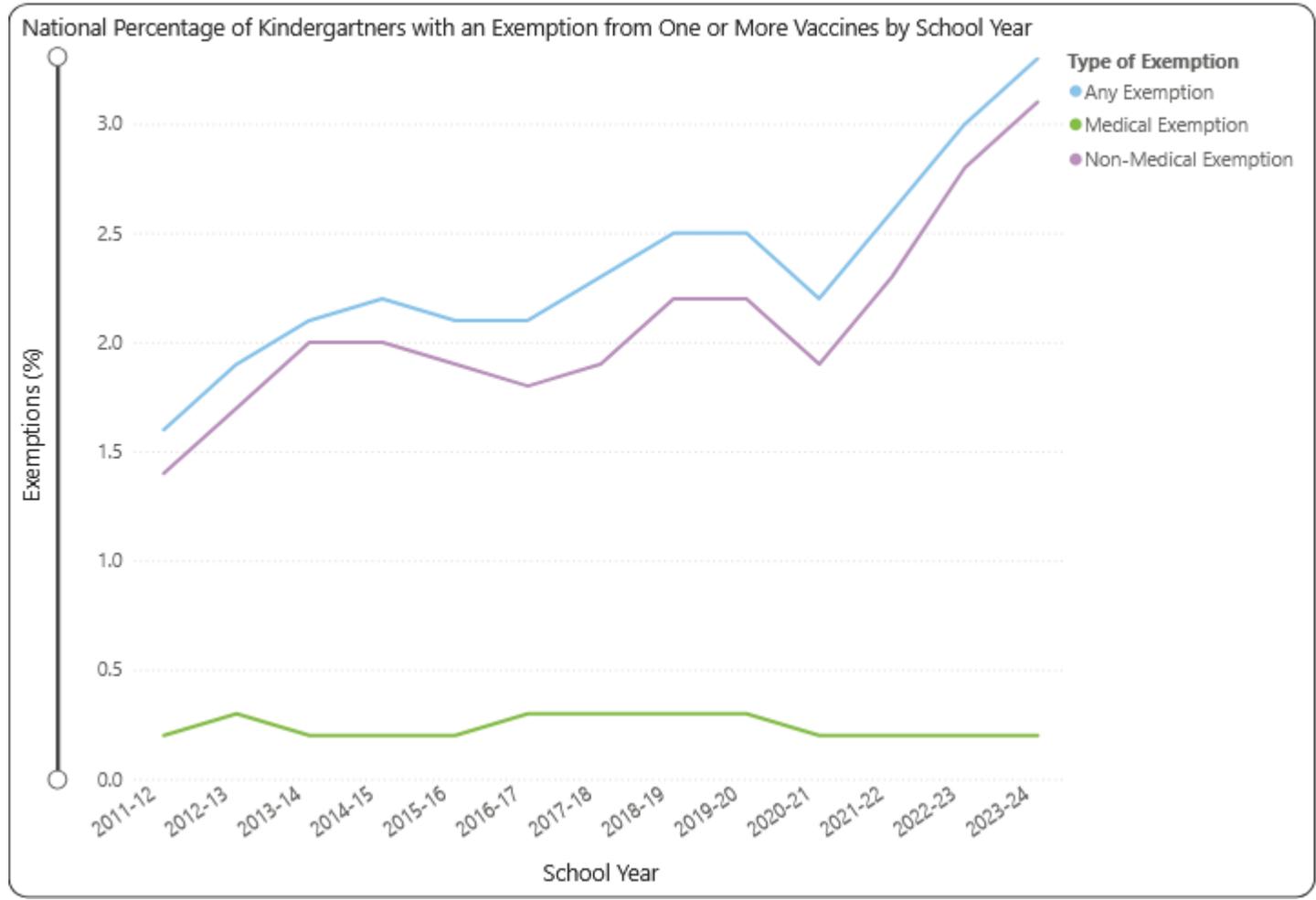
2023-24 Statewide Kindergartener compliance for all required vaccines is only **92.5%** and county compliance ranges from **83.7%** to **97.9%**



**2024-25**  
statewide immunization  
data indicates a similar  
compliance rate  
**(92.8%)**

*Updates to the public-  
facing dashboard are  
forthcoming.*

# NC kindergarten exemptions have been **increasing** over the last 4 years



CDC SchoolVax: [https://www.cdc.gov/schoolvaxview/data/?CDC\\_AAref\\_Val=https://www.cdc.gov/vaccines/imz-managers/coverage/schoolvaxview/data-reports/index.html](https://www.cdc.gov/schoolvaxview/data/?CDC_AAref_Val=https://www.cdc.gov/vaccines/imz-managers/coverage/schoolvaxview/data-reports/index.html)

# MMR Vaccine- Routine Administration- Children



**2 doses of measles-containing vaccine as part of routine childhood immunization schedule**

**First dose at 12-15 months of age**

**Second dose at 4-6 years of age**



**Children can receive the second MMR dose earlier than 4-6 years (at least 28 days after the first dose).  
If using MMRV, doses must be separated by at least 3 months up to 12 years of age.**



**If choosing to vaccinate earlier than 4-6 years for the second dose, consider risks versus benefits, including earlier waning of mumps immunity.**

[https://www.cdc.gov/measles/vaccines/index.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fvaccines%2Fvpd%2Fmmr%2Fpublic%2Findex.html](https://www.cdc.gov/measles/vaccines/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fvaccines%2Fvpd%2Fmmr%2Fpublic%2Findex.html)

# MMR Vaccine- Routine Administration- Adults



## One Dose

Adults born on or after 1957



## Two Doses

Students at post-high school educational institutions

Healthcare personnel

Household and close contacts of immunocompromised persons

People with HIV without evidence of severe immunosuppression

Groups at increased risk due to an outbreak (defined by local and state public health)

## Presumptive Evidence of Immunity

**Written documentation of adequate vaccination**

**Laboratory confirmation of disease**

**Laboratory evidence of immunity**

**Birth before 1957\***

\*For unvaccinated health care personnel born before 1957 that lack laboratory evidence of measles immunity or laboratory confirmation of disease, health care facilities should consider vaccinating personnel with two doses of MMR vaccine at the appropriate interval.

# General MMR Vaccine Recommendations by Year

<b>Year vaccinated</b>	<b>Recommendation</b>
Before 1957	No vaccine needed.
1963-1967	Second MMR dose may be needed if you got the inactivated one (which is the minority of people.)
Before 1989	MMR was recommended as a single dose for most people (which is still 93% effective.) You don't need a second dose unless you are higher risk (e.g., healthcare, college student, international travelers, close contacts of immunocompromised people.)
After 1989	Two doses of MMR or MMRV

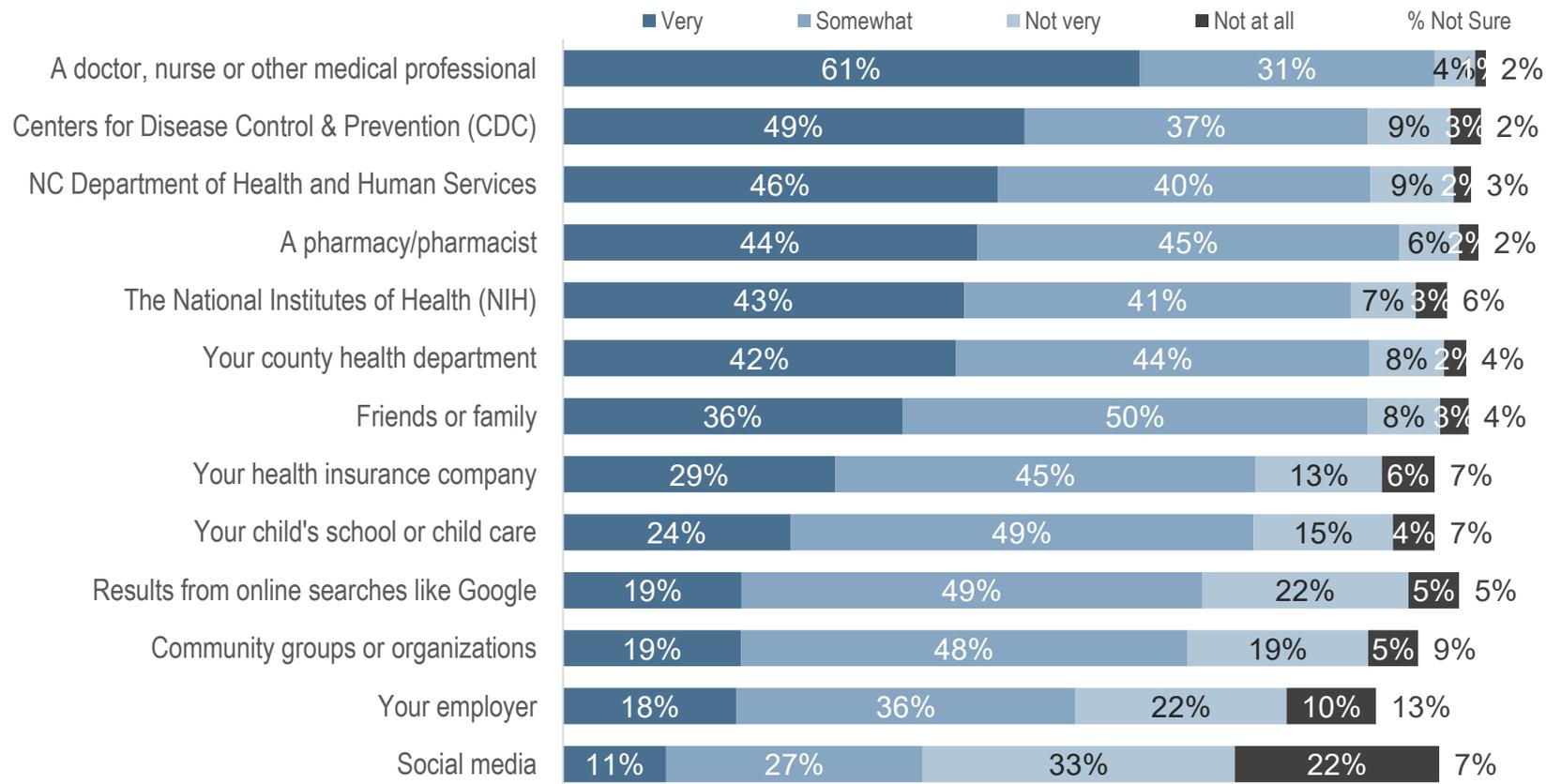
Always talk to your physician if you have questions or doubts!

[https://yourlocalepidemiologist.substack.com/p/10-faqs-on-mmr-and-measles-protection?utm\\_source=publication-search](https://yourlocalepidemiologist.substack.com/p/10-faqs-on-mmr-and-measles-protection?utm_source=publication-search)

# Medical Professionals Are the Most Trusted Source – Social Media the Least

Six in 10 consider medical professionals a very trustworthy source for vaccine information and recommendations and nearly half say the CDC and NCDHHS are very trustworthy sources.

## Trustworthiness of Source for Info/Recommendation for Child Vaccines

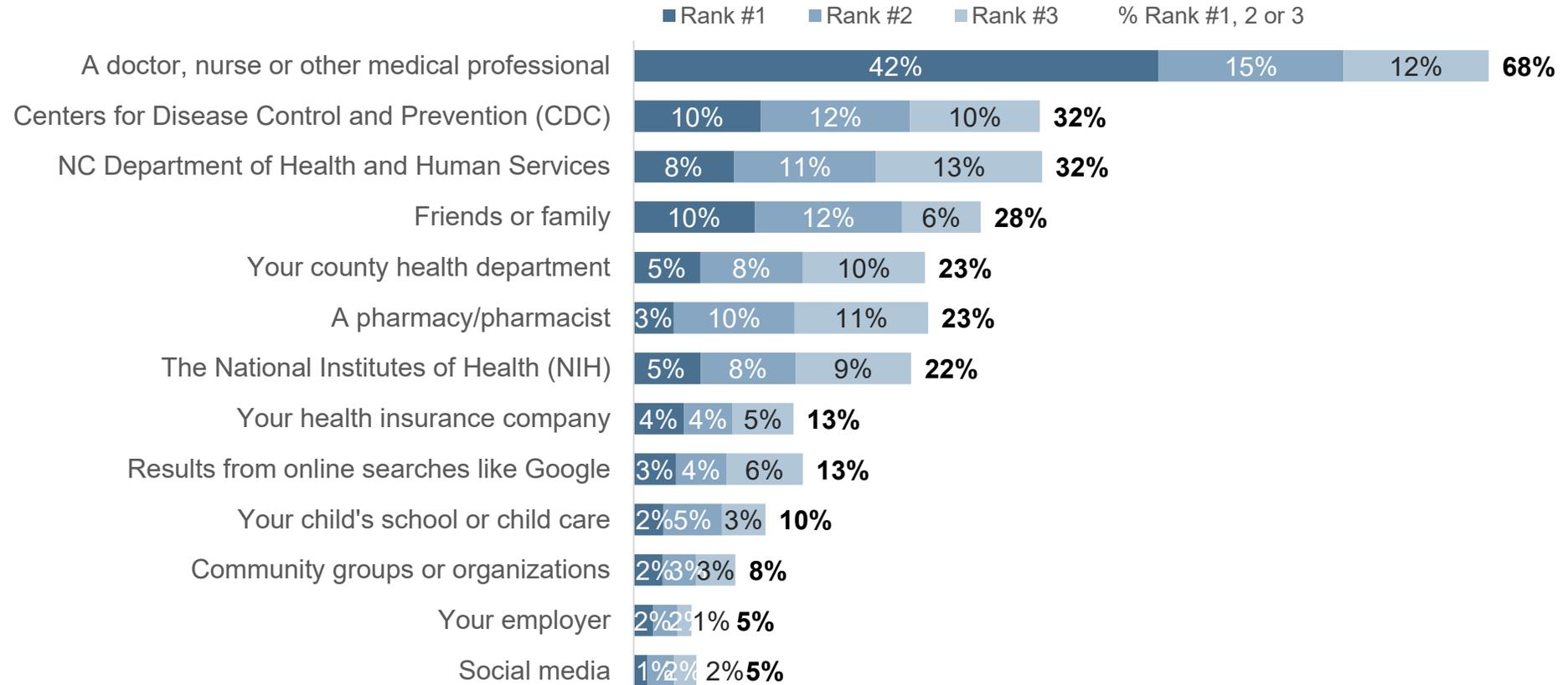


Base: Total Respondents n=753; Committed Vaccinator N=291, More Persuadable N=212, Less Persuadable N=175, Vaccine Rejector N=75  
 Q4. How trustworthy do you consider the following sources for information and recommendations about childhood vaccines?

# Medical Professionals are Most Relied on for Information to Make Child Vaccination Decisions

The most relied on source is medical professionals with nearly seven in 10 ranking it in their top three and more than four in 10 ranking it number one.

## Top 3 Most Relied Upon Sources of Information for Making Decisions for Vaccines for Child



Base: Total Respondents n=753; Committed Vaccinator N=291, More Persuadable N=212, Less Persuadable N=175, Vaccine Rejector N=75

Q5. Which of these sources do you rely on most for information to make decisions about vaccinations for your child(ren)? Rank up to 3 in order.

# New Resources on Childhood Vaccines-Vaccine Toolkit Launch

- NCDHHS has launched a new, bilingual Childhood Vaccines Toolkit designed to help health care providers and families start a conversation about childhood vaccines.
- The **Childhood Vaccines toolkit** includes clear, accurate information you can share with families to support vaccine conversations. The toolkit includes:
  - **Talking Points** for providers with research-based best practices to connect with parents
  - **Fact sheets, rack cards, posters, and social media graphics** with important information on vaccines and vaccine-preventable diseases for providers to share with families
  - **Customizable email template** for partners to help share information with communities on vaccines and vaccine-preventable diseases
- Visit **VaccinesForKids.nc.gov** to access downloadable toolkit materials in **English and Spanish** and **updated webpages** with easy-to-understand information on childhood vaccines.
- If you are interested in **free, printed versions** of the parent-facing toolkit materials to use at your office or clinic, please fill out **our form** by **July 15**.

**Vaccines protect what matters most – your child's health.**

Children's immune systems are built to handle the thousands of everyday germs they encounter. But some germs are different. They are dangerous and can cause serious harm. Vaccines teach children's immune systems how to fight dangerous germs without the risk of serious illness.

Compared to what children's immune systems handle daily, the exposure from a vaccine is very small. Serious side effects from vaccines are extremely rare. Millions of children are safely vaccinated each year.

**Don't let diseases of the past become part of your child's future.**

DTaP Vaccine (Diphtheria, Tetanus, Pertussis)	Hib Vaccine (Haemophilus influenzae type b)	Pneumococcal Vaccine (PCV)
Protects against three serious diseases, including whooping cough (pertussis).	Protects against an infection that can cause brain damage and deafness.	Protects against a bacteria that can cause infections in the brain, lungs and blood.
<b>Before the vaccine,</b> 8,000 infants died from whooping cough each year. One in three infants who get whooping cough need hospital care.	<b>Before the vaccine,</b> it caused brain infections in 15,000 children every year.	<b>Before the vaccine,</b> it caused 700 brain infections, 17,000 blood infections, 5 million ear infections and 200 deaths in children every year.

Vaccines your children need are available at their doctor's office and community health centers. Eligible children may be able to get free vaccines through the Vaccines for Children (VFC) program.

Your child's doctor shares your goal: a healthy future for your family. Have questions? Get real answers. Talk to your child's doctor today.  
[VaccinesForKids.nc.gov](http://VaccinesForKids.nc.gov)

NC Department of Health and Human Services • VaccinesForKids.nc.gov  
NCDHHS is an equal opportunity employer and provider | 06/2025  
Stock photo. Posing by model. For illustrative purposes only.

# Post-Exposure Prophylaxis

## Post Exposure Prophylaxis (PEP)

### MMR Vaccine

Can be given within **72 hours** after an exposure

If MMR is received within the recommended timeframe, contacts can return to normal activities immediately

### Immune globulin (IG)

Can be given within **6 days** of an exposure

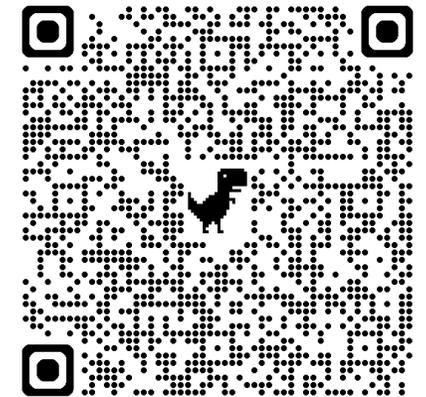
IG may not prevent measles, but rather prolong symptom onset and lessen symptom severity

# Measles PEP for Non-Symptomatic Susceptible Contacts

## Recommended Dose and Timing of Measles PEP (see footnotes 1-5)

Risk Factor	Time from First Exposure If no PEP given, home quarantine for 21 days	
	Less than 72 hours	72 hours through day six
Infant less than 6 months old <sup>1</sup>	Give intramuscular IG (IMIG): 0.5 ml/kg (max dose = 15 mL)  Home quarantine for 28 days	Give IMIG: 0.5 ml/kg IM (max dose = 15 mL)  Home quarantine for 28 days
Infant 6 through 11 months old <sup>1,2</sup>	Give MMR vaccine if no contraindications  No quarantine needed	Give IMIG: 0.5 ml/kg IM (max dose = 15 mL)  Home quarantine for 28 days
Susceptible pregnant woman <sup>3</sup>	Give intravenous IG (IVIG): 400 mg/kg  Home quarantine for 28 days	Give IVIG: 400 mg/kg  Home quarantine for 28 days
Severely immunocompromised <sup>3,4</sup> (Regardless of immune status)	Give IVIG: 400 mg/kg  Home quarantine for 28 days	Give IVIG: 400 mg/kg  Home quarantine for 28 days
Susceptible close contact <sup>5</sup> over 1 year old	Give MMR vaccine if no contraindications  No quarantine needed	Not generally recommended for healthy individuals over 1 year old

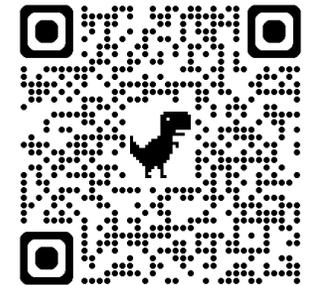
## Measles PEP Guidance



## Key Planning Considerations for Measles PEP Access

- **Pre-planning at the local jurisdiction level is key to ensure timely access to PEP**
  - Providers should consider procuring MMR or IG now, before cases occur
  - Participate in discussions with Local Health Departments around access to MMR and IG
- **No known IG product shortages at this time**
  - GamaSTAN® (IMIG) available in 2mL and 10mL single dose vials
  - Multiple IVIG products on the market can be used as measles PEP
- **NC DHHS maintains a LIMITED emergency cache of IMIG**
  - Currently 91 vials (13 x 2mL & 78 x 10mL)
  - Available for request when local supplies are not available in sufficient time or quantity
  - Contact CDB Epi On-Call: 919-733-3419

[GamaSTAN®  
Distributors List](#)



## Additional Resources

- **NC Measles Landing Page:**  
<https://www.dph.ncdhhs.gov/programs/epidemiology/communicable-disease/measles>
- **North Carolina Kindergarten Immunization Dashboard:**  
<https://immunization.dph.ncdhhs.gov/schools/kindergartendashboard.htm>
- **NCDHHS Childhood Immunization Toolkit:**  
<https://www.dph.ncdhhs.gov/programs/epidemiology/immunization/providers/education-and-resources/for-patients>
- **State Epidemiologist on call (24/7/365 number) 919 733-3419 (disease guidance, investigation, data)**
- **Local Health Department list:** <https://www.dph.ncdhhs.gov/contact/LHD>

# Questions?