

One for the history books is back to show us where we may have gone wrong.

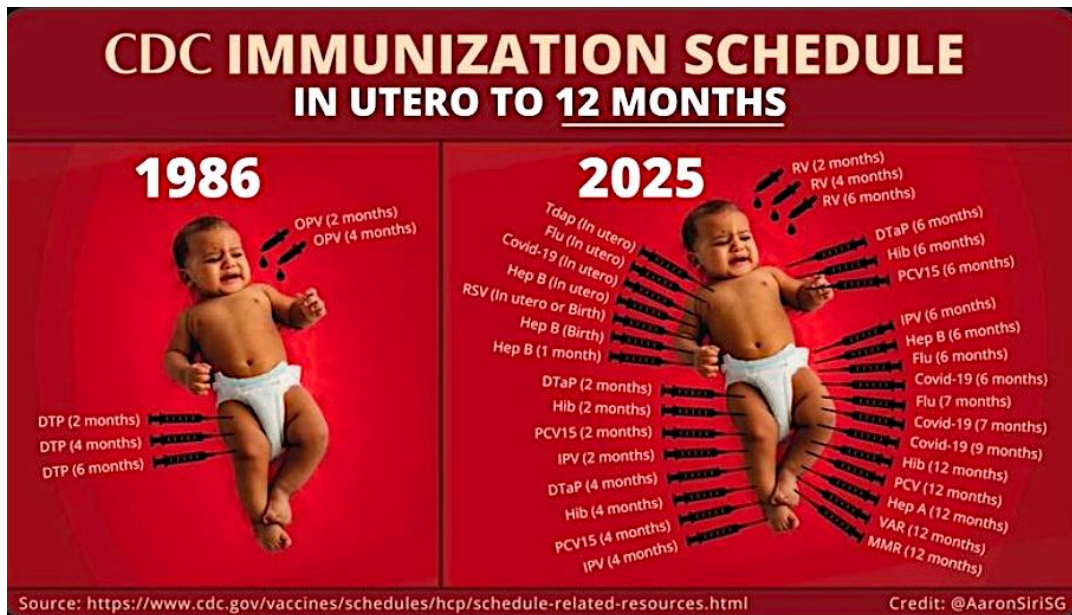
What the dental community should know about Measles (Rubeola).

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Measles, first described by the Persian physician Rhazes in the 9<sup>th</sup> century, is a viral disease characterized by prominent skin rash and fevers.<sup>1</sup> As recently as 1912, its first decade of reporting by healthcare professionals evidenced on average about 6,000 deaths per year in the United States.<sup>1</sup> A vaccine was finally developed in the 1960s when, at that time, an estimated 3 to 4 million people were infected yearly when the nation's population was roughly 190 million.

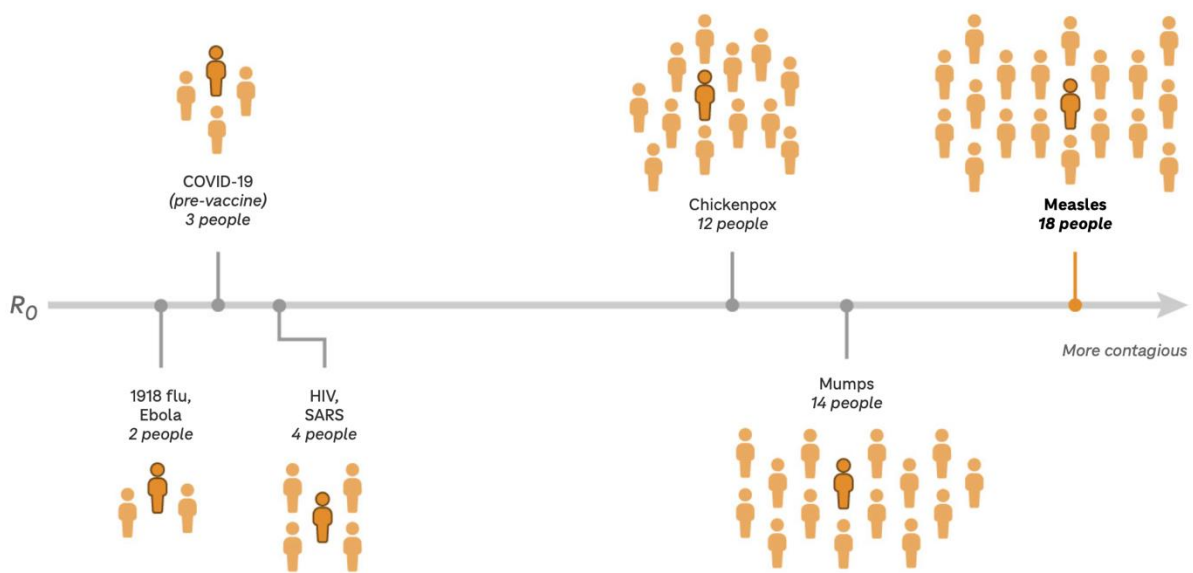
Currently, as the United States of America surpasses at least 340 million people, perhaps even more growth for clandestine immigration, we are a nation with more risks than ever for a resurgence of this viral menace. At the present, the state of Texas is at the epicenter of this growing crisis, and the situation is being magnified by an administrative push to place curbs on vaccination to sort out concerns for the safety of the vaccines themselves. As healthcare providers working with children, we can appreciate both sides. On one hand, vaccines tend to confer protection to the recipient, but on the other hand, they can expose the vaccinated to complications not limited to disability or even death. We have created a deluge of vaccinations for children to be exposed to, and we have the obligation to revisit the practice and ingredients involved in the process of vaccine manufacturing. The arguments are substantial for those in favor as well as those opposed to the practice of vaccination.



The realization that our recent SARS-CoV-2 pandemic brought to focus was the necessity of dental professionals' participation in administering immunizations. Several states have made this a permanent aspect of their Dental Practice Acts as a reminder to us in Dentistry, that we are an integral part of the first line of defense regarding public health emergencies and well-being.<sup>2,3</sup>

What sets measles apart from other viruses?

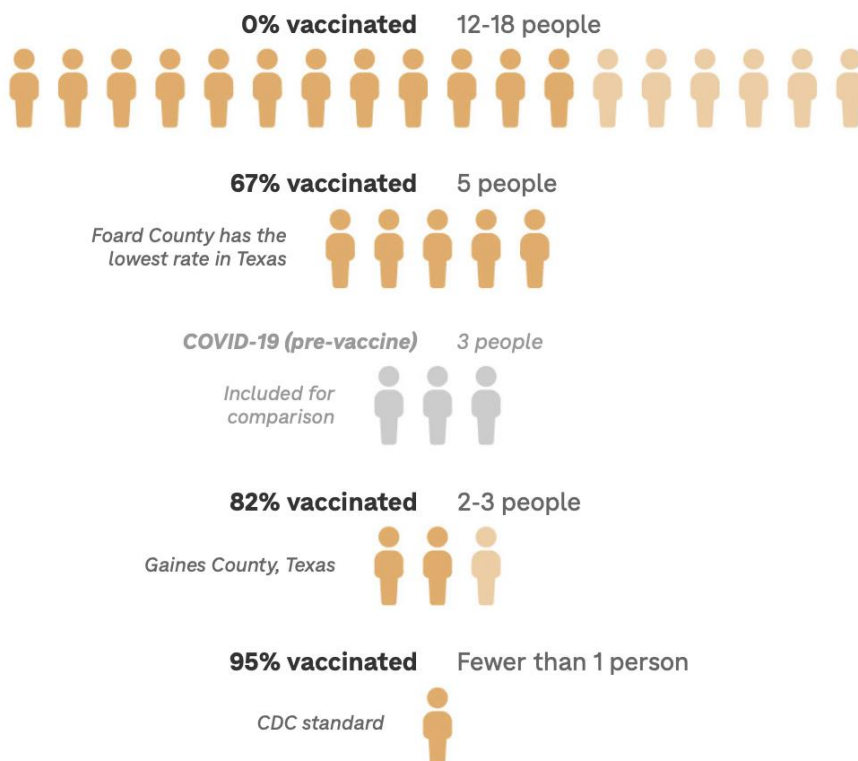
We have to look at the  $R_0$ ,  $R$  naught, value for the pathogen in question. The  $R_0$  value is the degree of transmission that this illness has. Compared to other viruses, here is a visual example created using information provided by multiple health publications and universities.



Source: [The Lancet](#) (1918 flu, SARS); [University of Michigan School of Public Health](#) (COVID-19, ebola, measles); [Journal of Theoretical Biology](#) (chickenpox, mumps); [Proceedings of the National Academy of Sciences](#) (HIV)  
 Credit: Maria Godoy, Alyson Hurt, Carmel Wroth, Michaeleen Doucleff and Adam Cole/NPR. Icon created by [Alice Design](#) from [The Noun Project](#)

When analyzing viruses, we can see that a viral illness like the 1918 “Spanish Flu” had a likelihood of an infected individual passing on the disease to two other people. This establishes an  $R_0$  value of 2. If we consider Measles, that number jumps 900% to a  $R_0$  value of 18. So, understanding that one person infected with measles can pass on the disease to 18 people. That is what we are dealing with, a highly communicable pathogen. This is where being immunized comes into play. Having immunizations or a history of measles works to slow the spread amongst the population as can be seen below. At both ends of immunity, if no one is vaccinated, the  $R_0$  value for measles stands at 18, however, if there is a vaccine rate of 4 out of 5, roughly 80%, the  $R_0$  value is reduced to slightly over an  $R_0$  value between 2 and 3.

### Depending on the vaccination rate, one person with measles can infect...

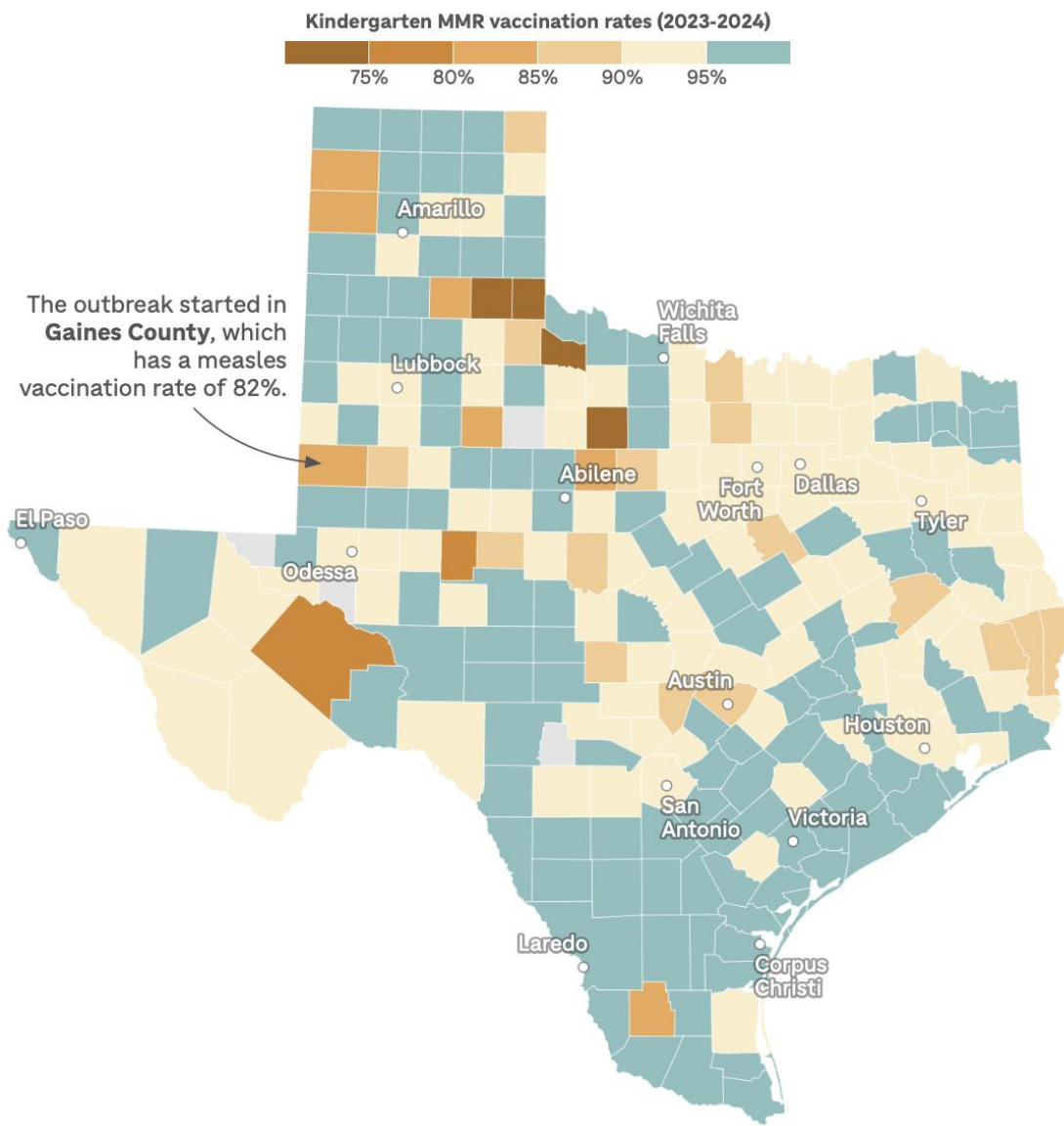


Source: NPR, February 28, 2025.

The challenge we face in Texas is not if we will see our dental patients affected by this outbreak but when. There are many vulnerable counties in Texas where kindergarten immunization rates are considered low.<sup>4</sup> Keep in mind this data does not show vaccination rates for four counties and homeschooled children in Texas as well as some private schools that show rates of measles vaccination below 15%.<sup>4</sup>

## Half of Texas counties have lower-than-recommended measles vaccination rates among kindergarteners

The Centers for Disease Control and Prevention says a 95% vaccination rate is needed to protect against measles outbreaks.



**Source:** Data unavailable for four counties: Crane, Loving, Real and Stonewall. Data includes public and private schools but not home schools.

*Source:* [Texas Department of State Health Services](#)*Credit:* Alyson Hurt/NPR

To date, March 4, 2025, 158 cases have been reported according to the Associated Press including the first death in Texas affecting 9 of the 254 counties in the state.<sup>5</sup> Clearly, this number will increase and things will worsen before they improve. According to a recent membership email release by the Texas Dental Association on February 27, 2025, the following information was shared:

- The incubation period is roughly **11-12 days**.
- The **prodromal phase** lasts **2 to 4 days**, with a range of 1 – 7 days, **expecting the following:**
- **Fever** of 101°F (38.3 °C) or higher up to 105°F according to the CDC.
- **Maculopapular rash starts** at the hairline and spreads downward (head to toe).



Source: CDC

- **Cough, runny nose, conjunctivitis**
- The most prevalent age group is **5 to 17 years of age**.
- **Koplik spots** (tiny white or bluish-white spots inside the oral mucosa)



Source: **Up to 70% of patients with measles present with Koplik spots** by day 2-3.  
<https://urgentcareassociation.org/q1-2024-urgent-caring-koplik-spots-early-detection-of-measles-is-key/>



Source: Rubella can lead to pneumonia and middle ear complications, Koplik spots above.

<https://www.sciencephoto.com/media/259438/view/measles-koplik-s-spots-in-mouth>

The issue at hand is not to blame those who are or who aren't vaccinated but to be aware of the life-saving service we can provide as oral healthcare providers by early detection and reporting. The window of infectivity for the respiratory virus is roughly four days prior to the rash outbreak to four days after, with consideration that immunocompromised patients may not show a rash at all, according to the Centers for Disease Control and Prevention.<sup>6</sup> Expect the three "C's": cough, coryza, and conjunctivitis.<sup>6</sup>



Source: CDC, May 22, 2024

## **Good Practices for Dental teams to be safe from the resurgence of Measles in the Community**

### **Introduction**

Measles is a highly contagious viral disease that can lead to serious health complications, particularly in young children. Given the close patient interactions in a pediatric dental office with high exposure to aerosols and fluids, stringent infection control measures and the use of Personal Protective Equipment (PPE) are essential to prevent the spread of measles among patients and staff.

### **Understanding Measles Transmission**

Measles is primarily transmitted through respiratory droplets and can remain airborne for up to two hours in an enclosed space. It is highly contagious, with a single infected individual capable of spreading the virus to almost 90% of unvaccinated persons in close proximity. Also, the risk of infection increases since we see very young children who may not yet be immunized for the MMR combination. These children with weakened immune systems or underlying health conditions are also at greater risk of severe complications from measles, such as pneumonia, encephalitis, or even death. As such, given its airborne nature, infection control measures must be rigorously followed in dental settings.

## Best Infection Control Measures in a Pediatric Dental Office

### 1. Vaccination

- Ensure all dental staff are up-to-date with their measles-mumps-rubella (MMR) vaccinations.
- Encourage parents to confirm their child's immunization status before appointments. Ask about any recent exposure history.

### 2. Hand Hygiene

- One of the best methods to reduce cross-contamination is to use alcohol-based hand sanitizers with at least 60% alcohol content or wash hands with soap and water for at least 20 seconds.

### 3. Use of PPE

- **Face Masks:** Dental professionals should wear N95 respirators or equivalent when treating patients suspected of having measles.
- **Gloves:** Always wear gloves when in contact with a patient's oral cavity and change them between patients.
- **Protective Eyewear and/or Face Shields** protect against respiratory droplets that may contain the virus.
- **Gowns:** Use disposable gowns when treating potentially infectious patients and discard them appropriately.
- **Ventilation:** Ensure optimal ventilation in all spaces.

### 4. Surface Disinfection and Sterilization

- Disinfect chairs and surfaces with EPA-approved disinfectants effective against the measles virus. Ensure optimal sterilization protocols for all dental instruments.

### 5. Patient Scheduling and Office Management

- Schedule suspected measles cases at the end of the day to minimize exposure risk.
- Limit the number of people in the treatment area to essential personnel only.
- Implement a separate waiting area for symptomatic patients if necessary.

### 6. Education and Training

- Train dental staff on infection control protocols and emergency response in case of a measles outbreak.

## If you think you have been exposed...


1. Notify the employer immediately.
2. Notify his/her healthcare provider immediately. Healthcare providers may be able to provide post-exposure care that protects against or lessens the effects of measles. For example, the MMR vaccine is effective at preventing measles when administered to a susceptible person within 72 hours following exposure.
3. Monitor his/her health. Early signs and symptoms of measles typically develop within 10-12 days. It may take up to 21 days following exposure for a rash to develop.
4. Seek medical attention if he/she develops symptoms of measles.



5. Before visiting a healthcare provider, alert the clinic or emergency room in advance about his/her possible exposure to measles so that arrangements can be made to prevent spreading it to others.
6. When traveling to a healthcare provider, limit contact with other people. Avoid all other travel.

Measles is a highly contagious — yet preventable — infectious disease that is resurging in the U.S. To prevent its spread, oral health professionals should be familiar with this disease's systemic and oral signs and symptoms. As a primary line of defense, clinicians must be informed of appropriate preventive efforts and post-exposure precautions.

Infection control and using PPE are critical in preventing the spread of measles in a pediatric dental office. By implementing stringent hygiene practices, vaccination policies, and appropriate PPE use, dental professionals can safeguard their staff and young patients from the risks of measles. Adhering to these measures not only ensures a safe clinical environment but also upholds public health standards in pediatric dentistry.






# Measles


Measles isn't just a little rash. Measles can be very dangerous or even deadly, especially for babies and young children.

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## STAGES OF THE MEASLES

- **7-14 days after infection:** Symptoms can appear to be from the common cold, beginning with a high fever (104°F+), cough, runny nose, and red, watery eyes.
- **2-3 days after symptoms start:** Koplik spots (tiny white spots) may appear inside the mouth **BEFORE** any skin rash.
- **3-5 days after symptoms start:** A red, blotchy rash begins at the hairline and spreads downward. Small raised bumps may form, and fever may spike again.





Protect your child from measles with the MMR vaccine — safe, effective, and recommended by the CDC.

*Source: Centers for Disease Control and Prevention (CDC)*

Sources:

1. <https://www.cdc.gov/measles/about/history.html#:~:text=In%20the%209th%20century%2C%20a,cases%20each%20year%2C%20an%20estimated:>
2. <https://www.forbes.com/sites/patrickgleason/2021/04/30/now-able-to-administer-vaccines-in-20-states-dentists-step-up-to-fight-covid-19/>
3. [https://jada.ada.org/article/S0002-8177\(23\)00487-7/abstract#:~:text=During%20the%20pandemic%2C%20in%20response,COVID%2D19%20vaccine%20to%20patients.](https://jada.ada.org/article/S0002-8177(23)00487-7/abstract#:~:text=During%20the%20pandemic%2C%20in%20response,COVID%2D19%20vaccine%20to%20patients.)
4. <https://www.npr.org/sections/shots-health-news/2025/02/28/nx-s1-5312088/measles-texas-outbreak-contagious-spread>
5. <https://apnews.com/article/measles-outbreak-west-texas-death-rfk-41adc66641e4a56ce2b2677480031ab9>
6. <https://www.cdc.gov/measles/hcp/clinical-overview/index.html#:~:text=The%20rash%20spreads%20from%20the,do%20not%20develop%20the%20rash.&text=View%20examples%20of%20measles%20rash%20on%20the%20human%20body.>
7. U.S. Centers for Disease Control and Prevention. Measles History. [cdc.gov/measles/about/history.html](https://www.cdc.gov/measles/about/history.html). September 26, 2019.
8. Managing Measles in the Dental Setting. Wood M; Gurenlian JR
9. <https://www.osha.gov/measles/control-prevention>
10. Managing measles in dental practice. Gordon, Sara C. et al. JADA, Volume 146, Issue 7,
11. Preventing Cross Infection in the Dental Office. Nelly Bromberg; Melina Brizuela.
12. <https://www.cdc.gov/dental-infection-control/hcp/summary/standard-precautions.html>
13. <https://www.cdc.gov/infection-control/hcp/measles/index.html>