




Mpox and Measles Epidemiology, Surveillance and Public Health Response


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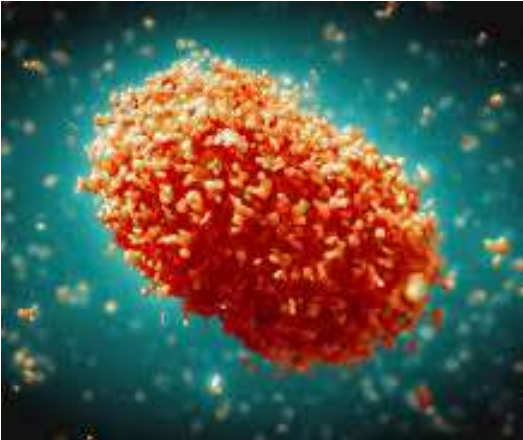


Mpox Epidemiology and Surveillance



Mpox

- There two types of the virus that causes mpox
 - **Clade I** – endemic to Central Africa, especially Democratic Republic of Congo (DRC)
 - **Clade II** – endemic to West Africa
 - Modes of transmission and prevention strategies are similar



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Clade I Mpox



- Accounted for most cases until the global mpox outbreak
- Clade I infections increasing
 - Clade 1a: responsible for recent outbreaks in Central/Eastern Africa since 2024
 - Contact with infected dead or live wild animals, household transmission, or patient care
 - High percentage reported in children <15 years of age.
 - Several reported in persons who travelled to impacted areas
 - Clade 1b: ongoing outbreak in DRC since late 2023
 - Spread via intimate contact between different demographics, including heterosexual spread with sex trade workers.
 - First reported clade 1b infection identified in the US in Nov 2024
 - Recent evidence suggest lower mortality rate for Clade 1a (1.4%-1.7%) and Clade 1b (<1%) than historically known for Clade I

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COUNTY OF LOS ANGELES
Public Health

Clade II mpox

- Clade II endemic to West Africa.
- Clade IIb responsible for the 2022-2023 global mpox outbreak
 - Prior to the outbreak, mpox transmitted via contact with infected wildlife or persons
 - During the outbreak, majority of infection transmitted through sexual networks of gay, bisexual, and other MSM
- To date >100,000 clade IIb cases in at least 122 countries, including 115 where mpox not previously reported

Legend
● Has not historically reported mpox
● Has historically reported mpox

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COUNTY OF LOS ANGELES
Public Health

Timeline

Mpox identification in monkeys
(Denmark)

First Mpox infection in humans
(DRC)

6 cases reported in humans in Africa
(DRC)

First outbreak outside of Africa
(USA)

Outbreak in Nigeria

Mpox detected on 8 occasions outside of Africa

The largest multi-country outbreak

Official end of the 2022-2023 outbreak

Outbreak in endemic areas

1958

1970

1971

2003

2017

2018

2021

2022

2023

2024

- Localized, limited to endemic areas
- Small outbreaks in African countries
- Gradual & sporadic occurrence
- Animal-to-human transmission

- 47 cases
- Animal-to-human transmission
- Humans were infected by contact with prairie dogs, infected by contact with rodents from Ghana

- > 118 cases
- Largest outbreak in history until then
- Most cases detected in urban areas

- 4 countries
- Infections related to travel to endemic areas
- Secondary and tertiary human-to-human transmissions were reported



- WHO declared PHEIC (23/07/22)
- > 99000 cases
- 207 deaths
- 122 countries
- Most cases in non-endemic countries
- Rapidly spread via sexual contact

- WHO declared the end of PHEIC (11/05/23)
- Decreased number of infections
- No changes in severity
- No changes in clinical manifestations

- WHO declared PHEIC (14/08/24)
- High number of cases reported in Africa
- Spread of new sexually transmissible strain (Clade Ib)

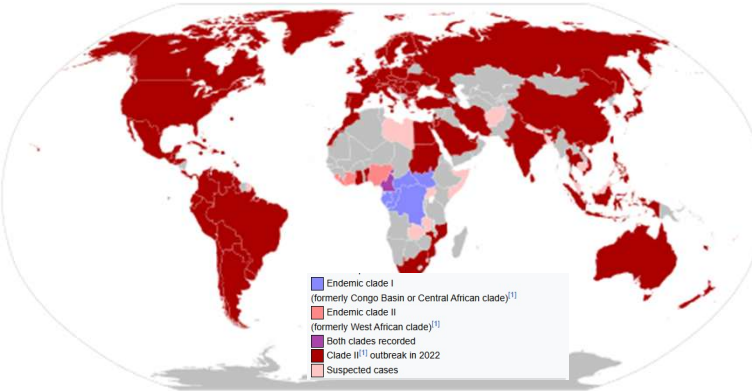
Graphic: Allergy, Volume: 79, Issue: 12, Pages: 3285-3309, First published: 04 November 2024, DOI: (10.1111/all.16374)

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Global Mpox Clade IIb Outbreak, 2022-2023

- May 2022 to August 2023
- 1st case identified in the UK with recent travel to Nigeria
- Majority of cases acquired through close, extended physical contact, particularly intimate or sexual contact.
 - Outbreak has primarily affected gay, bisexual, and other men who have sex with men (MSM).
 - Other impacted groups were people with multiple sexual partners, sex workers, and health-care workers caring for infected persons.



April 2025 ACIP Mpox Slides

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Mpox in the US: May 2022-March 2025

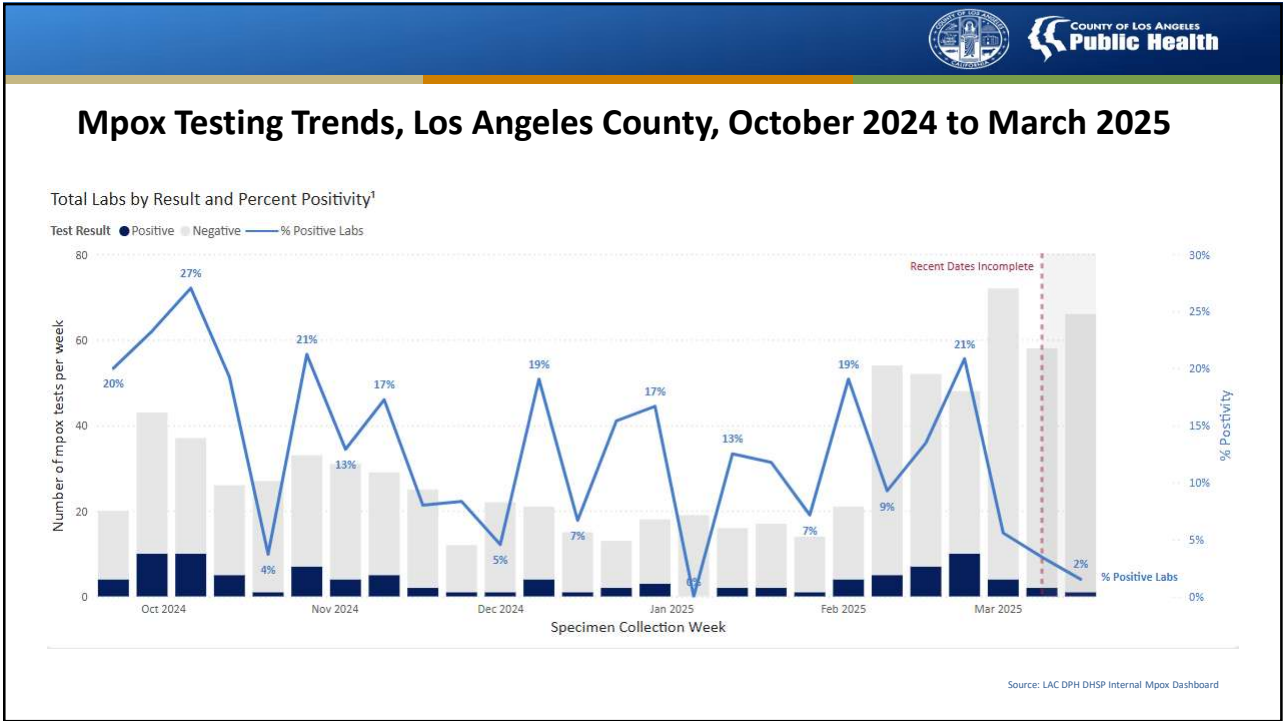
U.S. Daily Mpox Cases and 7-Day Moving Average



- U.S. case counts and deaths comprise 1/3 of cases and deaths globally
 - >30,000 cases
 - >60 deaths

April 2025 ACIP Mpox Slides

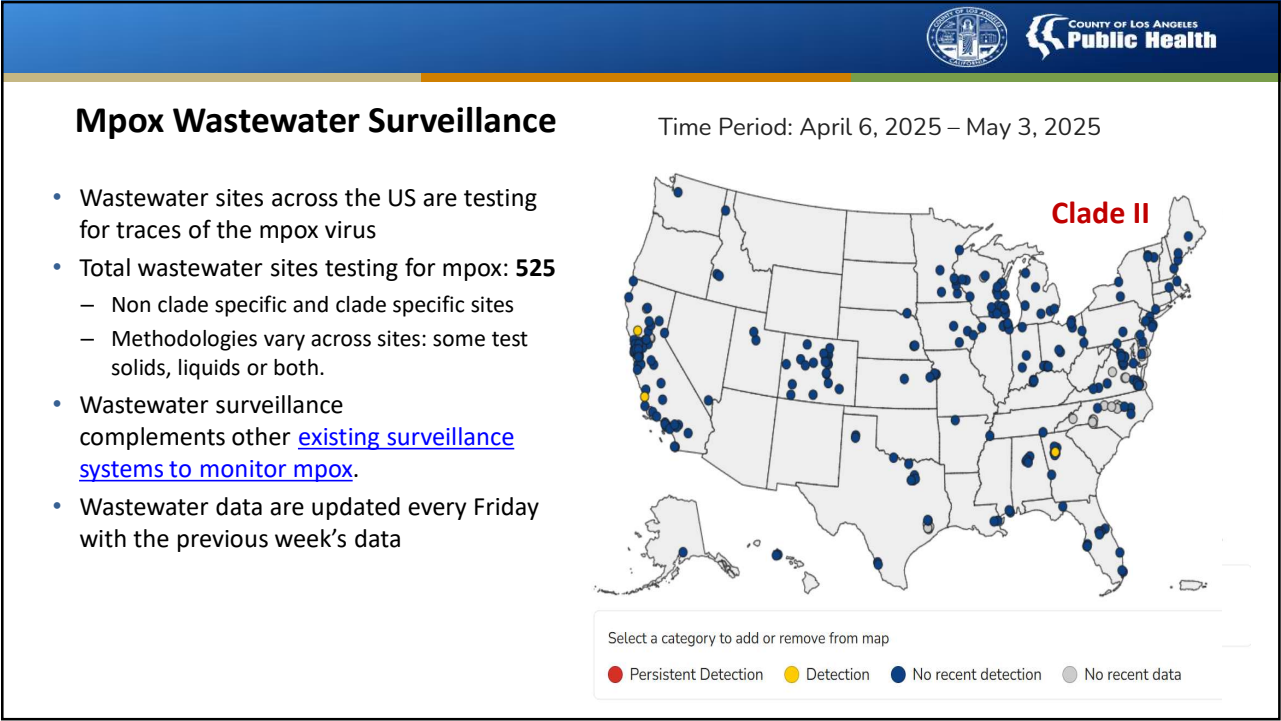
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Mpox Surveillance


- Mpox cases detected through:
 - Provider reporting
 - Laboratory electronic reporting
- Challenges
 - Some providers not aware of reporting requirement
 - Smaller labs may not be connected with electronic laboratory reporting
 - Lab confirmation can take a few days
 - Undercounting
 - People with minimal or mild symptoms may not seek care/testing
 - Mpox can be transmitted asymptotically

[illegible]





Public Health Response to Mpox Los Angeles County



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Mpox Vaccination in Los Angeles County

Anyone who requests vaccination can receive it without having to disclose any information on personal risk.

Groups at highest risk for contracting mpox include:

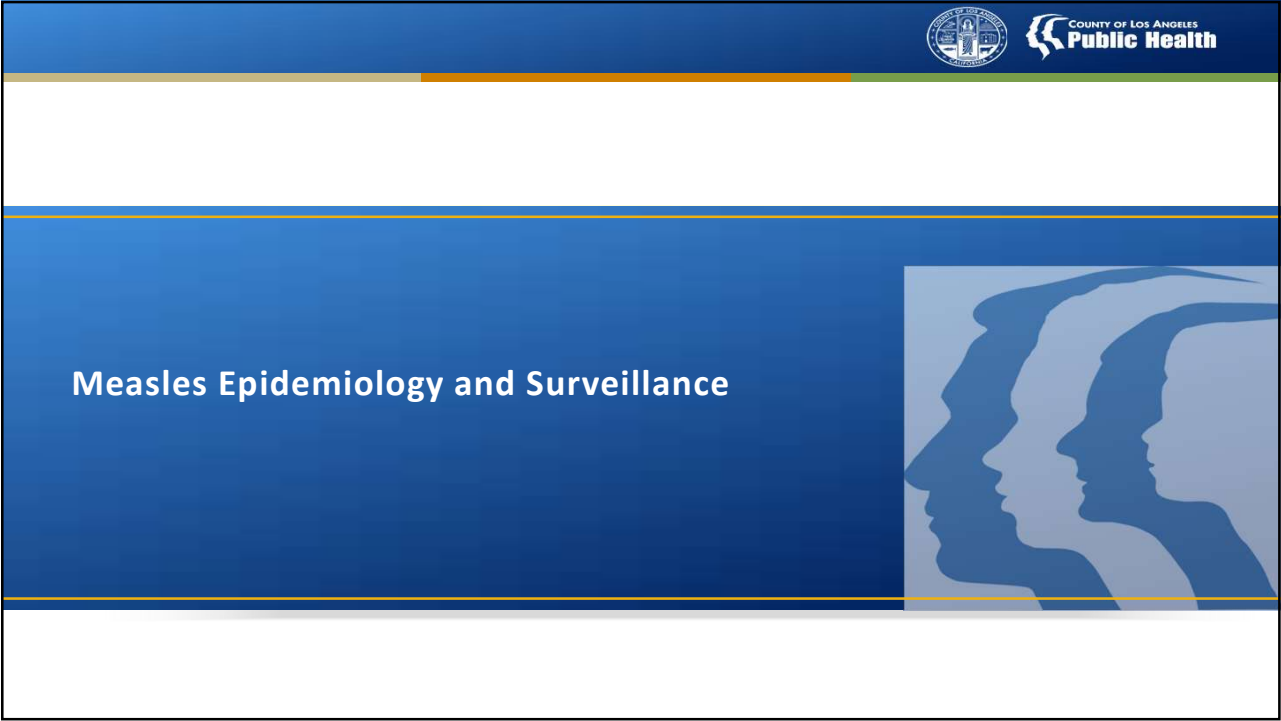
- Any man or transgender person who has sex with men or transgender persons
 - Persons of any gender or sexual orientation who engage in commercial sex work
 - Persons living with HIV
 - Persons who had skin-to-skin or intimate contact with someone with suspected or confirmed mpox
 - Sexual partners of people in any of the above groups
 - People who anticipate being in any of the above groups
- 146,758 doses administered by Los Angeles County providers, including 89,794 first doses and 56,964 second doses
 - Overall coverage: 76% one dose; 48% two doses
 - Coverage among persons living with HIV: 29% one dose; 22% two doses





Program Highlight: Los Angeles County Mpox Vaccination Incentive Program

- Financial incentive program to motivate persons living with diagnosed HIV (PLWDH) to receive the mpox vaccine
 - PLWDH in routine care received \$50 per dose
 - PLWDH out of care (>7 months) received \$100 per dose
- Partnered with safety net HIV clinics to distribute incentives and vaccine
- Program launched in June 2023 - January 2025
- Results
 - 36 participating clinics
 - 756 doses administered, including 125 doses to PLWDH who were out of HIV care
 - Incentive recipients were more likely to be Latino & Black compared to White & Asian
 - Estimated cost savings per case averted was up to ~\$250,000.








Classical Presentation

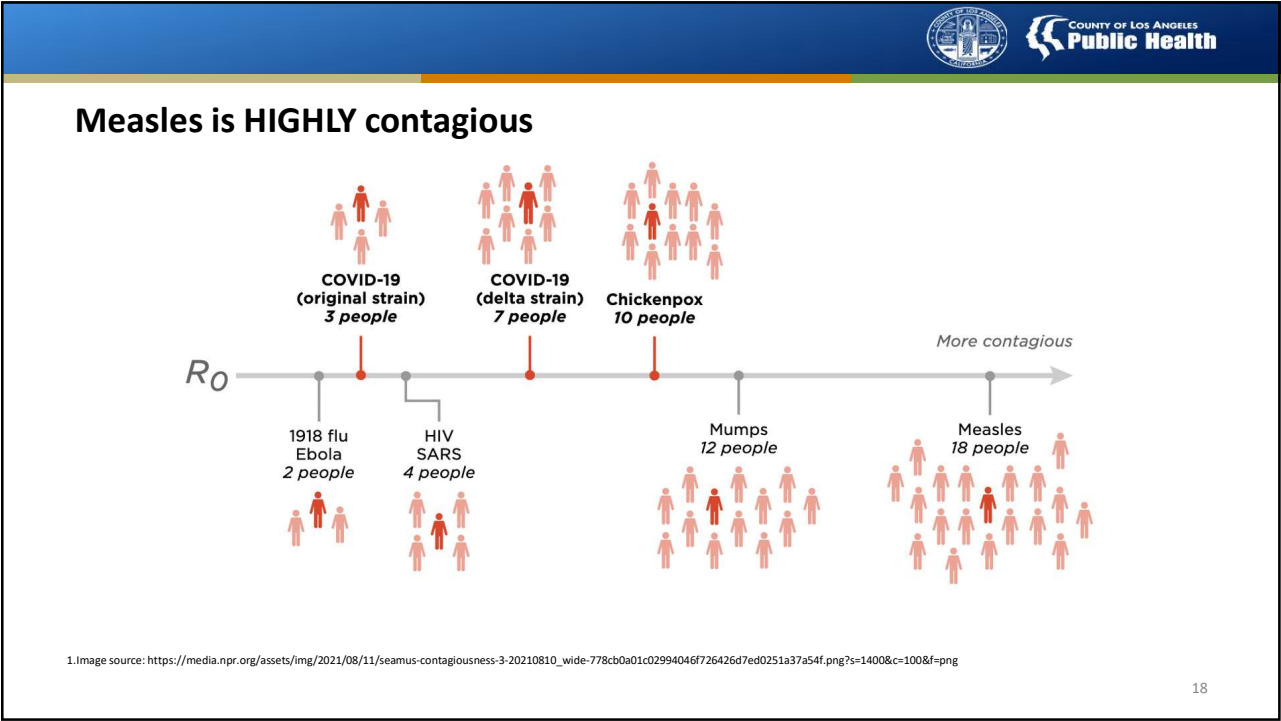
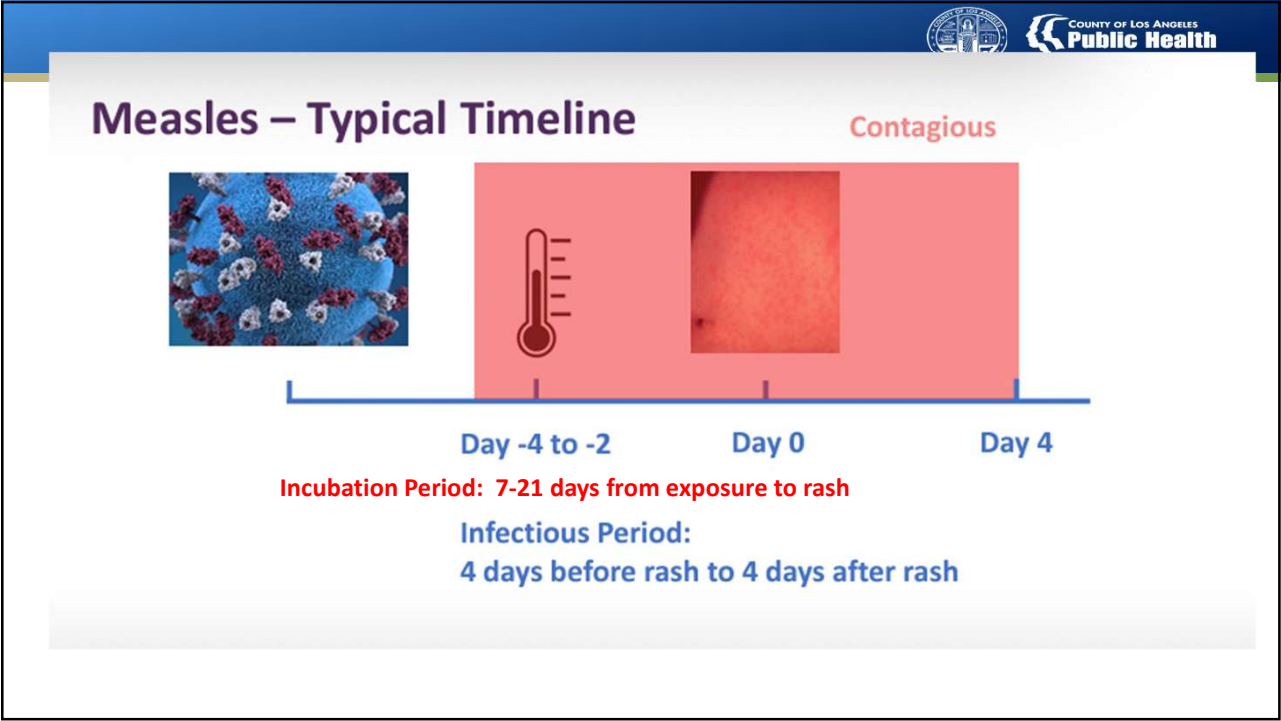
Fever (starts low-grade, then progresses to high-grade fever)



- 3 c's
 - Cough
 - Coryza
 - Conjunctivitis
- 2-4 days later:

Rash

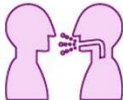
 - Starts on face/hairline
 - Spreads downward to neck, trunk extremities
 - Small raised bumps may also appear on top of the flat red spots.
 - The spots may become joined together as they spread from the head to the rest of the body (maculopapular)
 - Not itchy








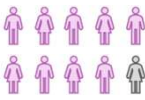
How does measles spread?



Spreads through air when infected person talks, breathes, coughs, or sneezes



Can stay in the air and live on surfaces for 2 hours after case has left



90% chance of becoming infected if exposed and not vaccinated

Image: <https://www.cdc.gov/measles/transmission.html>

Top 10 countries with measles outbreaks,
September 2024 – March 2025
(WHO provisional data as of April 2025)

Country	Number of Cases
Yemen	10,794
India	7,201
Pakistan	6,217
Ethiopia	5,309
Afghanistan	5,236
Thailand	5,142
Kyrgyzstan	4,502
Romania	4,077
Indonesia	2,751
Nigeria	1,892

Source: World Health Organization

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'Wake-up call': Measles cases doubled in Europe last year, say WHO and Unicef

Joint analysis of measles cases reveals Covid pandemic resulted in misinformation and vaccination delays



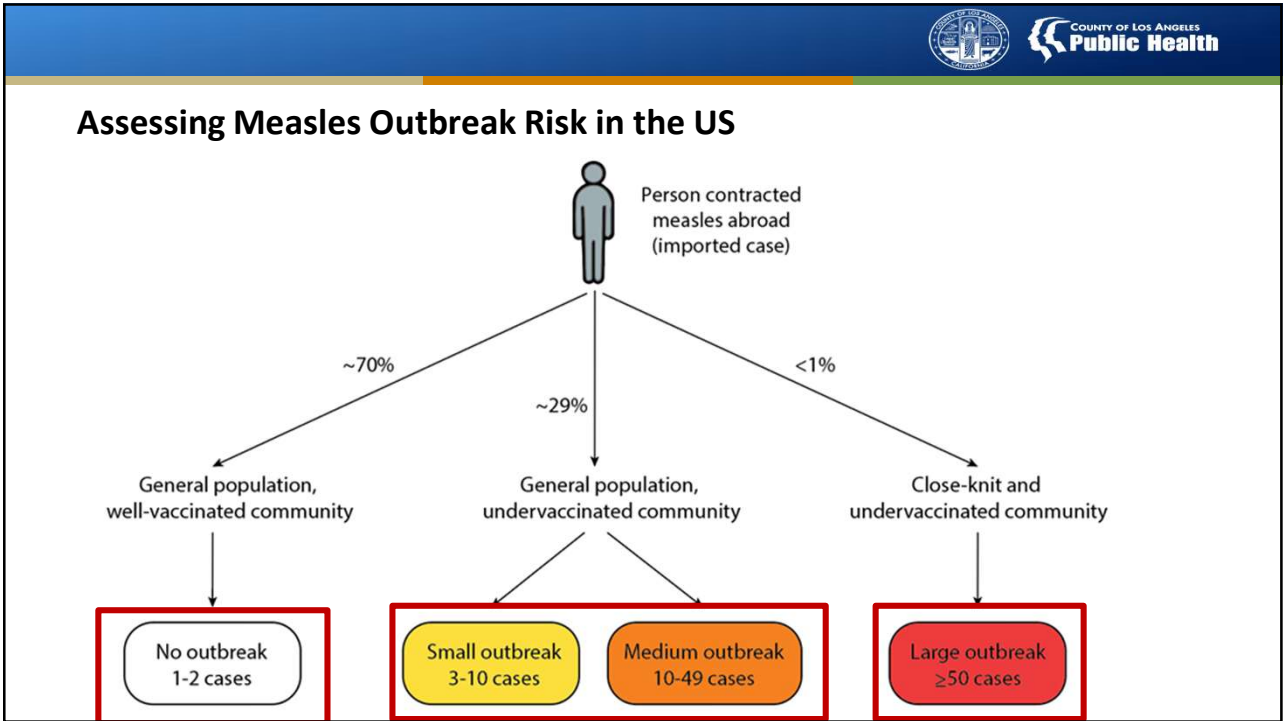
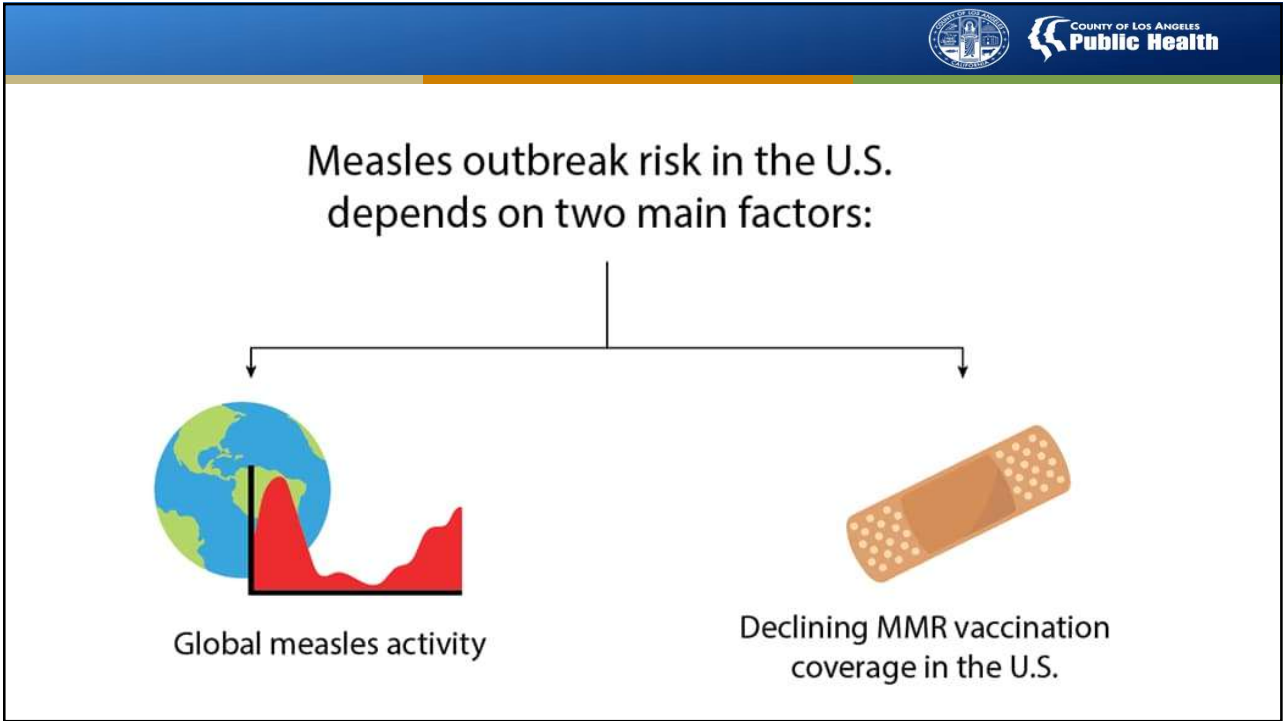
Across Europe, more than 50,000 cases of measles involved children under the age of five. Photograph: Alamy

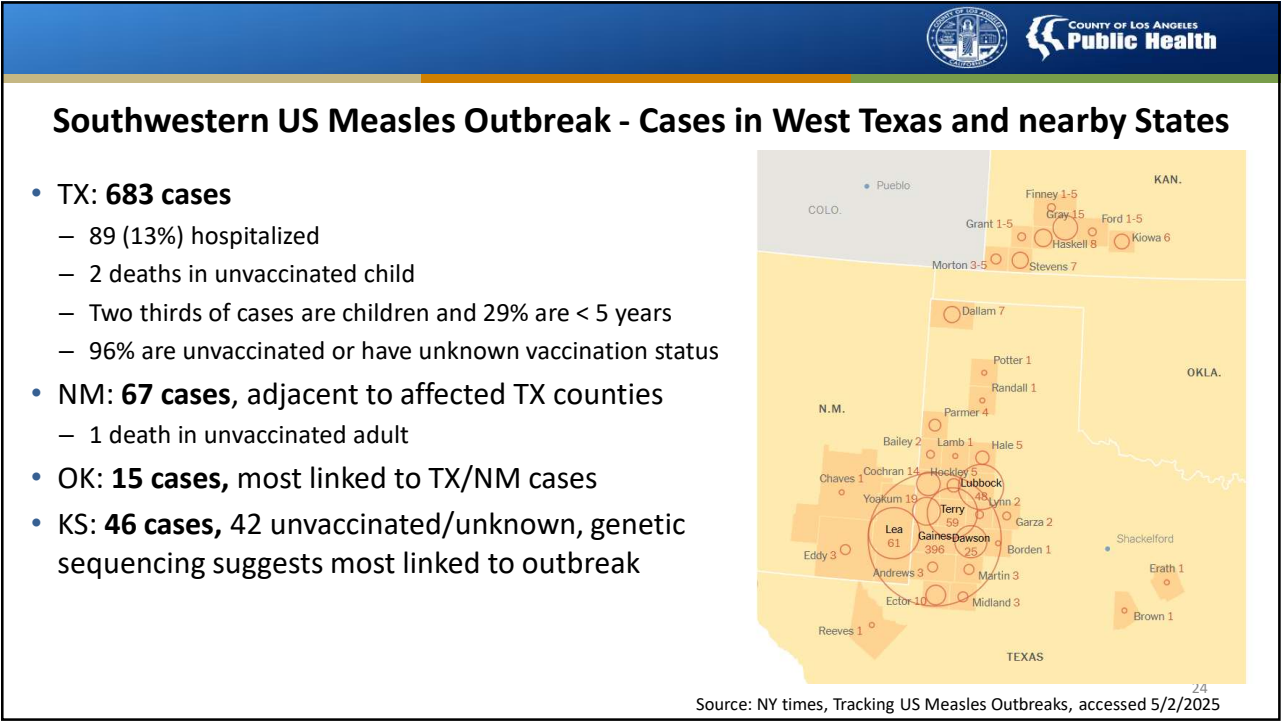
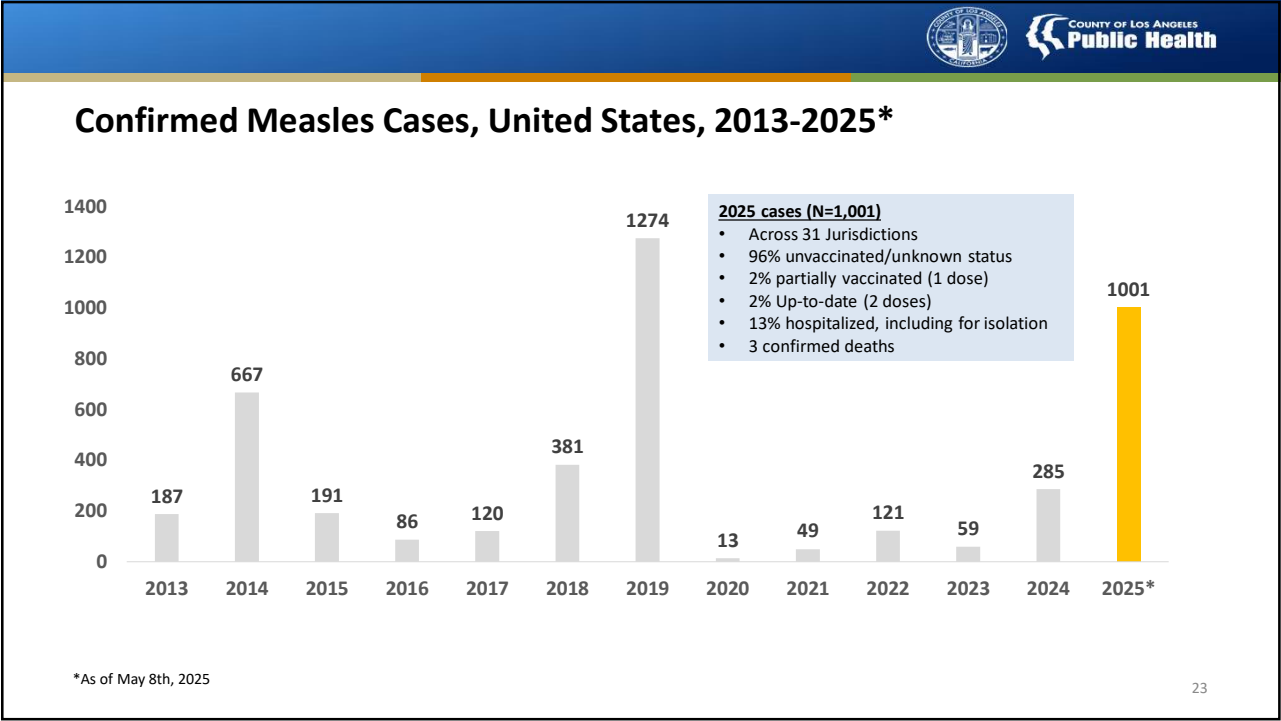
Cases of measles doubled last year in the European region, climbing to the highest level in nearly three decades, after the Covid-19 pandemic caused delays in routine vaccination and rampant misinformation, the World Health Organization and Unicef have said.


A joint analysis published on Thursday said 127,350 cases of measles, resulting in at least 38 deaths, were reported last year across the region, which includes 53 countries in Europe and Central Asia. In the vast majority of cases, those infected were unvaccinated or had an unknown vaccination status.

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Date of onset in week starting








- **11 confirmed** cases in 2025 in California
 - 9 had recent international travel. Mostly to southeast Asia
 - 1 was a close contact
 - 1 had recent travel to Texas
 - Vaccination status
 - 10 (91%) unvaccinated/Unknown
 - 1 dose: 0
 - 2 doses: 1 (9%)

VISITING ANOTHER COUNTRY? PROTECT YOUR FAMILY.

THINK MEASLES

International travelers are thinking COVID-19, but you should also think measles.



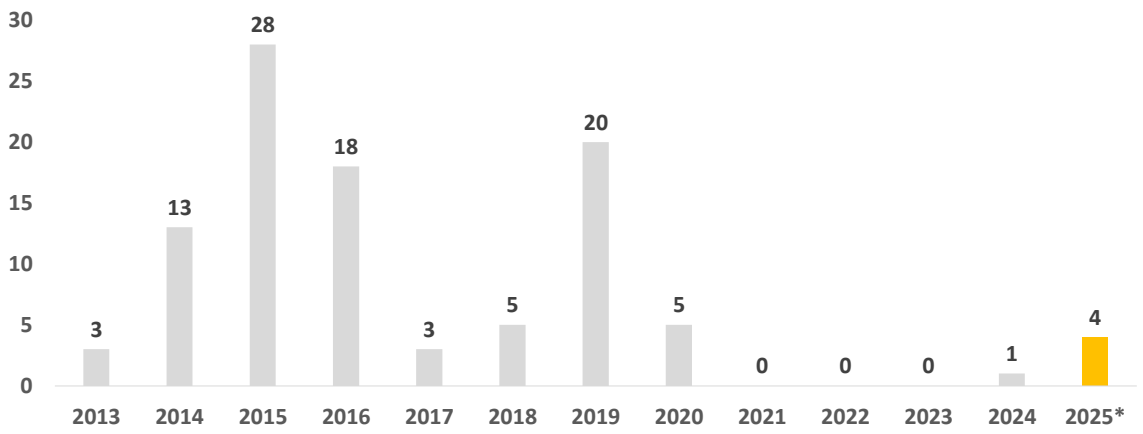
QUY VỊ SÁP VIỆNG MỘT QUỐC GIA KHÁC? HÃY BẢO VỆ GIA ĐÌNH QUÝ VỊ.

HÃY NGHĨ ĐẾN BỆNH SỞI

Những người đi du lịch nước ngoài luôn nghĩ đến COVID-19, họ quên đi rằng nên lưu ý cả bệnh sởi.

Data source: <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/measles.aspx>

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Confirmed Measles Cases, Los Angeles County, 2013-2025*

Year	Confirmed Cases
2013	3
2014	13
2015	28
2016	18
2017	3
2018	5
2019	20
2020	5
2021	0
2022	0
2023	0
2024	1
2025*	4


*Through May 8, 2025

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Public Health Response to Measles Cases Los Angeles County




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Measles response activities

- Case investigation
 - Interviews collect information on symptoms, immunization history, risk level, infectious period, exposure locations, and known contacts
 - Isolation
- Contact investigation
 - Contact tracing: Sharing same airspace with an infected person or being in these areas up to 1 hour after the infectious person has left the area
 - Follow-up based on risk of severe disease or transmission
 - Immunity status (inc. IgG testing), PEP, quarantine, exclusion, and symptom monitoring until end of surveillance period



NEWS RELEASE

313 N. Figueroa Street, Room 806 | Los Angeles, CA 90012 | (213) 288-8144 | media@ph.lacounty.gov

For Immediate Release:
April 25, 2025

Public Health Confirms Measles Case in Los Angeles County

The Los Angeles County Department of Public Health is investigating one case of measles in a Los Angeles County resident who travelled recently from Texas.

The traveler was not infectious during the time of travel. Public Health is identifying others who may have been potentially exposed and taking steps to confirm if they have been vaccinated against measles. Public Health is collaborating with the California Department of Public Health and the Texas Department of State Health Services on this investigation.

Individuals who have not had measles in the past and have not yet obtained the measles vaccine are at risk of developing measles from 7 to 21 days after being exposed and should monitor for symptoms. Exposed individuals who have been free of symptoms for more than 21 days are no longer at risk.

"Measles is a serious respiratory disease that spreads easily through the air and on surfaces, particularly among people who are not already protected from it," said Muntu Davis, MD, MPH, Los Angeles County Health Officer. "A person can spread the illness to others before they have symptoms, and it can take seven to twenty-one days for symptoms to show up after exposure. Measles can lead to severe disease in young children and vulnerable adults. The best way to protect yourself and your family from infection is with the highly effective measles vaccine."

Public Health encourages all residents to:

- Review their immunization and medical records to determine if they are protected against measles, especially before international travel or domestic travel in **areas experiencing measles outbreaks**. People who have not had measles infection or received the measles immunization previously are not protected from the measles virus and should talk with a health care provider about receiving the measles, mumps and rubella (MMR) vaccine.
- Contact and notify their health care provider as soon as possible about a potential exposure if they are pregnant, an infant, have a weakened immune system and/or are unimmunized regardless of vaccination history.
- If symptoms develop, stay at home and avoid school, work and any large gatherings. Call a healthcare provider immediately. Do not enter a health care facility before calling them and making them aware of your measles exposure and symptoms. Public Health can assist health care providers in appropriately diagnosing and managing your care.

About Measles

Measles spreads easily through the air when an infected person breathes, talks, sneezes or coughs. The virus can also be in the saliva and on

Measles outbreaks are resource intensive

Measles outbreaks can incur substantial costs for public health and individuals, and be hugely time consuming, interrupting many other critical public health functions

- Median outbreak size: 2 cases (range 1-58)
- Median contacts: 283 (range 44 – 8231)
- Median cost per outbreak: \$152,308 (range \$9,862 - \$1,063,936)
- Median cost per case: \$32,805 (range \$7,396 - \$76,154)
- Median cost per contact: \$223 (range \$81 - \$746)
- Approximate cost per day of investigation: \$4,000

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NEWS RELEASE

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For Immediate Release:

Public Health Confirms Measles Case in Los Angeles County Health Officials Identify Locations for Possible Measles Exposure

The Los Angeles County Department of Public Health has been notified by the California Department of Public Health of one case of measles in a non-Los Angeles County resident who traveled throughout Los Angeles County from Saturday, March 30, 2024, to Monday, April 1, 2024.

Individuals who were at the following locations during the dates and times below may be at risk of developing measles within 21 days from the exposure date.

Saturday, 3/30/24

- Sheraton Gateway Hotel: Gym *** 6101 W. Century Blvd., Los Angeles, CA 90045 (5:30 a.m. - 8 a.m.)
- Denny's - 5535 W. Century Blvd., Los Angeles, CA 90045 (time not yet determined)
- Universal Studios - 100 Universal City Plaza, Universal City, CA 91608
- Buca Di Beppo - 1000 Universal Studios Blvd., Universal City, CA 91608 (approx. 12 p.m.)
- Cletus Chicken Shack in Universal Studios - 100 Universal City Plaza, Universal City, CA 91608 (approx. 4 p.m.)
- Land Lab Doughnuts and EC Food Truck in Universal Studios - 100 Universal City Plaza, Universal City, CA 91608 (time not yet determined)
- Jell's Splendid Ice Cream - 445 N. Beverly Dr., Beverly Hills, CA 90210 (time not yet determined)
- Sheraton Gateway Hotel - 6101 W. Century Blvd., Los Angeles, CA 90045

Sunday, 3/31/24

- Sheraton Gateway Hotel: Gym—6101 W. Century Blvd., Los Angeles, CA 90045 (5:30 a.m.–8 a.m.)
- Jack in the Box—1127 W. Manchester Blvd., Inglewood, CA 90301 (approx. 11:00 a.m.)
- Santa Monica Pier—Santa Monica, CA 90401
- Pier Gear—380 Santa Monica Pier #1, Santa Monica, CA 90401 (time not yet determined)
- El Torito Mexican Restaurant—13715 Fiji Way, Marina Del Rey, CA 90292 (8:00 p.m.–8 p.m.)
- Sheraton Gateway Hotel—6101 W. Century Blvd., Los Angeles, CA 90045

Monday, 4/1/24

- Sheraton Gateway Hotel — 6101 W. Century Blvd., Los Angeles, CA 90045
- Denny's — 5535 W Century Blvd, Los Angeles, CA 90045 (time not yet determined)

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L.A. County Public Health Warns About Traveler With Measles Visiting Local Attractions, Including Universal Studios And Santa Monica Pier

By [Bruce Haring](#)

April 14, 2024 11:32am



Universal Studios
Paul Harris

L.A. public health officials issue measles exposure warning for Universal Studios, other locations



By Hannah Wiley
Staff Writer

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Thank you! Questions?



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