The Month in Virology:

What's new. What's changing. What you need to recognize now.

Jorge Mera, MD

Outline

- Regional update on COVID, Influenza, RSV and Measles
- Latest AAP immunization updates
- Measles resurgence — Can you recognize it early?
- Viruses transmitted by animal bites — beyond rabies
- The new study on VZV vaccination and dementia ris

Why is the AAP immunization schedule different from the federal schedule?

- In January 2026, federal officials suddenly stopped recommending several childhood vaccines.
  - They did this after a brief review of some other countries' practices.
- The action breaks from a process designed to carefully review and recommend childhood vaccines, one that considers
  - Risks from specific diseases in the U.S.
  - Health impacts
  - How our health care system works.
- The AAP continues to recommend that U.S. children be immunized against these diseases.

healthychildren.org
Powered by pediatricians. Trusted by parents.
from the American Academy of Pediatrics

https://www.healthychildren.org/English/safety-prevention/immunizations/Pages/Recommended-Immunization-Schedules.aspx

Which Organization Agree and Endorse the AAP Immunization Schedule?

American Academy of Family Physicians	American College of Nurse Midwives	American College of Obstetricians and Gynecologists
American Medical Association	American Pharmacists Association	Council of Medical Specialty Societies
Infectious Diseases Society of America	National Association of Pediatric Nurse Practitioners	National Medical Association
Pediatric Infectious Diseases Society	Pediatric Pharmacy Association	Society for Adolescent Health and Medicine

These organizations representing more than 1 million clinicians, physicians, pharmacists and other pediatric health care professionals

- When everyone is vaccinated, diseases have a hard time spreading.
- It helps keep your child healthy while also protecting others in the community who cannot get vaccinated.

https://www.healthychildren.org/English/safety-prevention/immunizations/Pages/Recommended-Immunization-Schedules.aspx

Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger

United States 2026

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

Vaccines and Other Immunizing Agents in the Child and Adolescent Immunization Schedule*

Monoclonal antibody	Abbreviation(s)	Trade name(s)
Respiratory syncytial virus monoclonal antibody	RSV-mAb	Beyfortus Enflonsia
Vaccine	**Abbreviation(s)**	**Trade name(s)**
COVID-19 vaccine	1vCOV-mRNA	Comirnaty mNexspike Spikevax
	1vCOV-aPS	Nuvaxovid
Dengue vaccine	DEN4CYD	Dengvaxia
Diphtheria, tetanus, and acellular pertussis vaccine	DTaP	Daptacel Infanrix
Haemophilus influenzae type b vaccine	Hib (PRP-T)	ActHIB Hiberix
	Hib (PRP-OMP)	PedvaxHIB
Hepatitis A vaccine	HepA	Havrix Vaqta
Hepatitis B vaccine	HepB	Engerix-B Recombivax HB
Human papillomavirus vaccine	HPV	Gardasil 9
Influenza vaccine (inactivated: egg-based)	IIV3	Multiple
Influenza vaccine (inactivated: cell-culture)	ccIIV3	Flucelvax
Influenza vaccine (recombinant)	RIV3	Flublok
Influenza vaccine (live, attenuated)	LAIV3	FluMist
Measles, mumps, and rubella vaccine	MMR	M-M-R II Priorix
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-CRM	Menveo
	MenACWY-TT	MenQuadfi
Meningococcal serogroup B vaccine	MenB-4C	Bexsero
	MenB-FHbp	Trumenba
Meningococcal serogroup A, B, C, W, Y vaccine	MenACWY-TT/MenB-FHbp	Penbraya
	MenACWY-CRM/MenB-4C	Penmenvy
Mpox vaccine	Mpox	Jynneos
Pneumococcal conjugate vaccine	PCV15	Vaxneuvance
	PCV20	Prevnar 20
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23
Poliovirus vaccine (inactivated)	IPV	Ipol
Respiratory syncytial virus vaccine	RSV	Abrysvo
Rotavirus vaccine	RV1	Rotarix
	RV5	RotaTeq
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel Boostrix
Tetanus and diphtheria vaccine	Td	Tenivac Tdvax
Varicella vaccine	VAR	Varivax
Combination vaccines (use combination vaccines instead of separate injections when appropriate)		
DTaP, hepatitis B, and inactivated poliovirus vaccine	DTaP-HepB-IPV	Pediarix
DTaP, inactivated poliovirus, and *Haemophilus influenzae* type b vaccine	DTaP-IPV/Hib	Pentacel
DTaP and inactivated poliovirus vaccine	DTaP-IPV	Kinrix Quadracel
DTaP, inactivated poliovirus, *Haemophilus influenzae* type b, and hepatitis B vaccine	DTaP-IPV-Hib-HepB	Vaxelis
Measles, mumps, rubella, and varicella vaccine	MMRV	ProQuad

*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit when indicated. The use of trade names is for identification purposes only and does not imply endorsement by the AAP.

Updated February 5, 2026

https://downloads.aap.org/AAP/PDF/AAP-Immunization-Schedule.pdf

AAP Recommended vaccines by age

United States 2026

American Academy of Pediatrics
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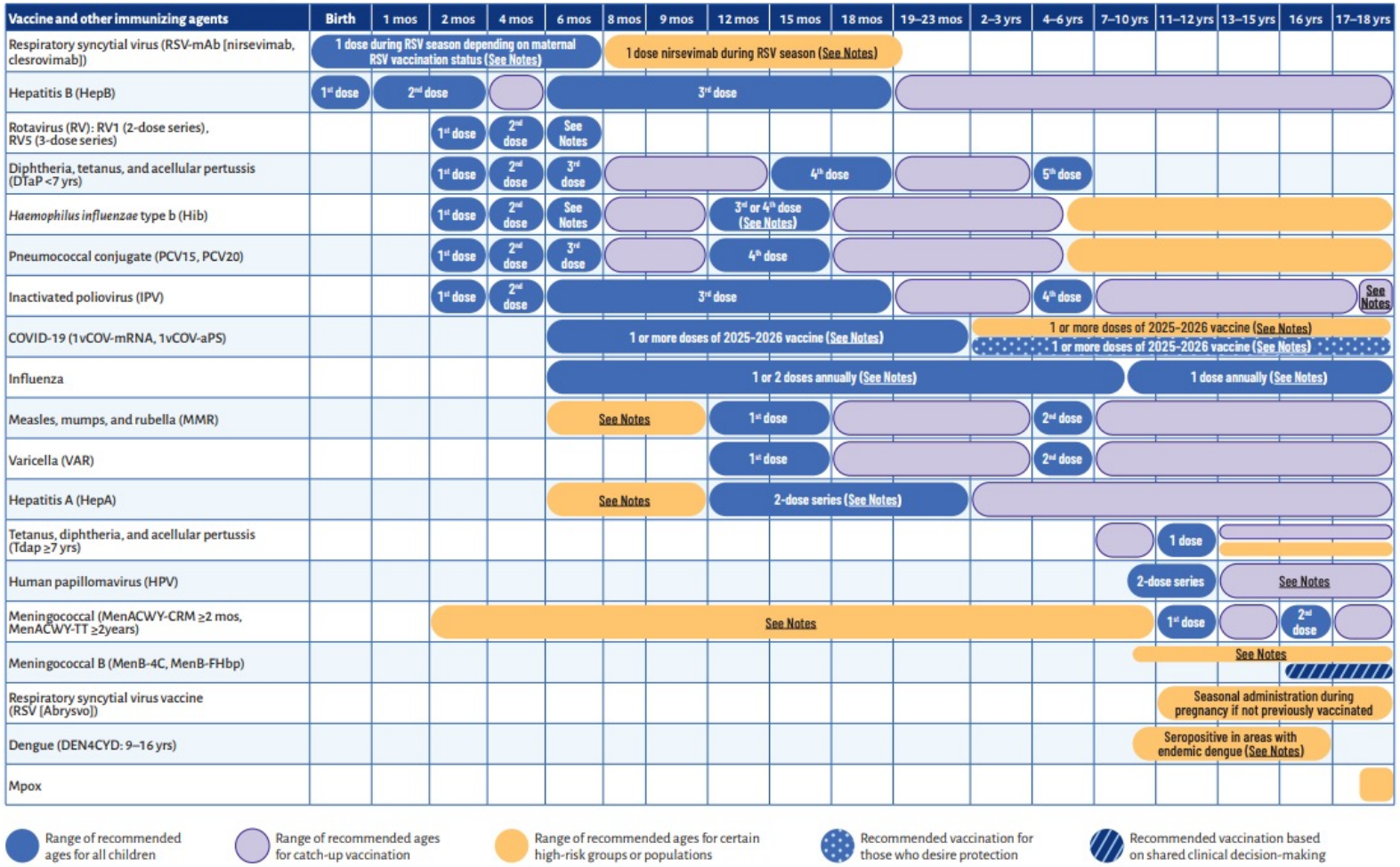
Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2026

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

These recommendations must be read with the Notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the outlined purple bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).



https://downloads.aap.org/AAP/PDF/AAP-Immunization-Schedule.pdf

Tribal Immunization ECHO

- Vaccination remains a cornerstone of public health in Indian Country.
- AI/AN children face 2–3 times higher morbidity and mortality from vaccine-preventable diseases due to historical inequities and persistent social determinants of health.

The Challenge

- Early 2026 national immunization schedule changes have increased confusion and vaccine hesitancy
- Particularly around newborn HepB, rotavirus, and early childhood vaccines.

Our Approach

- Shared Clinical Decision-Making (SCDM) is not new to IHS practice.
- Motivational interviewing will be important

Core Truth

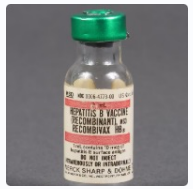
Vaccination continues to prevent disease, hospitalization, and death in Indigenous communities across the nation.

JANUARY 28, 2026

Evidence of Impact:
Vaccination Transformed Indigenous Child Health

Historic Disparities → Dramatic Improvements

Universal vaccination strategies have fundamentally transformed health outcomes for Indigenous children.
The evidence demonstrates remarkable success across multiple diseases that once devastated tribal communities.



Hepatitis B

- Pre-vaccine Alaska Native communities faced extremely high prevalence and the highest pediatric hepatocellular carcinoma rates globally.
- Universal newborn vaccination led to near elimination of transmission and disappearance of pediatric liver cancer.

Hepatitis A

- Historically high rates due to sanitation inequities.
- Widespread vaccination virtually eliminated cases.
- Risk of adult disease resurgence exists if childhood vaccination declines.

Rotavirus

- High infant hospitalization rates transformed by vaccination.
- Dramatic reduction in severe diarrhea admissions.
- Risk persists due to ongoing social determinants, making continued vaccination critical.

JANUARY 28, 2026

Sustaining Progress: Our Path Forward

Emerging Challenges

- Increased vaccine hesitancy affecting newborn HepB and rotavirus acceptance
- Workflow disruptions creating under-immunization risks
- Social media misinformation accelerating distrust
- Policy shifts creating uncertainty among providers and families

High-Risk Ongoing Threats

- **RSV:** Historically, high hospitalization rates; new preventive tools showing major reductions
- **Influenza:** Higher hospitalization and mortality in AI/AN children
- **HPV & Meningococcal:** Higher rates of severe outcomes in tribal communities

Tribal & IHS Leadership Response

- **Vaccination has saved countless Indigenous lives.**
- **Sustained evidence-based immunization**, respectful shared decision-making, and continued advocacy are essential to prevent resurgence of preventable diseases in Indian Country.

IHS E3 Strategy
Every patient, every encounter, every recommended vaccine

National Advocacy
Formally designate AI/AN as high-risk in national guidance

Tribal Governance
Cherokee Nation and others supporting legacy ACIP/AAP recommendations

Communication Training
Emphasis on motivational interviewing and respectful dialogue

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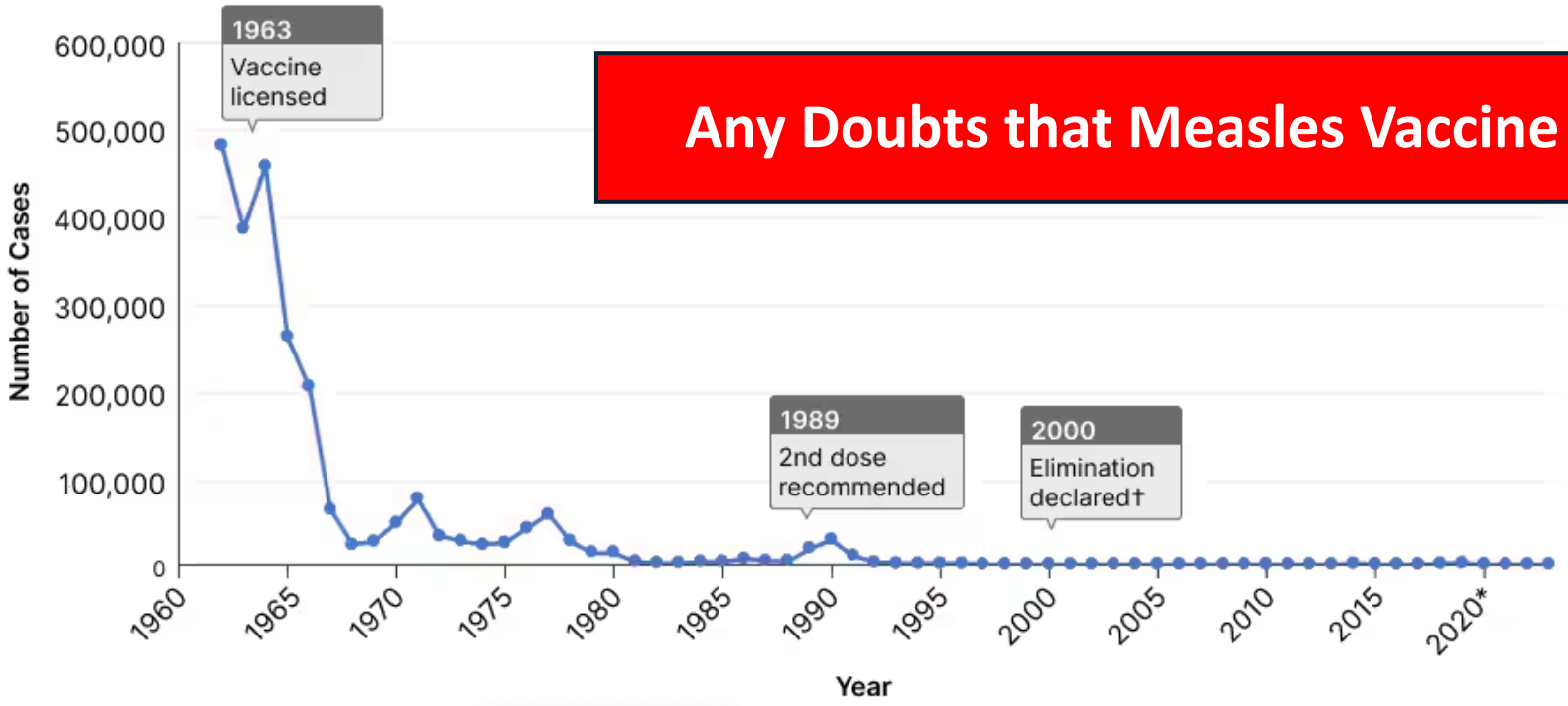
Reported Cases of Measles in the United States 1962 – 2023*

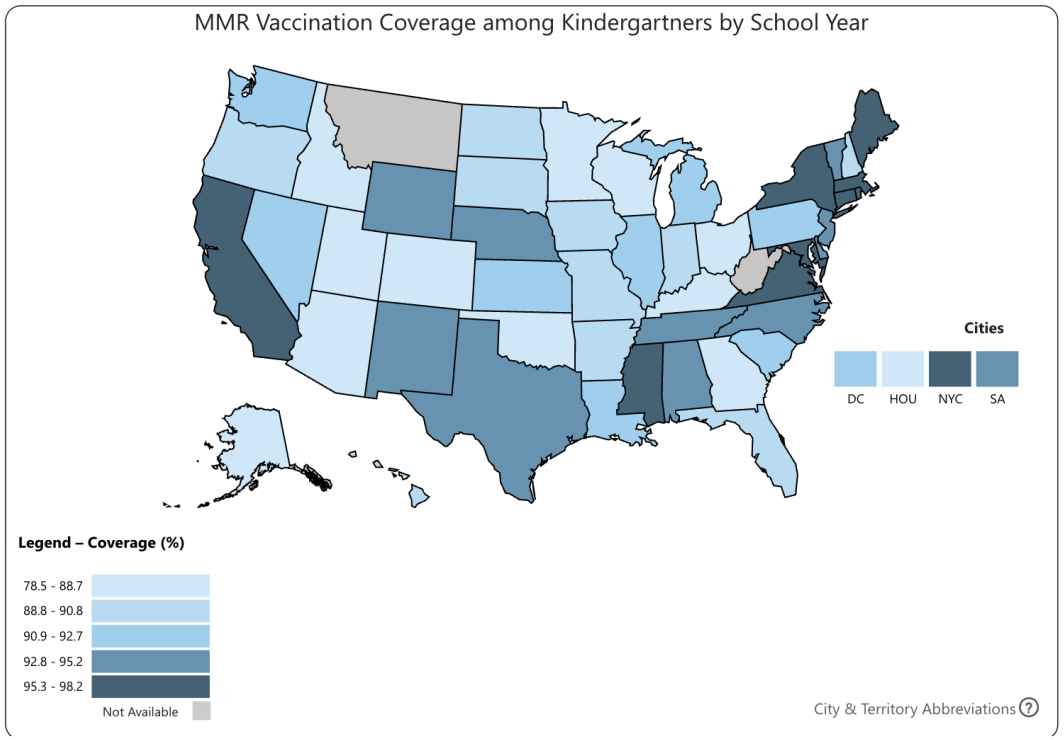


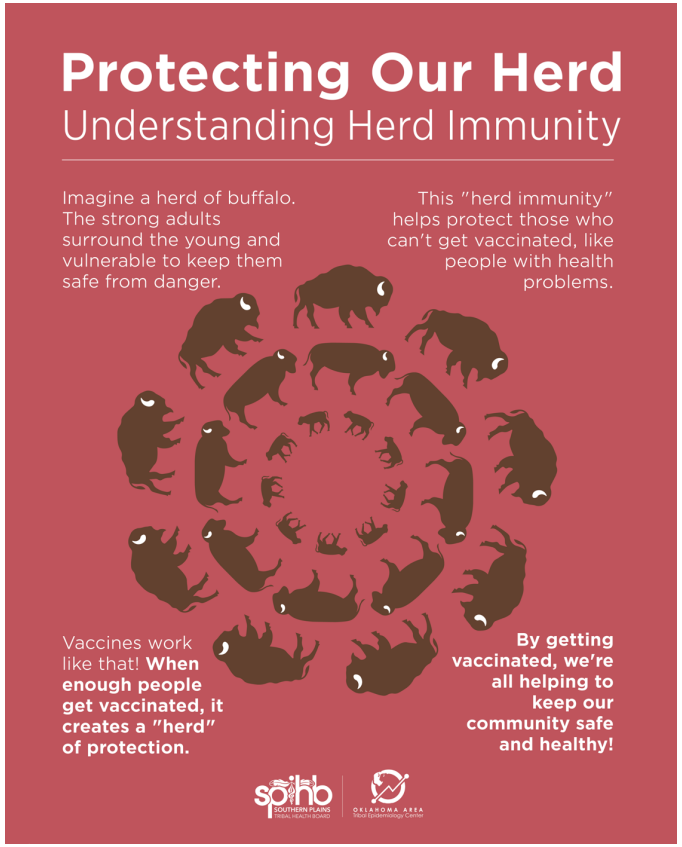
Any Doubts that Measles Vaccine Works?

*2023 data are preliminary and subject to change. †Elimination is defined as the absence of endemic measles transmission in a region for ≥ 12 months in the presence of a well-performing surveillance system.

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

For Herd Immunity to Work 95% Vaccination Rates are Required





Poll Question # 1

- Which of the following statements are true about measles?

A. Koplik spots are pathognomonic of measles
B. Incubation period is 10-14 days
C. It is one of the most contagious infectious diseases
D. Vitamin A should be used for severe cases in children
E. All are true

Measles Transmission

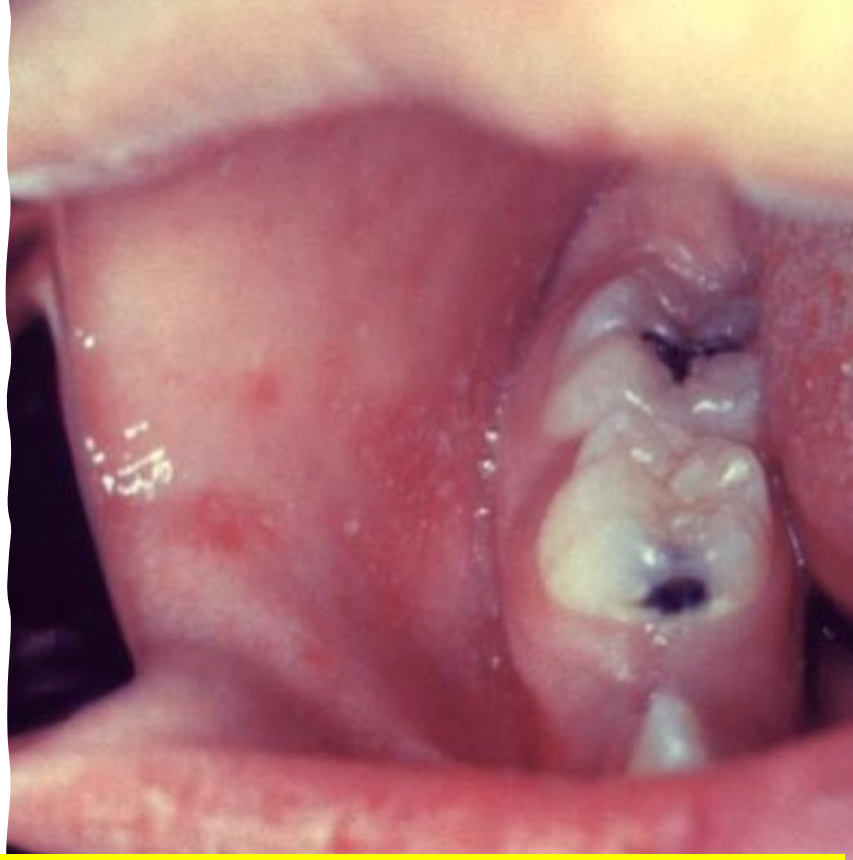
One of the most contagious of all infectious diseases	• 9 out of 10 susceptible persons with close contact to a measles patient will develop measles.
Measles Transmission	• By infectious droplets or by airborne spread • When an infected person breathes, coughs, or sneezes.
The virus	• Can remain infectious in the air for up to two hours after an infected person leaves an area.

https://www.cdc.gov/measles/hcp/index.html

Measles is an Acute Viral Respiratory Illness Characterized By:

- **A prodrome of fever (as high as 105°F) and malaise**
- **The tree "C"s: Cough, Coryza and Conjunctivitis**
- **Pathognomonic enanthema (Koplik spots)**
  - Described by Henry Koplik of New York in 1896
  - Bluish-white spots with red background present in 70% of patients
- **Followed by a rash**

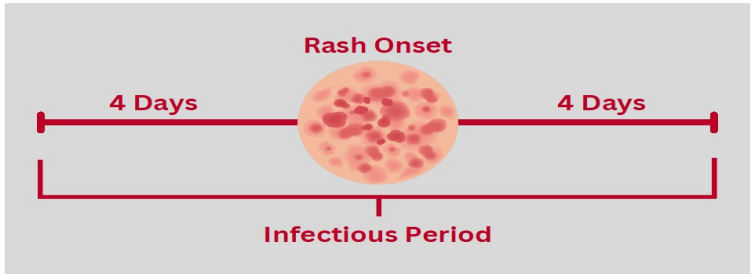
https://www.cdc.gov/measles/hcp/index.html



Destruction of glandular epithelia surrounded by phlebectasia around the submucosal gland duct

Measles Rash

- **Maculopapular rash**
  - Usually appears about 14 days after a person is exposed.
  - Spreads from the head to the trunk to the lower extremities.
- **Immunocompromised patients may not develop the rash.**
- Patients are contagious from 4 days before to 4 days after the rash appears



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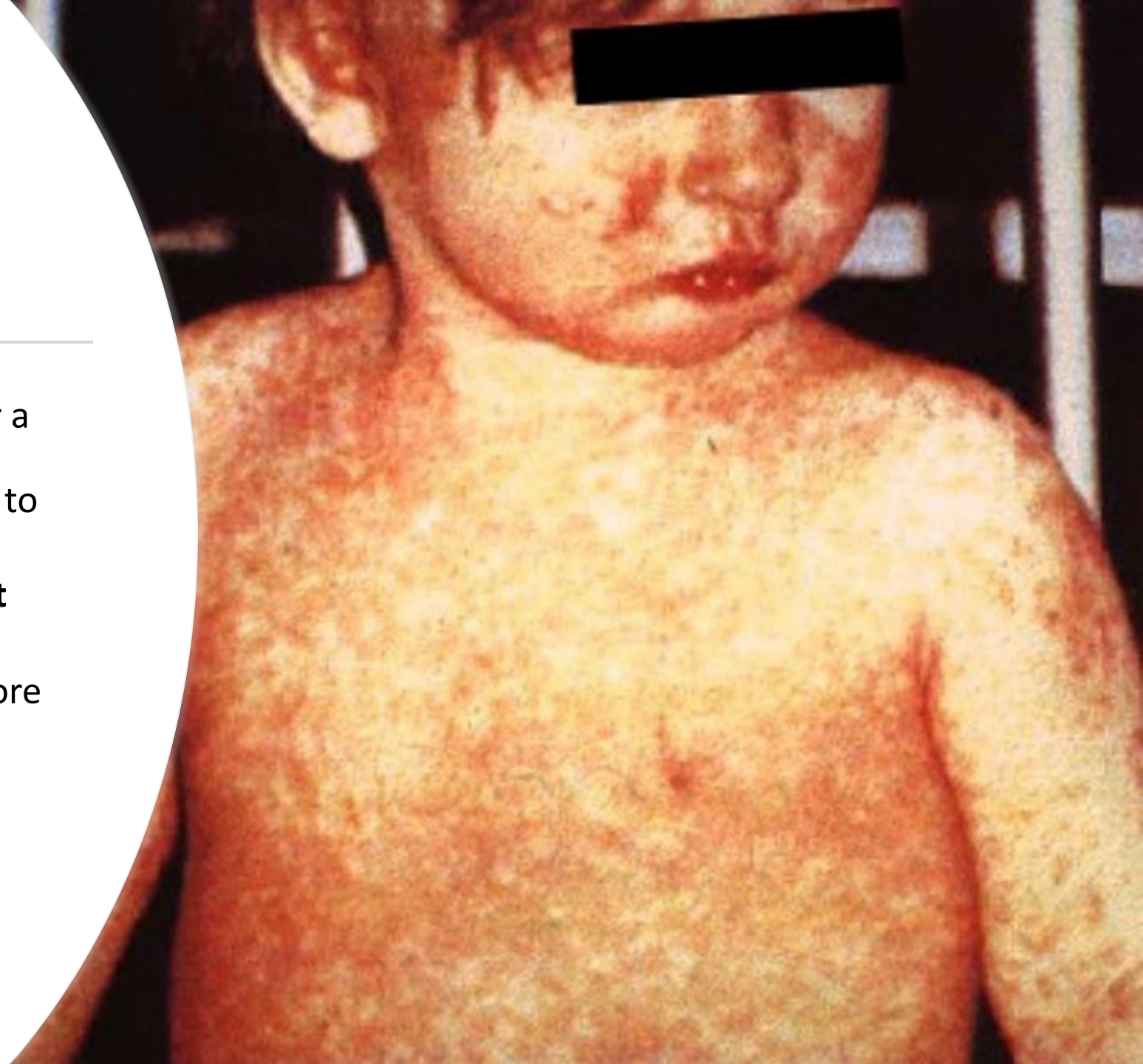
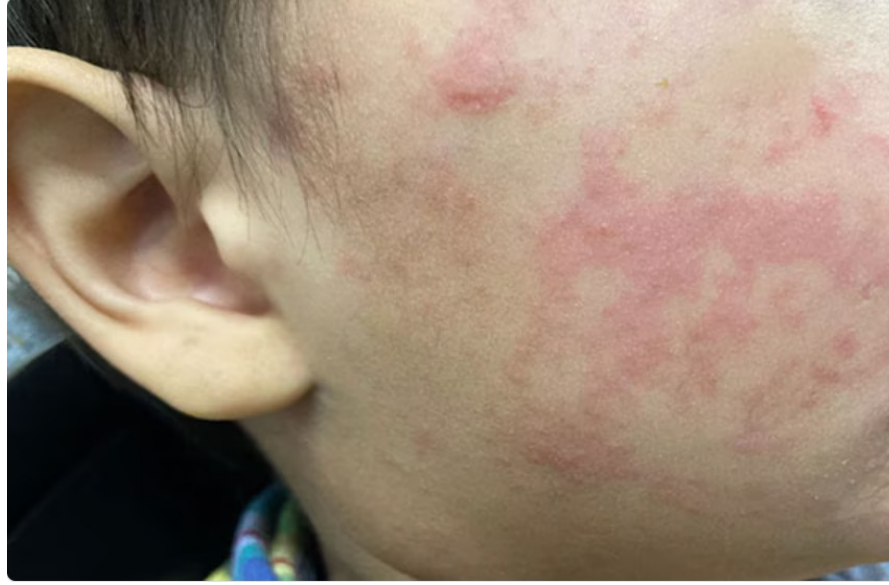


When to Consider Measles



In patients presenting with febrile rash and clinically compatible symptoms, especially if

- They recently traveled internationally or
- Were exposed to a person with febrile rash illness.

Measles is a reportable disease

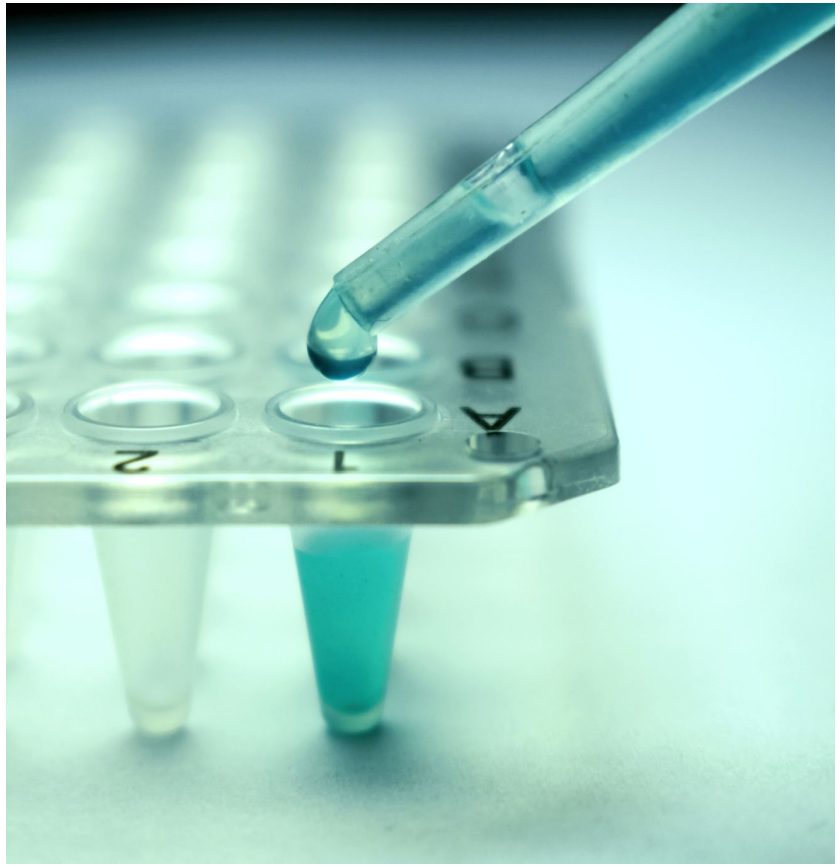
- Healthcare providers are required to report suspected measles cases to their local health department.

https://www.cdc.gov/measles/hcp/index.html

Koplik's spots on palate due to pre-eruptive measles on day three of the illness.

Diagnosis and laboratory testing

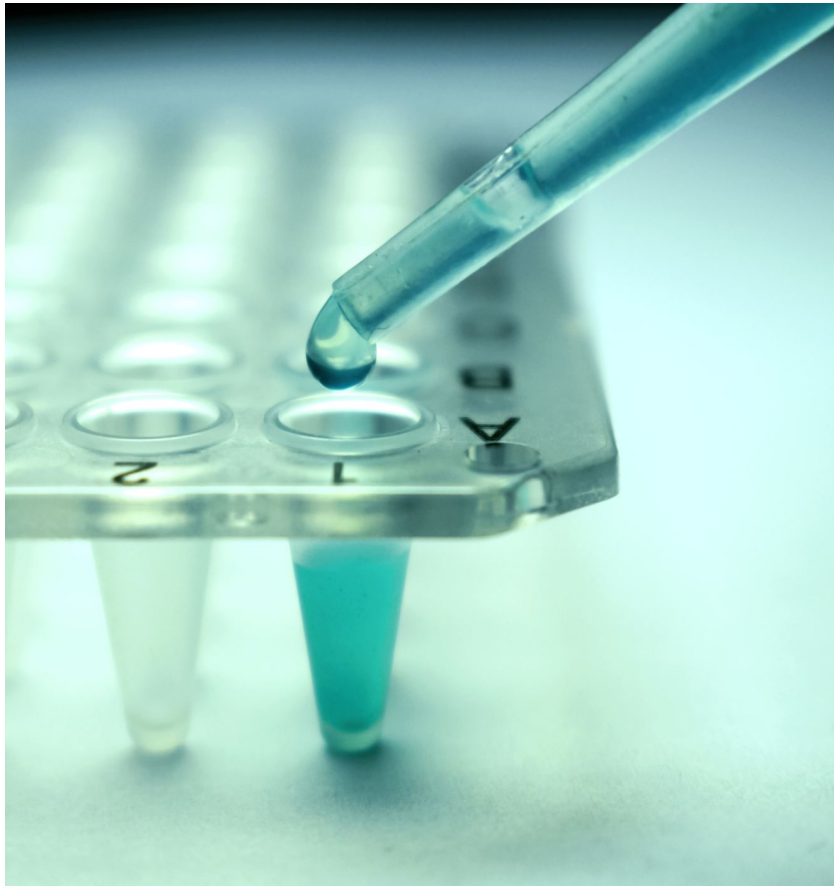
- **Detection of measles-specific**
  - IgM antibody in serum
  - RT-PCR) in a respiratory specimen
- **Obtain both a serum sample and a throat swab** (or NP swab)
  - At first contact with the patient
    .
- **Collecting both respiratory and urine samples**
  - Can increase the likelihood of detecting measles



https://www.cdc.gov/measles/hcp/index.html

Diagnosis and laboratory testing

Test	Specimen Type	Description
RT-PCR	**OP or NP swab Urine**	• Most sensitive within 3 days of rash onset • Can be positive up to 10 days after rash onset. • Primarily available through the SHD
IgM	**Serum**	• Confirms measles • Most sensitive 3 or more days after rash onset (negative IgM within 3 days does not rule it out) • False-positive IgM can occur duet o cross-reactivity with other viruses
IgG	**Serum**	• Indicates a recent or prior exposure to measles virus or vaccine



Obtain both a serum sample and a OP/NP swab at first contact with the patient

RT-PCR: Reverse Transcriptase Polymerase Chain Reaction, OP: Oropharyngeal, NP: Nasopharyngeal, SHD: State Health Department

Complications

- **Common complications from measles include:**
  - Otitis media, bronchopneumonia, laryngotracheobronchitis, and diarrhea.
  - Previously healthy children can have serious illness
- **1/1,000 cases will develop acute encephalitis**
  - Which often results in permanent brain damage.
- **1-3/ 1,000 children die of respiratory and neurologic complications.**
  - Subacute Sclerosing Pan Encephalitis, rare, but fatal
  - Develop 7 to 10 years after measles infection.

People at high risk for complications include:

- Infants and children aged <5 years
- Adults aged >20 years
- Pregnant women
- People with weakened immune systems, such as from leukemia and HIV infection

SSPE: Subacute Sclerosing Pan Encephalitis

https://www.cdc.gov/measles/hcp/index.html

Treatment

There is no specific antiviral therapy for measles.

Severe measles cases among children, should be immediately treated with vitamin A.

- 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 old

Ribavirin

- May be a consideration in severe cases

https://www.cdc.gov/measles/hcp/index.html

Post-exposure Prophylaxis

Indication

- People exposed to measles who cannot readily show that they have evidence of immunity against measles should be offered PEP.

PEP Options

- Administer MMR vaccine within 72 hours of initial measles exposure Immunoglobulin (IG) within six days of exposure.
- **DO NOT** administer MMR vaccine and IG simultaneously, as this invalidates the vaccine.

https://www.cdc.gov/measles/hcp/index.html

Acceptable presumptive evidence of immunity against measles includes at least one of the following

- **Written documentation of adequate vaccination:**
  - One or more doses of a measles-containing vaccine administered on or after the first birthday for preschool-age children and adults not at high risk
  - Two doses of measles-containing vaccine for school-age children and adults at high risk, including college students, healthcare personnel, and international travelers

- **Laboratory evidence of immunity**

- **Birth before 1957**

Do not accept verbal reports of vaccination without written documentation as presumptive evidence of immunity

https://www.cdc.gov/measles/hcp/index.html

Measles Isolation

How long should patients with measles remain in Airborne Precautions

- Immunocompetent patients for 4 days after the onset of rash
- Immunocompromised patients for the duration of illness (due to prolonged virus shedding)

Susceptible individuals should not enter the room of patients with suspected or confirmed measles.

- **Exposed susceptible** individuals should be excluded from work from day 5 through day 21 after exposure.
- Even those who were vaccinated within 72 hours should be excluded.

https://www.cdc.gov/measles/hcp/index.html

Measles Isolation

How long should patients with measles isolate?

- In4 days after they develop a rash
- Airborne precautions should be followed in healthcare settings regardless of vaccination status

Where should you place a patient with measles

- Single-patient airborne infection isolation room
- All healthcare staff entering the room should adhere to airborne precaution.

https://www.cdc.gov/measles/hcp/index.html

B virus (cercopithecine herpesvirus): A zoonotic infection

Alpha herpes virus endemic in Asian macaques of the genus Macaca

- Asymptomatic or mild disease in monkeys (seroprevalence 25%-100%)
- Fatal encephalomyelitis in 50-70% of untreated human infections.
- Less than 50 documented human infections since 1932

Transmission

- Primarily through bites, scratches, or percutaneous inoculation
- Mucosal splash exposure has been reported.

Incubation period

- 3 -30 days (average 7days)

B virus (cercopithecine herpesvirus): A zoonotic infection

Clinical presentation

- influenza-like symptoms (fever, headache, myalgia),
- Pain/numbness/itching with or without blisters at the inoculation site.
- Acute ascending encephalomyelitis
- Respiratory failure from ascending paralysis
- Fatality is high despite treatment, and survivors have neurologic sequelae

Latency in sensory ganglia

- Reactivation has been documented decades after initial infection.

Diagnosis

- Serology (cross-reactivity with HSV, SA8, and HVP-2)

Macaque Bite Management

Immediate thorough wound cleaning: critical first step	• With soap and running water or a virucidal antiseptic like povidone iodine, with copious irrigation.
B virus postexposure prophylaxis: a potentially life-saving consideration	• Antiviral prophylaxis with acyclovir or ganciclovir should be considered for high-risk exposures, including any deep bites and wounds to the head, neck, or torso. Contact medical expert
Rabies postexposure prophylaxis	• Rabies immunoglobulin and vaccine series initiated based on exposure and local rabies epidemiology.

Macaque Bite Management

Tetanus immunization status

- **Administer tetanus toxoid–containing vaccine (Tdap or Td)**
  - If the most recent dose was more than 5 years ago or
  - Has not completed a primary series of at least 3 doses.

Antibiotic prophylaxis should be considered on a case-by-case basis

- Particularly for hand injuries or moderate to severe wounds. [5]
- Amoxicillin-clavulanate is first-line choice, it covers polymicrobial flora typical of bite wounds, including *Pasteurella* species.[6]
- Alternative regimens include second-generation cephalosporins with anaerobic coverage, carbapenems, moxifloxacin, or doxycycline.[6]

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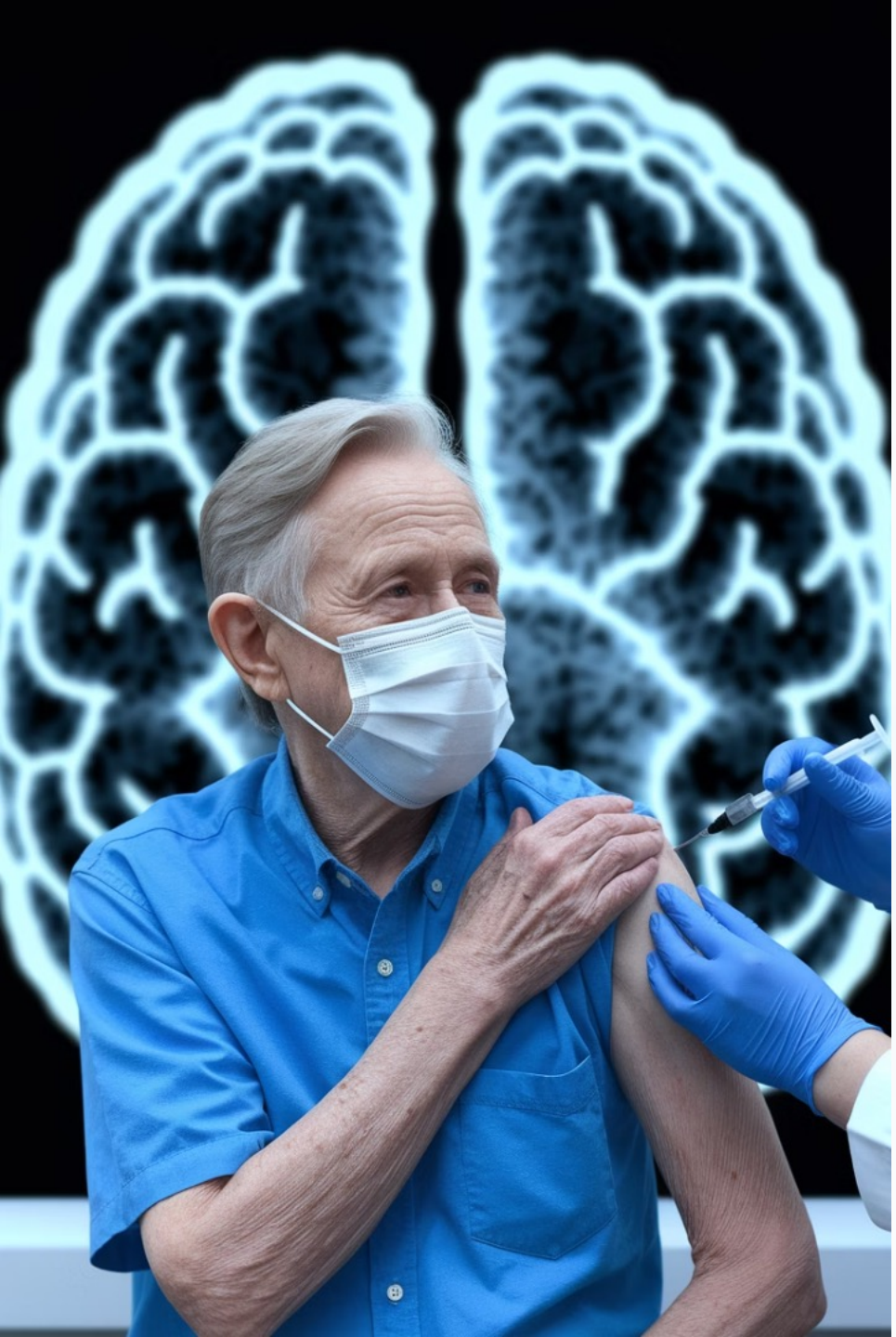

Vaccine for Dementia?

Herpes Connection

Implicated in dementia development

Study Design

Compared vaccinated vs unvaccinated cohorts

Key Finding

20% less dementia in vaccinated group

Mechanism

May reduce viral impact and inflammation

Nature.com. Published online April 2, 2025

https://doi.org/10.1038/s41586-025-08800-x

Background: Herpes Zoster Vaccination & Dementia

- Emerging evidence links herpesvirus reactivation and neurodegeneration
- Two prior natural experiments suggest live attenuated HZ vaccine reduces dementia risk
- Ontario age-based eligibility created a natural experiment
- Objective: Evaluate effect of HZ vaccination on incident dementia (≥70 yrs)
- Triangulation using regression discontinuity + quasi-experimental methods

Pomirchy, Michael et al The Lancet Neurology, Volume 25, Issue 2, 170 - 180

Herpes zoster vaccination and incident dementia in Canada: an analysis of natural experiments

Study Population

- 464,637 patients in the Canadian Primary Care Sentinel Surveillance Network (CPCSSN)
- Born 1930–1960, registered with primary care providers as of Sept 15, 2016
- Dementia diagnoses assessed via EHR data (1990–2022)

Natural Experiments

- Primary cutoff: **Jan 1, 1946**
- Secondary cutoff: **Jan 1, 1945**

Compared individuals born immediately before vs after eligibility thresholds

- Groups assumed comparable except for vaccination eligibility

Analytical Approach

- Regression Discontinuity Analysis → effect on: Vaccination uptake and Incident dementia
- Synthetic Difference-in-Differences
  - Synthetic Control Methods: Compared Ontario birth cohorts with same cohorts in provinces without HZ programs

Pomirchy, Michael et al The Lancet Neurology, Volume 25, Issue 2, 170 - 180

Herpes zoster vaccination and incident dementia in Canada: an analysis of natural experiments
Key Findings

Results:

- No baseline health differences between comparison groups
- Birth before vs after Jan 1, 1946: associated with ↓ Dementia by **2.0 percentage points** (95% CI 0.4–3.5; p=0.012) over 5.5 years
- Replicated at the Jan 1, 1945 threshold: Associated with ↓ Dementia by **2.0 percentage points** (95% CI 0.2–3.8; p=0.025)
- Eligible Ontario cohorts had lower dementia incidence than comparable cohorts in other provinces

Interpretation

- Evidence supports likely causal protective effect
- Suggests role of viral reactivation & neuroimmune mechanisms
- Mechanistic research warranted

Pomirchy, Michael et al The Lancet Neurology, Volume 25, Issue 2, 170 - 180