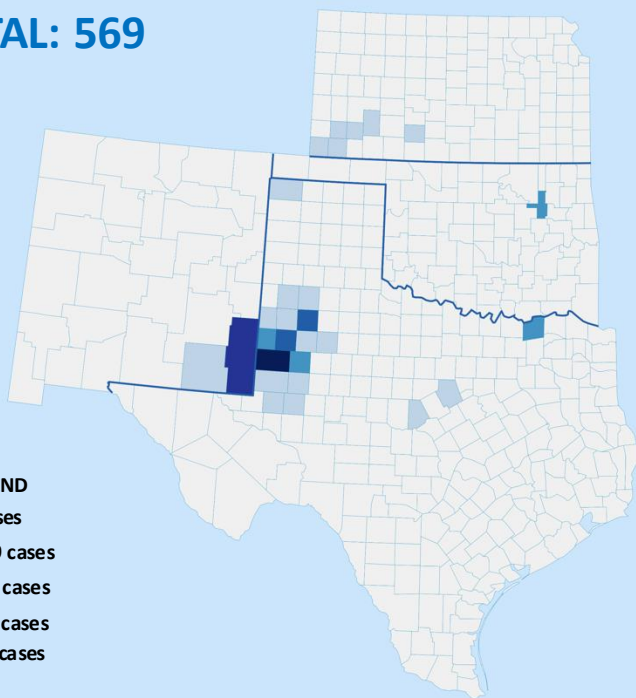


YALE SCHOOL OF PUBLIC HEALTH - ESF-8 VIRTUAL MEDICAL OPERATION CENTER SPECIAL REPORT

# MEASLES OUTBREAK - SOUTHWEST U.S. - 2025

**TOTAL: 569**



**LEGEND**

- 100+ Cases
- 50 - 99 cases
- 20 - 49 cases
- 10 - 19 cases
- 1 - 9 cases

## MORBIDITY AND MORTALITY

STATE	CASES	HOSPITALIZATIONS	DEATHS
TX	481	56	2
NM	54	2	1
OK	10	0	0
KS	24	0	0
<b>TOTAL</b>	<b>569</b>	<b>58</b>	<b>3</b>

BACKGROUND

TIMELINE

CURRENT SITUATION

EPI CURVE / CASES OVER TIME

EPI SUMMARY

US OUTLOOK

KOPLIK SPOTS

VITAMIN A – TOXICITY

WASTEWATER MONITORING

EFFECTIVE COMMUNICATION

CONTRIBUTORS

AS OF: 1300 HRS EST  
4/6/2025

## RISK ASSESSMENT IN OUTBREAK AREAS

Risk for Localized Spread	Risk to unvaccinated populations in and around the outbreak areas	Risk to Children	Potential for sustained transmission
<b>HIGH</b>	<b>HIGH</b>	<b>HGH</b>	<b>HIGH</b>

## LINKS

### TEXAS LINKS

- [TEXAS DEPARTMENT OF STATE HEALTH SERVICES](#)
- [FACEBOOK | X](#)
- [HEALTH ALERTS](#)
- [THE SOUTH PLAINS PUBLIC HEALTH DISTRICT](#)

### NEW MEXICO LINKS

- [NEW MEXICO DEPARTMENT OF HEALTH](#)
- [NMDOH NEWS RELEASE](#)

### OKLAHOMA LINKS

- [OKLAHOMA STATE DEPARTMENT OF HEALTH](#)

### KANSAS

- [KANSAS DEPARTMENT OF HEALTH AN ENVIRONMENT](#)

### RESOURCES FOR HEALTHCARE PROVIDERS

- [CDC – MEASLES FOR THE HEALTHCARE PROFESSIONALS](#)
- [CDC VIDEO: MEASLES CLINICAL FEATURES AND DIAGNOSIS](#)
- [CDC CLINICAL IMAGES OF MEASLES](#)
- [CDC LABORATORY TESTING FOR MEASLES](#)
- [CDC ROUTINE VACCINATION RECOMMENDATIONS](#)
- [CDC ISOLATION RECOMMENDATIONS](#)
- [CDC: MEASLES CONTROL IN HEALTHCARE SETTINGS](#)
- [CDC ALERT SIGN INFOGRAPHIC](#)
- [CDC POSTER FOR OFFICE DISPLAY](#)
- [NY HEALTH: RECOGNIZING MEASLES FACT SHEET](#)
- [NY HEALTH: DEALING WITH VACCINE HESITANCY](#)
- [MEASLES POST-EXPOSURE PROPHYLAXIS](#)
- [MEASLES REVIEW FOR PROVIDERS](#)

### MEASLES TESTING LABORATORIES

- [CDC MEASLES VIRUS LABORATORY](#)

### RESOURCES FOR THE PUBLIC

- [CDC – MEASLES](#)
- [MEASLES CASES AND OUTBREAKS](#)
- [NYSDOH: YOU CAN PREVENT MEASLES](#)
- [CDC VIDEO: GET VACCINATED AND PREVENT MEASLES](#)
- [CDC VACCINE SHOT FOR MEASLES](#)
- [DIRECTORY FOR LOCAL HEALTH DEPARTMENTS](#)

### RESOURCES FOR EMS PROVIDERS

- [GUIDANCE FOR SUSPECTED MEASLES PATIENT](#)
- [NYSDOH POLICY STATEMENT](#)

### PORTALS, BLOGS, AND RESOURCES

- [CIDRAP](#)
- [CORI](#)
- [FORCE OF INFECTION](#)
- [KAISER HEALTH NEWS](#)
- [MEDPAGE TODAY](#)
- [NY STATE GLOBAL HEALTH UPDATE](#)
- [THE PANDEMIC CENTER TRACKING REPORT](#)
- [YOUR LOCAL EPIDEMIOLOGIST](#)



\*The situation is still developing. Numbers are expected to increase.

# BACKGROUND

## TYPE OF PUBLIC HEALTH EMERGENCY: **LARGE REGIONAL MEASLES OUTBREAK**

**OVERVIEW:** A measles outbreak originating in West Texas has been linked to confirmed cases in New Mexico, with additional cases reported in Oklahoma and Kansas. **58** individuals have required hospitalization, and **3 deaths, 2 children in Texas and 1 adult in New Mexico.** These fatalities mark the first measles-related deaths in the United States since 2015 and the first pediatric measles death since 2003.

**THE VIRUS:** [Measles](#) is a highly contagious viral disease transmitted primarily through respiratory droplets expelled by coughing or sneezing. Common symptoms include high fever, cough, runny nose, conjunctivitis, and a distinctive red, blotchy rash. The virus can remain airborne or infectious on surfaces for up to two hours, contributing to its high transmissibility. Despite being preventable through the [MMR](#) (measles, mumps, and rubella) vaccine, outbreaks persist in communities with low vaccination coverage, increasing the risk of severe complications.

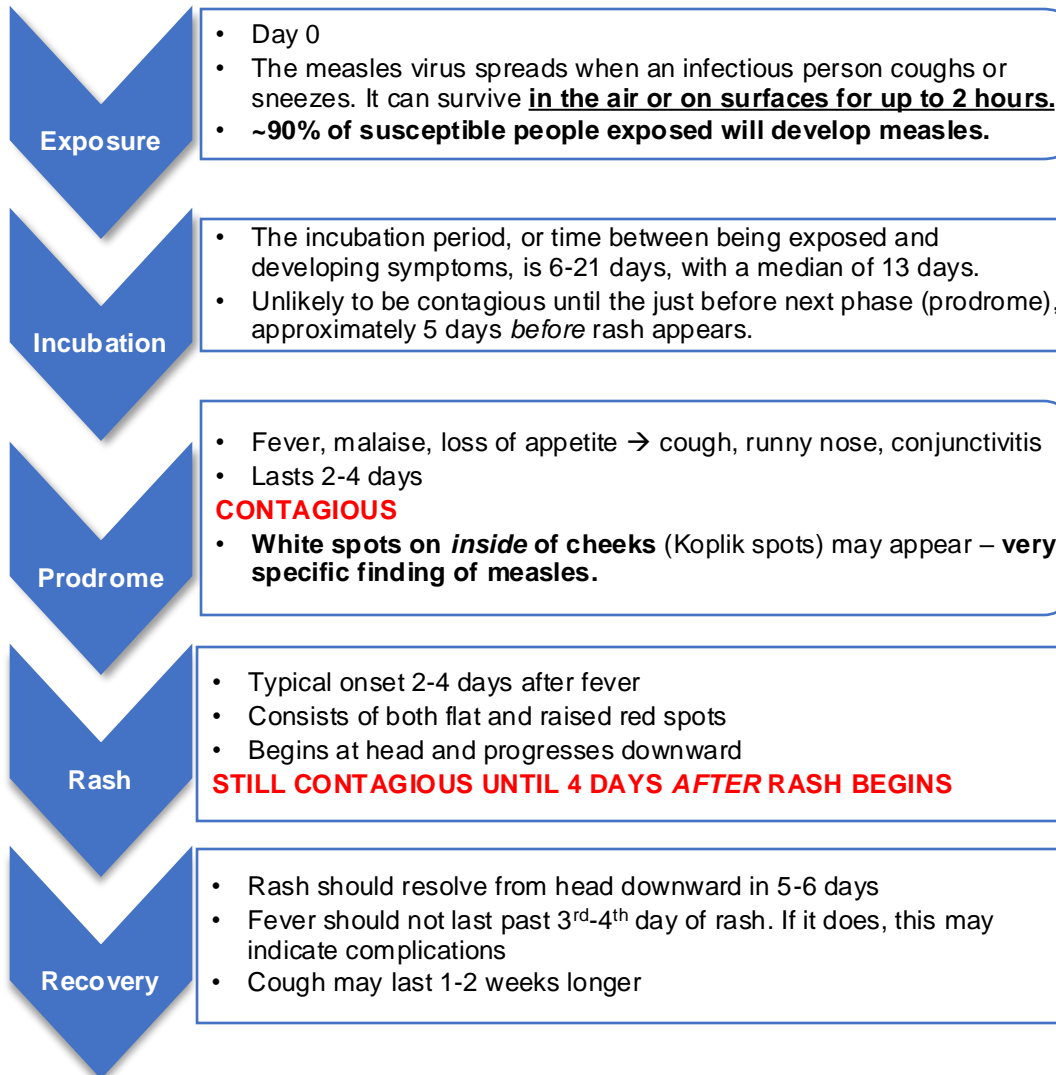
### FACTORS DRIVING THIS OUTBREAK:

- Low vaccination rates
- High levels of vaccine hesitancy and misinformation
- Community mistrust in public health authorities, heightened by post-pandemic attitudes

### PUBLIC HEALTH RESPONSE:

- Increased vaccination campaigns and community outreach
- Efforts to build trust and combat misinformation
- Coordination with local schools, healthcare providers, hospitals, and community organizations.

## PHASES OF MEASLES INFECTION

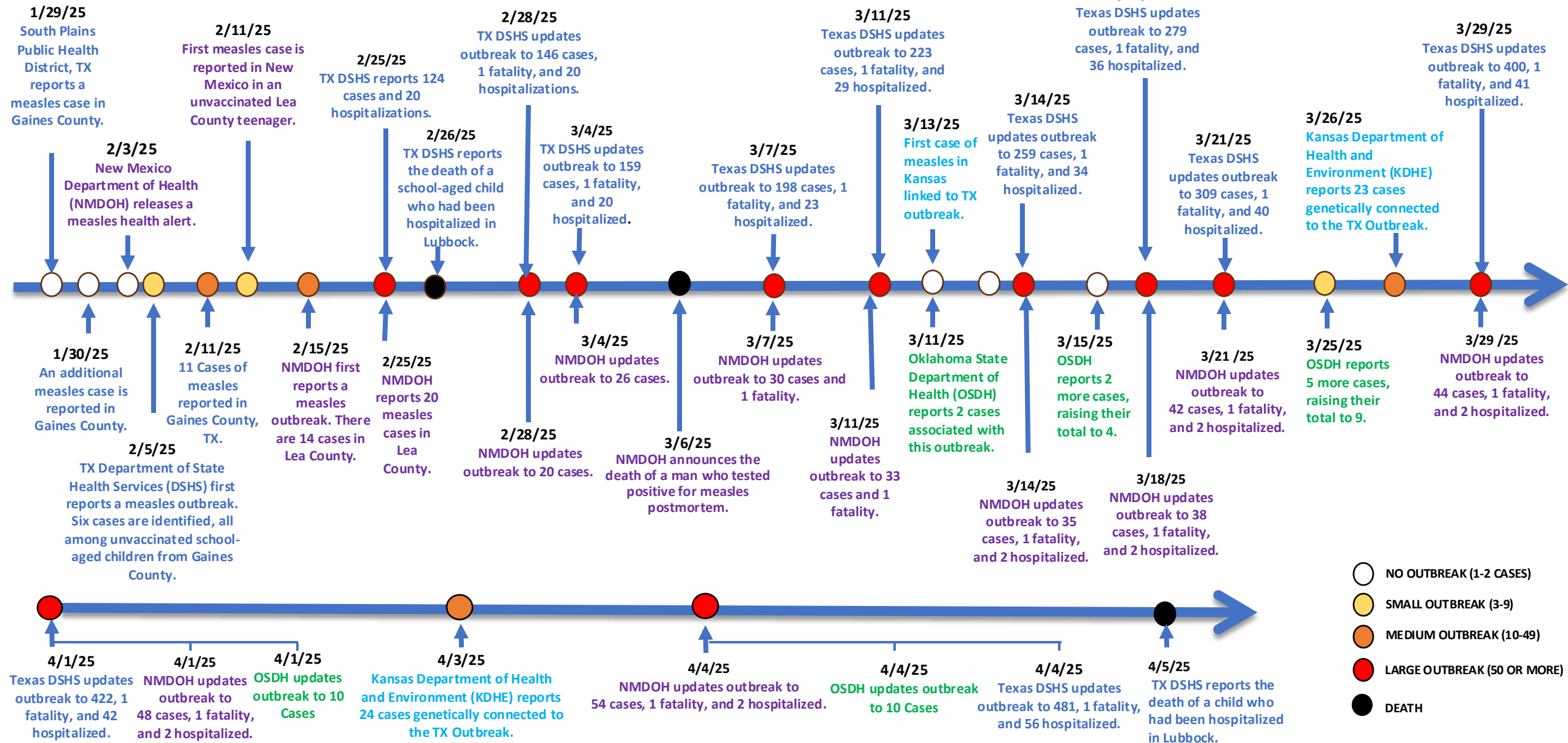


**Total time from exposure to recovery:**  
Approx. 22-24 days

**Total time contagious:**  
Approx. 9 days

# TIMELINE (JANUARY – MARCH 2025)

SOURCES: [TEXAS DSHS](#), [NMDOH](#), [OSDH](#), [KDHE](#)



# CURRENT SITUATION

The Southwestern outbreak now stands at **569 cases**, including confirmed and pending cases across **Texas, New Mexico, Oklahoma, and Kansas**. Experts warn this is **likely a severe undercount**. The situation remains fluid, with case numbers expected to rise. Experts project the outbreak could last **up to a year**.

## Texas:

- A second child has died of measles. On Thursday, 4/3/2025 an 8-year-old girl died of, “measles pulmonary failure” The death is under investigation. UMC Health System reported the girl was unvaccinated and had no underlying health conditions. ([NYT](#))
- As of 4/4/25, the Texas Department of State Health Services said 481 cases of measles had been confirmed, a 14% jump over last week. This includes six infants and toddlers at a Lubbock day care center who tested positive within the past two weeks. Two of those children are among 56 people who’ve been hospitalized . ([NBC NEWS](#))

## CURRENT CASE COUNT: 569 (As of 04/04/2025)

- **Texas:** 481 (+59)
- **New Mexico:** 54 (+6)
- **Oklahoma:** 10
- **Kansas:** 24 (+1)

## HOSPITALIZATIONS: 58 (+14)

- **Texas:** 56 (+14) have been hospitalized, 11.6%.
- **New Mexico:** 2 (No change from last report). This is 4.5% of NM cases.

**DEATHS:** 3 (+1) A child in Texas is the newest fatality.

## AGES OF CASES:

WEST TEXAS OUTBREAK				
0-4 Years	5-17 Years	18+ Years	Pending	Total
157 (32.6%)	180 (37.4%)	119 (24.7%)	25 (5.2%)	481
NEW MEXICO OUTBREAK				
0-4 Years	5-17 Years	18+ Years	Pending	Total
12 (22.2%)	15 (27.8%)	27 (50%)	0	54
KANSAS OUTBREAK				
0-4 Years	5-17 Years	18+ Years	Pending	Total
7 (29.2%)	15 (62.5%)	2 (8.3%)	0	24
OKLAHOMA OUTBREAK				
0-4 Years	5-17 Years	18+ Years	Pending	Total
8 Cases Confirmed, 2 Probable – no ages provided			2	10

**INTERNATIONAL SPREAD:** 95 cases. An ongoing measles outbreak in Chihuahua, Mexico, began in February. The first confirmed case was reported on 2/20/2025. The genotype D8 is the same that is found in TX.

**CONTACT TRACING:** Texas, New Mexico, Oklahoma, and Kansas are conducting contact tracing to help identify and track positive cases and inform people who may have been exposed.

**DNA SEQUENCING:** Texas submitted 92 identical DNA sequences in genotype D8. Ten DNA sequences from New Mexico and one DNA sequence from Kansas were identical to those from Texas.. Texas also reported three genotype D8 sequences (a total of 19 D8 sequences have been reported from the affected states) with single nucleotide substitutions ([WHO](#)).

# CURRENT SITUATION - HOSPITALS

**INCREASED PATIENT LOAD:** The ongoing measles outbreak has led to a significant rise in hospitalizations, particularly among unvaccinated children. Many of these cases involve severe respiratory complications requiring intensive care.

## **ENHANCED INFECTION CONTROL:**

- Healthcare facilities have strengthened infection control protocols, including strict patient isolation procedures and mandatory use of personal protective equipment (PPE). At University Medical Center Children's Hospital in Lubbock, Texas, a temporary masking mandate was recently enacted following a potential exposure linked to a mother who tested positive for measles.
- A recent measles exposure at a children's hospital in the Oklahoma City metro area has prompted neighboring health systems to adopt proactive precautions. Physicians are urging individuals who suspect they may have measles to **call ahead** rather than visiting hospitals unannounced, to minimize the risk of exposing other vulnerable patients. Due to the highly contagious nature of measles, arriving without prior notice poses a serious public health risk.

**PUBLIC HEALTH COMMUNICATION:** Hospitals are actively collaborating with local health departments to disseminate accurate information on measles prevention, treatment, and the importance of vaccination. These efforts aim to counter misinformation and increase public awareness.

**VACCINATION CAMPAIGNS:** To curb the spread of the outbreak, hospitals and public health agencies are intensifying efforts to promote the MMR (measles, mumps, rubella) vaccine. Campaigns are targeting communities with low vaccination coverage in an effort to boost herd immunity and contain further transmission. The current issue is with the cuts to public health, vaccine clinics are being cancelled. Locations of vaccination clinics can be found on state health departments' websites.

SOURCES: [TX MEASLES OUTBREAK](#), [NM MEASLES OUTBREAK](#), [OSDH](#), [KLBK-LUBBOCK](#), [TX PUBLIC RADIO](#), [NYT](#)

## **A NEW COMPLICATION – VITAMIN A TOXICITY:**

**PHYSICIANS AT COVENANT CHILDREN'S HOSPITAL IN LUBBOCK, TEXAS, HAVE REPORTED TREATING SEVERAL UNVACCINATED CHILDREN WHO EXHIBITED SYMPTOMS OF LIVER DAMAGE DUE TO EXCESSIVE VITAMIN A INTAKE.**

- In a misguided effort to prevent measles infection, children were given unsafe doses of cod liver oil and other over-the-counter vitamin A supplements for several weeks. Doctors in West Texas have reported patients presenting with yellowed skin and elevated liver enzyme levels—both indicators of liver damage.
- Local physicians and health officials are increasingly alarmed by the rising popularity of unproven remedies like cod liver oil for preventing and treating measles. They warn that such practices [may lead to delays](#) in seeking essential medical care and contribute to vaccine hesitancy, despite vaccination being the only proven method to prevent measles.
- Repeated high doses of vitamin A pose significant health risks to children. Unlike water-soluble vitamins, which are excreted in urine, excess vitamin A is stored in fat tissue, allowing it to accumulate to toxic levels over time.

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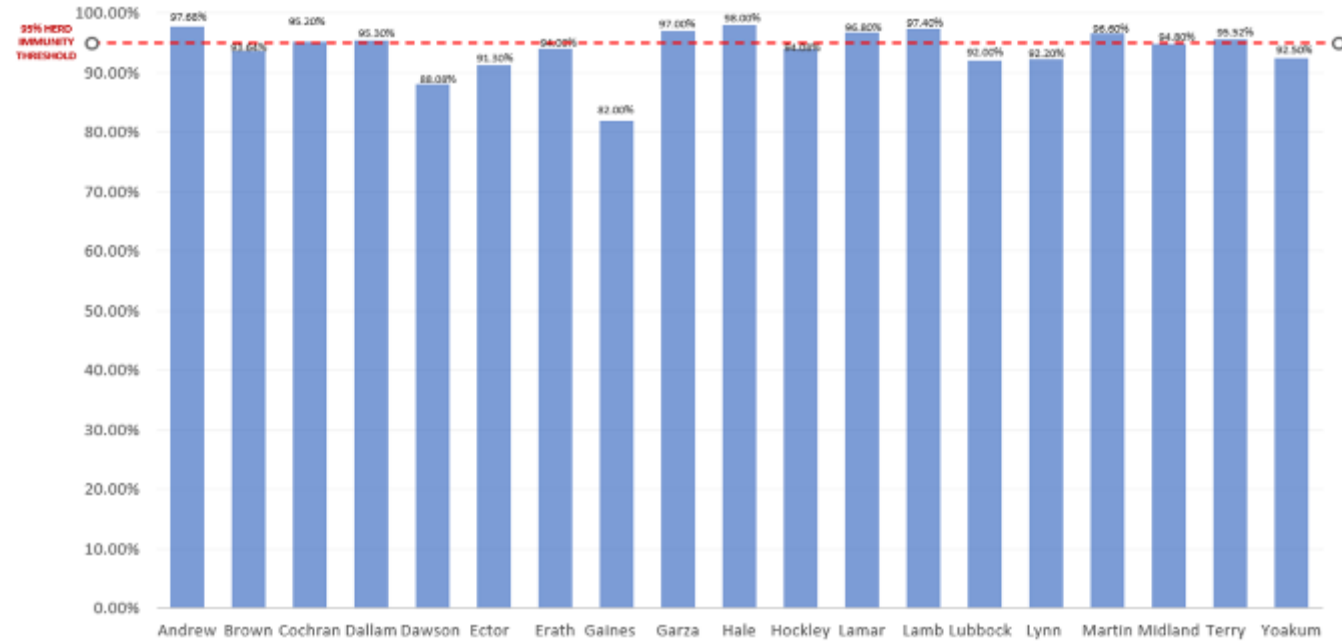
**POISON CONTROL CENTERS HAVE RECEIVED MORE REPORTS OF VITAMIN A EXPOSURES THAN USUAL— A TREND THAT LINES UP WITH THE GROWING MEASLES OUTBREAKS IN TEXAS AND OTHER STATES**

From Jan. 1 through March 31, "there were 86 pediatric (<20 years) vitamin A exposures reported to U.S. Poison Centers, representing a 38.7% increase in cases over the same period in 2024," America's Poison Centers told [MedPage Today](#). "Despite this increase in case counts, there was no increase in the severity of medical outcomes, with no major effects reported in 2025."

# CURRENT SITUATION – VACCINATION STATUS

STATE	VACCINATED WITH 1 DOSE	VACCINATED WITH 2 DOSES	UNVACCINATED/ UNKNOWN	TOTAL CASES
TX	3	7	471*	481

NOTE: The TX unvaccinated/unknown category includes people with no documented doses of measles vaccine more than 14 days before symptom onset.



Among the affected counties in TX, 10 out of 19 are below a 95% vaccination rate, the recommended rate for herd immunity (SOURCE: [Annual Report on Immunization Status and CORI](#))

STATE	VACCINATED WITH AT LEAST ONE DOSE	NOT VACCINATED	UNKNOWN	TOTAL CASES
NM	6	36	12	54

STATE	VACCINATED WITH AT LEAST ONE DOSE	UNVACCINATED / UNKNOWN	TOTAL CASES
OK	0	10	10

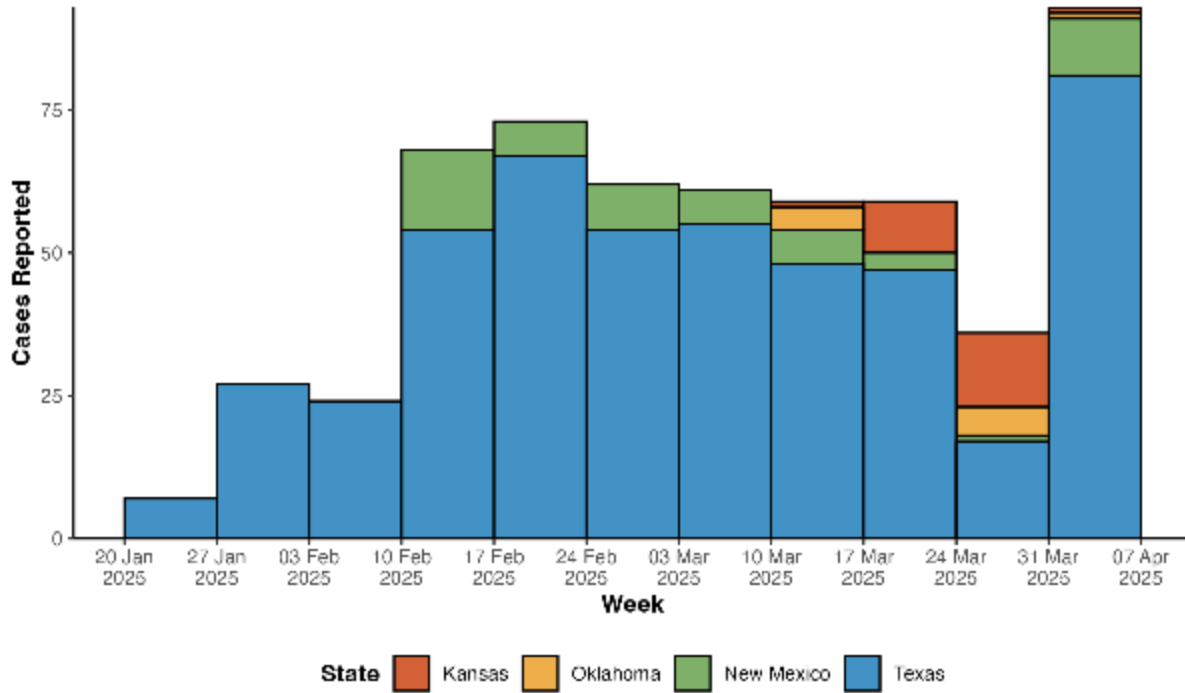
STATE	AGE APPROPRIATELY VACCINATED	NOT AGE APPROPRIATELY VACCINATED	NOT VACCINATED	UNKNOWN	TOTAL CASES
KS	1	1	21	1	24

**BECAUSE MEASLES IS HIGHLY CONTAGIOUS, 95% OF THE POPULATION MUST BE VACCINATED TO ACHIEVE HERD IMMUNITY AND PREVENT ONGOING TRANSMISSION OF THE VIRUS.**

- **TX:** Vaccination rates are low in the most affected areas. In Gaines County, TX, vaccination rates are significantly below the threshold required for herd immunity, contributing to the virus’s rapid spread.
- **NM:** Reports that [94%](#) of individuals aged 18 and under in Lea County have received at least one dose of the MMR vaccine. This is slightly below the state's overall rate of 95% for the same age group.
- **OK:** For the 2023–24 school year, CDC reported Oklahoma kindergartners’ vaccine exemption rate rose to 5.7%. The vaccine rate for Oklahoma kindergartners is [88.3%](#).
- **KS:** Vaccination rates are low in the most affected counties in KS. Overall, the state’s vaccination rate is [90%](#). In the counties that have been impacted, vaccination rates are far below herd immunity, with Grant County being the exception (99%),.

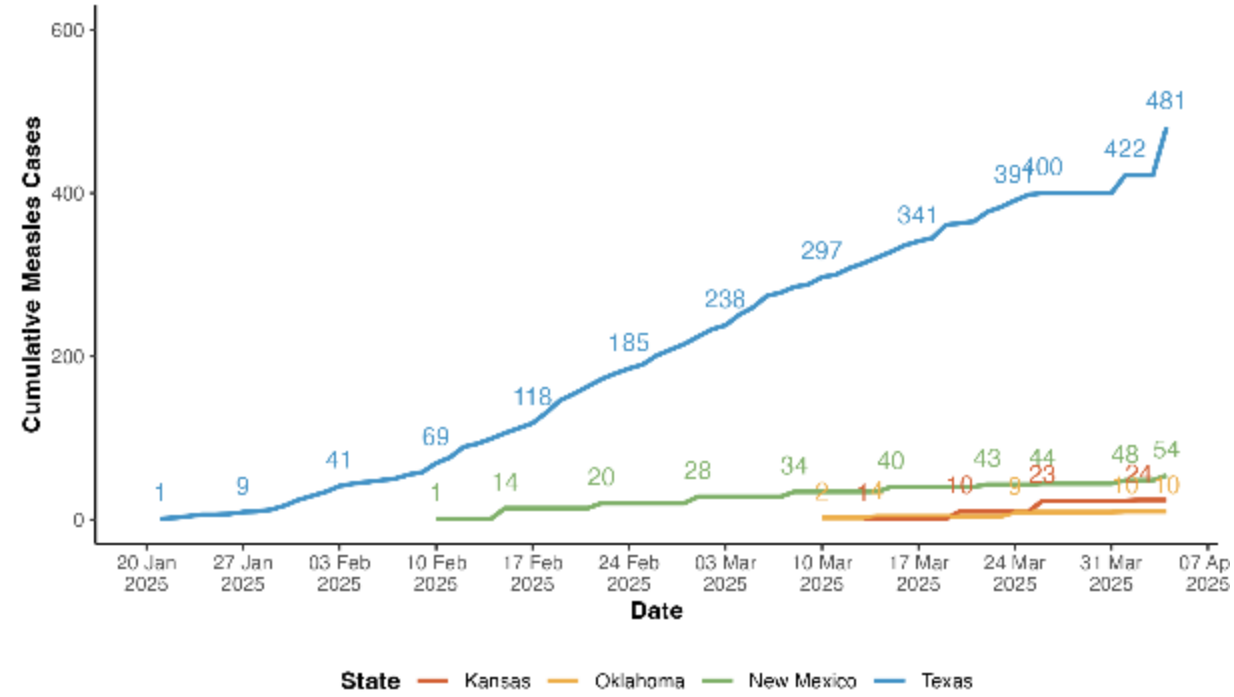
# EPI CURVE AND CASES OVER TIME

SOUTHWEST MEASLES OUTBREAK – EPI CURVE (UPDATED AT THE END OF EACH WEEK)



- **TX:** Reported first case the week of 1/25/25. Most cases in the current outbreak are in Gaines County, TX.
- **NM:** Reported first case the week of 2/10/25. The greatest increase in new cases was during the week of 2/10/25.
- **OK:** Reported 1 new case the week of 3/31/25.
- **KS:** Reported first cases on 3/13/25. The greatest increase in new cases was during the week of 3/24/25.

SOUTHWEST MEASLES OUTBREAK – CUMULATIVE CASES OVER TIME



- **TX:** The number of cases has increased consistently over time, to a total of 481 cases across 19 counties.
- **NM:** A total of 54 cases have been reported in 2 counties (Lea and Eddy).
- **OK:** A total of 10 cases have been reported by the OSDH.
- **KS:** A total of 24 cases across 6 counties have been reported by the KDHE.

# EPI SUMMARY (TX)

COUNTY	MEASLES CASES (Number of new cases)	% of TOTAL CASES	% KINDERGARTENERS VACCINATED (2023-2024)	NUMBER OF SCHOOL DISTRICTS IN EACH COUNTY WITH MMR VACCINATION RATES BELOW HERD IMMUNITY LEVELS (95%)
<b>TEXAS</b>				
Andrew	1	0.2%	97.70%	1
Brown	1	0.2%	93.64%	6
Cochran	9 (+1)	1.9%	95.20%	1
Dallam	7	1.5%	95.30%	2
Dawson	20 (+6)	4.2%	88.10%	4
Ector	8 (+3)	1.7%	91.30%	5
Erath	1	0.2%	93.94%	5
Gaines	315 (+35)	65.5%	82.00%	3
Garza	2	0.4%	97.10%	0
Hale	3 (+2)	0.6%	98.30%	0
Hockley	3 (+1)	0.6%	94.40%	2
Lamar	11 (+1)	2.3%	96.80%	5
Lamb	1	0.2%	97.40%	1
Lubbock	33 (+6)	6.9%	92.30%	5
Lynn	2 (+1)	0.4%	92.20%	2
Martin	3	0.6%	96.60%	1
Midland	1	0.2%	94.80%	3
Terry	43 (+2)	8.9%	95.50%	2
Yoakum	17 (+1)	3.5%	92.50%	1



# EPI SUMMARY (KS, NM, OK)

COUNTY	MEASLES CASES (NUMBER OF NEW CASES)	% of TOTAL CASES	% KINDERGARTENERS VACCINATED (2023-2024)
<b>KANSAS</b>			
<a href="#">Grant</a>	Between 1- 5		99%
<a href="#">Gray</a>	Between 1- 5		66%
<a href="#">Haskell</a>	Between 1- 5		58%
<a href="#">Kiowa</a>	6	25%	92%
<a href="#">Morton</a>	Between 1- 5		82%
<a href="#">Stevens</a>	6	25%	83%
<b>NEW MEXICO</b>			
Eddy	52 (+6)	96%	93%
Lea	2	4%	94%
<b>OKLAHOMA</b>			
Tulsa and Cherokee Nation	10	Insufficient Information	89.5%

Note: Those 18 years or younger have a 95% vaccination rate. 63% of adults have received one shot of MMR, and only 55% have received both shots, according to local health officials, though they noted that there may be vaccinated adults whose records have not been added to the system. Adults make up more than half of reported cases in New Mexico.

Measles is a highly contagious acute viral disease which affects individuals of all ages and remains one of the leading causes of death among young children globally. The mode of transmission is airborne or via droplets from the nose, mouth, or throat of infected persons.

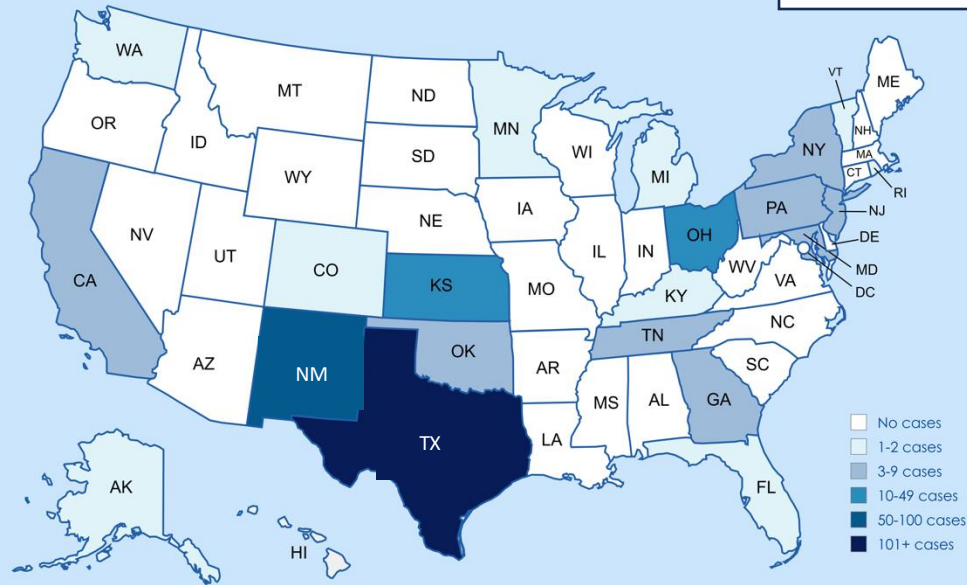
Initial symptoms– which usually appear 10-14 days after infection– include high fever, runny nose, bloodshot eyes, cough, and tiny white spots inside the mouth. The characteristic measles rash usually appears 10-14 days after exposure and spreads from the head to the trunk to the lower extremities. A person is infectious from four days before up to four days after the appearance of the rash. There is no specific antiviral treatment for measles and most people recover within 2-3 weeks.

Measles is usually a mild or moderately severe disease. However, measles can lead to complications such as pneumonia, diarrhea, secondary ear infection, inflammation of the brain (encephalitis), blindness, immune amnesia, and death. Postinfectious encephalitis can occur in about one in every 1,000 reported cases. About 2-3 deaths may occur for every 1,000 reported cases. Measles infection can lead to serious complications years after infection, including subacute sclerosing panencephalitis (SSPE). Immunization against measles prevents infection and associated complications.

# US OUTLOOK

\* NOTE: The information on this page has been gathered by reviewing data from state and local health departments, news media sources, and the Center for Outbreak Response Innovation (CORI)

636\*



- The number of measles is now twice last years total.
- The increase in measles cases can be attributed to falling vaccination rates and to increased importation of travel-related cases, which occur when unvaccinated people acquire measles abroad and bring it back to the U.S.
- There have been five confirmed outbreaks of measles in the U.S. so far in 2025 (TX-NM-OK, KS, NJ, GA, OH, with 93% of cases linked to these domestic outbreaks.

STATE	CASES
<a href="#">TEXAS **</a>	487
<a href="#">NEW MEXICO</a>	54
<a href="#">KANSAS</a>	24
<a href="#">OHIO</a>	15
<a href="#">OKLAHOMA</a>	10
<a href="#">CALIFORNIA</a>	9
<a href="#">PENNSYLVANIA</a>	6
<a href="#">NEW YORK</a>	4
<a href="#">TENNESSEE</a>	4
<a href="#">GEORGIA</a>	3
<a href="#">MARYLAND</a>	3
<a href="#">MICHIGAN</a>	3
<a href="#">NEW JERSEY</a>	3
<a href="#">WASHINGTON</a>	3
<a href="#">ALASKA</a>	2
<a href="#">COLORADO</a>	1
<a href="#">FLORIDA</a>	1
<a href="#">KENTUCKY</a>	1
<a href="#">MINNESOTA</a>	1
<a href="#">RHODE ISLAND</a>	1
<a href="#">VERMONT</a>	1
<b>TOTAL</b>	<b>636</b>

## OUTBREAKS

- SMALL OUTBREAK (3-9)
- MEDIUM OUTBREAK (10 - 49)
- LARGE OUTBREAK (50 OR MORE)

An outbreak is defined as 3 or 4 more cases.

As of 4/4/2025, 1700 hrs. EDT, there are approximately **636** measles cases across **21 states** (including confirmed and suspected cases).

Currently, there are **six measles outbreaks**:

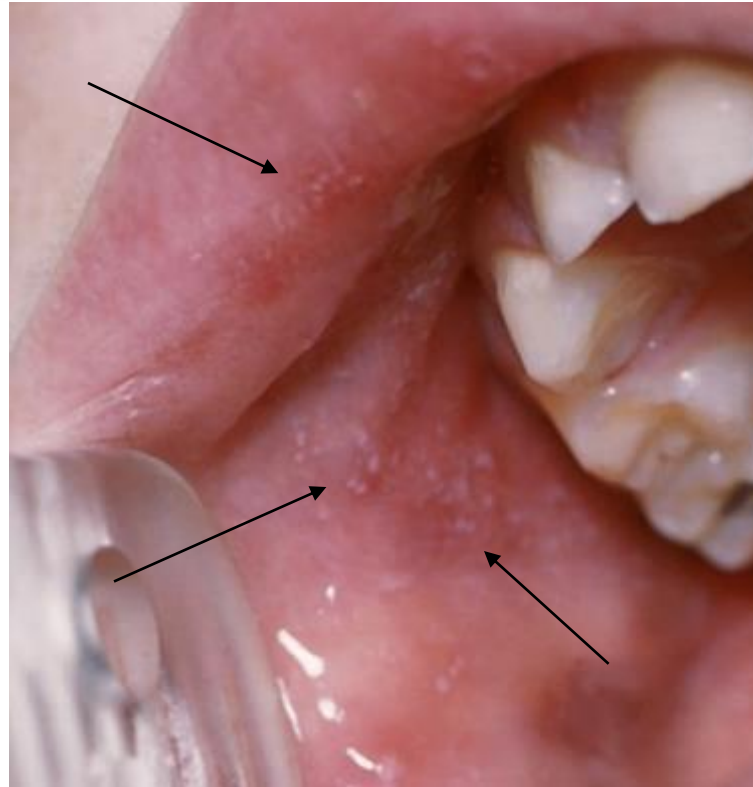
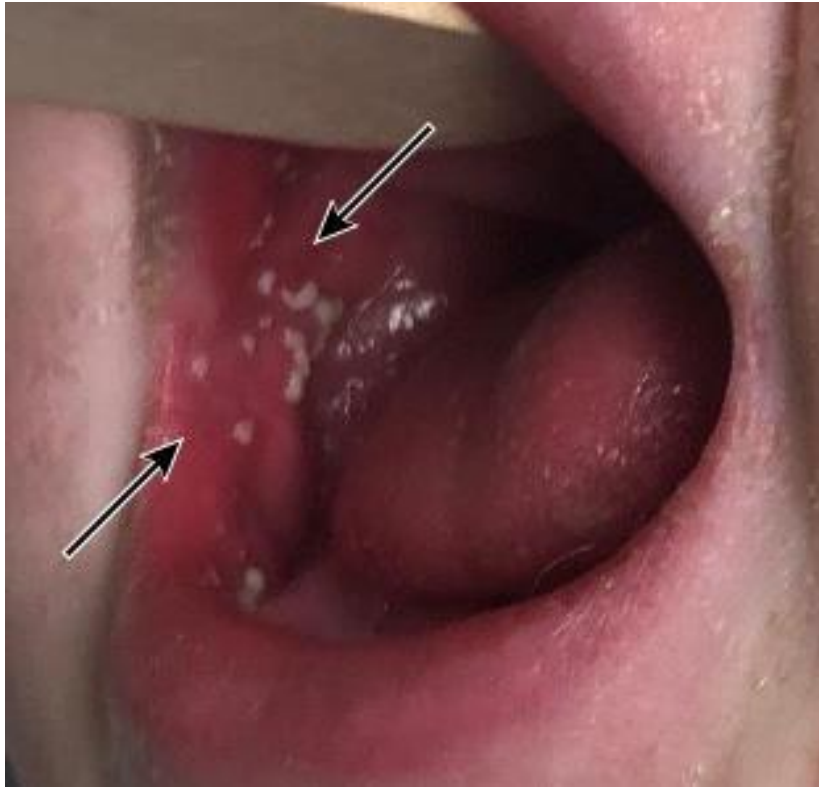
1. West Texas, involving [19 counties](#) in Texas, [2 counties](#) in New Mexico, [1 county](#) and [Cherokee Nation](#) in Oklahoma
2. [6 counties](#) in Kansas connected West TX
3. [Ashtabula County, Ohio](#)
4. [Bergen County, New Jersey](#)
5. [metro Atlanta, Georgia](#)

## \*\* TEXAS CASES NOT ASSOCIATED WITH OUTBREAK: 6

- 2 cases – Adults, Harris County (travel-related)
- 1 case – Infant, Harris County – required hospitalization (travel-related)
- 1 case – Infant, Travis County (travel-related)
- 1 case – Adult, Rockwell County (travel-related)
- 1 case – Adult, Fort Bend (travel-related)

**TEXAS CASES ASSOCIATED WITH THE OUTBREAK: 481**

# KOPLIK SPOTS – DEFINITELY MEASLES!



**White spots** occurring on the **inside surfaces of the cheeks and/or lips** that appear *after* the onset of fever, runny nose, and conjunctivitis *up to 2 days prior to rash* are considered a **near-perfect predictor of measles** infection.

(Differentiate *spots* from oral yeast infections, which would be larger, cover more surfaces, and likely associated with taste changes.)

In case of measles suspicion without access to testing, looking for these spots (with appropriate PPE or by measles-immune person!) may hasten diagnosis and enable more effective isolation protocols.

April is *not* considered cold or flu season. Concern for measles at *first* symptoms (fever, etc.) is increasingly reasonable.

# VITAMIN A TOXICITY

## WHAT IS THE ROLE OF VITAMIN A IN MEASLES?

- Vitamin A is **NOT** a cure for measles, nor does it prevent measles infection.
- Vitamin A **strengthens the immune system** and reduces the risk of severe illness, complications, and death from measles, but **harmful in excess**.

## WHEN AND HOW IS VITAMIN A GIVEN?

- Vitamin A should be **given by a healthcare provider** as soon as measles is diagnosed.
- Given in **2 doses by mouth** and doses given **24 hours apart**.
- Dose given varies with age.

## WHAT IS ACUTE VITAMIN A TOXICITY?

**Seek medical care immediately if recently took Vitamin A and has:**

- Nausea and vomiting
- Abdominal pain
- Peeling skin or rash
- Irritability (especially in children)
- Dizziness or drowsiness
- Severe headache
- Bulging fontanelle (soft spot on infant's head becomes swollen)
- Blurred vision

## WHAT IS THE LIKELY OUTCOME (PROGNOSIS) OF ACUTE VITAMIN A TOXICITY?

- In most patients who discontinue source of excess Vitamin A, toxicity symptoms gradually reverse with complete recovery expected.
- Dry skin, headache, and nausea typically improve within weeks or months with no long-term complications.
- However, **severe cases** can have **serious consequences**, such as in prolonged and excessive Vitamin A intake, resulting in significant **organ damage** including the liver, bones, central nervous system (brain), and skin
- **Health outcome** depends on the extent of organ damage and promptness of medical intervention

## DOES SEVERE ACUTE VITAMIN A TOXICITY HAVE A LONG-TERM HEALTH COMPLICATION?

- Scarring of the liver (fibrosis) leading to irreversible liver damage and failure (cirrhosis)
- Bone abnormalities such as reduced density leading to broken bones (fractures)
- Increased pressure in the head and around the brain (pseudotumor cerebri) can lead to permanent visual impairment (retinopathy) and blindness

## HOW TO AVOID VITAMIN A TOXICITY?

- Vitamin A treatment (high-dose Vitamin A) for measles should be **administered by a healthcare professional**, and **NOT** self-administered.
- **Other sources** of Vitamin A such as in the diet **should be taken into consideration** to avoid adverse health effects from Vitamin A toxicity:
  - **Animal sources:** liver (especially beef and chicken liver), eggs, dairy products (milk, cheese, butter), fish (cod liver oil, salmon)
  - **Plant sources:** fortified foods (milk, cereal), dark leafy green vegetables (spinach, kale), orange and yellow vegetables (carrots, sweet potatoes, butternut squash), fruits (mangoes, apricots)
- **Keep supplements out of reach of children.**

## IMPORTANT CONSIDERATIONS:

- There is **no** specific antiviral treatment for measles.
- **Vitamin A supplementation** is a **supportive** measure, **not** a cure for measles, and should **not** replace vaccination.
- It is crucial to administer Vitamin A **under the supervision** of a **healthcare professional** to ensure appropriate dosing and prevent potential side effects from overdosage.
- In the US where Vitamin A deficiency is less common, [under the supervision of a healthcare provider, vitamin A may be administered to infants and children with measles as part of supportive management. Under a physician's supervision, children with severe measles, such as those who are hospitalized, should be managed with vitamin A.](#)

# WASTEWATER MONITORING

- **Monitoring wastewater for measles can help detect an outbreak before widespread symptoms occur and aid in understanding the spread within a community.**
  - This can help identify areas where increased support may be needed in the near future.
  - It can also help identify when the spread is decreasing in a community.
- The **Houston Health Department** has been testing 36 wastewater treatment plants, 48 manholes, and 45 Houston Independent School District Campuses around Houston for the presence of measles.
  - Additionally, the city is monitoring “neighboring school districts and daycare centers that have low vaccination rates” as well as “nine shelters, eight nursing homes and two local jails.”
  - This system successfully picked up two unrelated measles cases in January 2025.

NOTE: The [Texas Epidemic Public Health Institute](#) tracks wastewater statewide for various pathogens, though it currently does not report measles spread. However, this tracking can provide insight into the spread of other diseases.



[One of Houston's 39 wastewater treatment plants](#)

- Wastewater surveillance uses lab tests to detect genetic traces of pathogens like DNA or RNA in sewage. Though measles is a respiratory virus, it can enter wastewater through urine, saliva, or used tissues.
- Research on wastewater detection of measles is limited but promising. A Dutch [study](#) during a 2013 outbreak found measles RNA in wastewater, matching reported case locations and confirming one sample as genetically identical to the outbreak strain. In Nova Scotia, [researchers](#) developed a tool to detect RSV, influenza, COVID-19, and measles. While no measles cases were found in real samples—consistent with local reports—they successfully detected a measles surrogate at both high and low concentrations.

# EFFECTIVE COMMUNICATION: LISTEN, RELATE, INFORM, & EMPOWER

Clear, credible, and timely communication about the current measles outbreaks is essential to ensure the public can make informed decisions and take appropriate actions to protect their health. By presenting information in an accessible, relevant, and understandable way, we can build trust and empower individuals to respond effectively to the outbreak.

## 1. CREDIBLE & TRUSTED

- Who is perceived by the community as a trusted source? Reach out to them and equip them with the information. Ask them what they are hearing in the community and how public health can help.
- What do we know and what questions still need to be answered?
- Are we pointing people to the right information?

## 2. ACCESSIBLE

- How do audiences receive health information?
- With whom do individuals discuss health advice and guidance?
- Are we actively listening to the question, the concerns, the fears?

## 3. ACTIONABLE

- Are audiences ready to act independently?
- Does our messaging describe supportive and available resources to assist community members in acting?

## 4. RELEVANT

- Are we listening with radical empathy?
- What personal or community values are relevant to this crisis?
- How can we better influence social norms and promote benefits of action?

## 5. TIMELY

- Is there a way to deliver messages to the target population over time that would increase the effectiveness of information and advice?

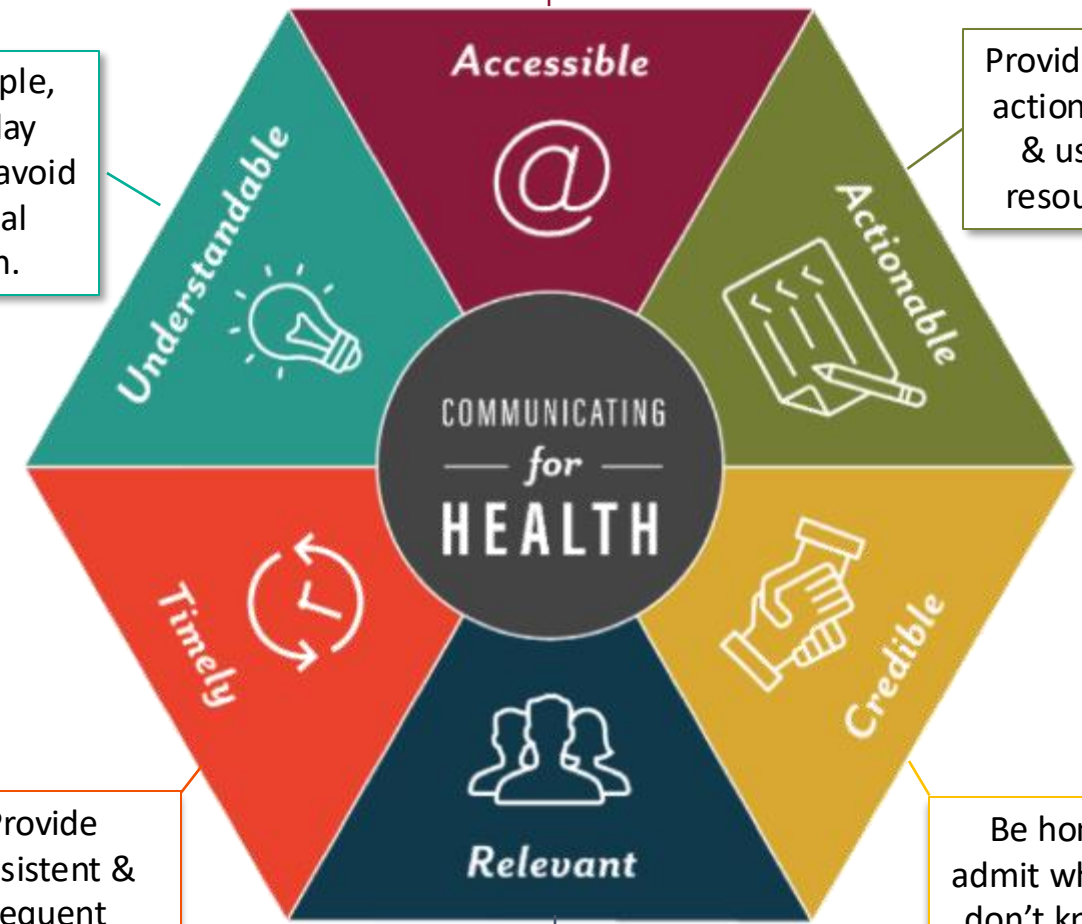
## 6. UNDERSTANDABLE

- Are we using language that is familiar to the target audience?
- Can we use photos or illustrations to provide visual reinforcement of the primary message?

Listen to what is being asked and what is being shared. Be open. Ensure accessibility. Be empathetic.

Use simple, everyday words & avoid medical jargon.

Provide clear action steps & useful resources.



Provide consistent & frequent updates.

Relate health information to communal values and norms.

Be honest, admit what you don't know, & invite questions

# CONTRIBUTORS

The Virtual Medical Operations Center Briefs (VMOC) were created as a service-learning project by faculty and graduate students at the Yale School of Public Health in response to the 2010 Haiti Earthquake. Each year, the VMOC Briefs are produced by students enrolled in Environmental Health Science Course 581 - Public Health Emergencies: Disaster Planning and Response. These briefs compile diverse information sources – including status reports, maps, news articles, and web content– into a single, easily digestible document that can be widely shared and used interactively.

Key features of this report include:

- **Comprehensive Overview:** Provides situation updates, maps, relevant news, and web resources.
- **Accessibility:** Designed for easy reading, wide distribution, and interactive use.
- **Collaboration:** The “unlocked” format enables seamless sharing, copying, and adaptation by other responders.

The students learn by doing, quickly discovering how and where to find critical information and presenting it in an easily understood manner.

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