Emerging Research: Measles

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SAT 5424

Introduction

Measles, also known as rubeola.

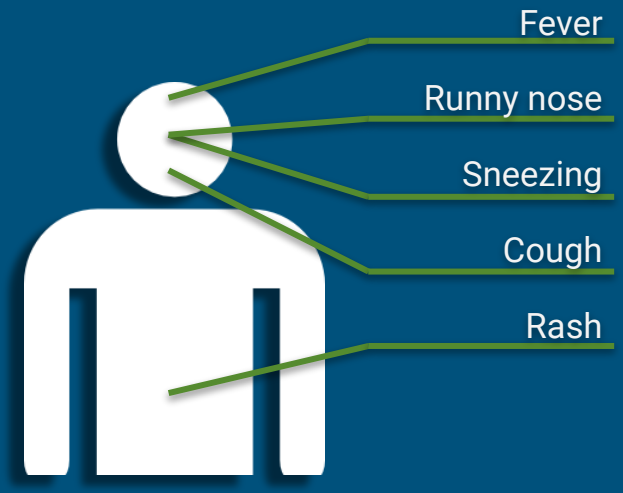
Measles is **one of the most contagious infectious** diseases, and **also one of the most preventable.**

2022 saw increase of 18% to 9 million cases

& increase of 43% to 136,000 deaths.

WHO news release Global measles threat continues to grow as another year passes with millions of children unvaccinated

Measles Overview



- Higher risk in children who don't get vaccines on schedule.
- Children under age 5 who are at highest risk.
- Complications including pneumonia, encephalitis (brain swelling) and death.

“ two doses of vaccine in childhood is **97% protective** ”

NPR report: It's no surprise there's a global measles outbreak. But the numbers are 'staggering'

Recent Measles Outbreaks

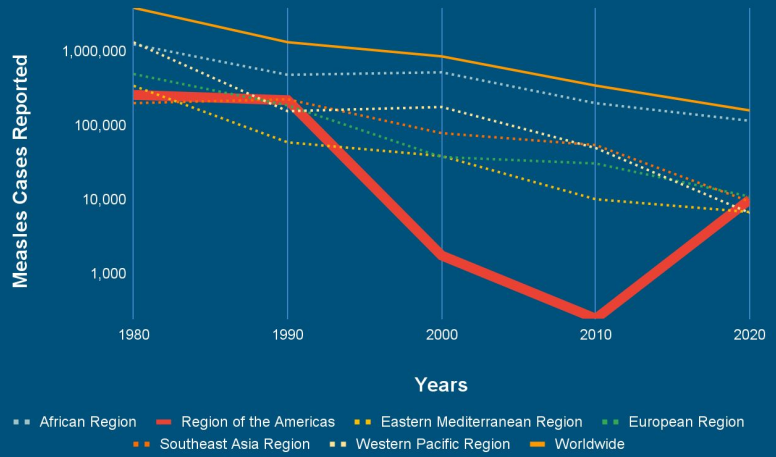
2022 vaccination rates are lowest since 2008 at 83%. As a result of high vaccination rates, measles hasn't been widespread in the United States in about two decades.

2024 has 68 cases reported till date compares to 53 in 2023.

NYT report: U.S. Measles Cases Surpass 2023 Levels, C.D.C. Says

CDC releases Health Advisory

- On March 18, CDC Health Advisory for vaccinating children.
- Social media trends in anti-vaccine advocacy
- Travel health alerts



This is an official

CDC HEALTH ADVISORY

Distributed via the CDC Health Alert Network
March 18, 2024, 12:30 PM ET
CDCHAN-00504

Increase in Global and Domestic Measles Cases and Outbreaks: Ensure Children in the United States and Those Traveling Internationally 6 Months and Older are Current on MMR Vaccination

Measles Overview Cont.

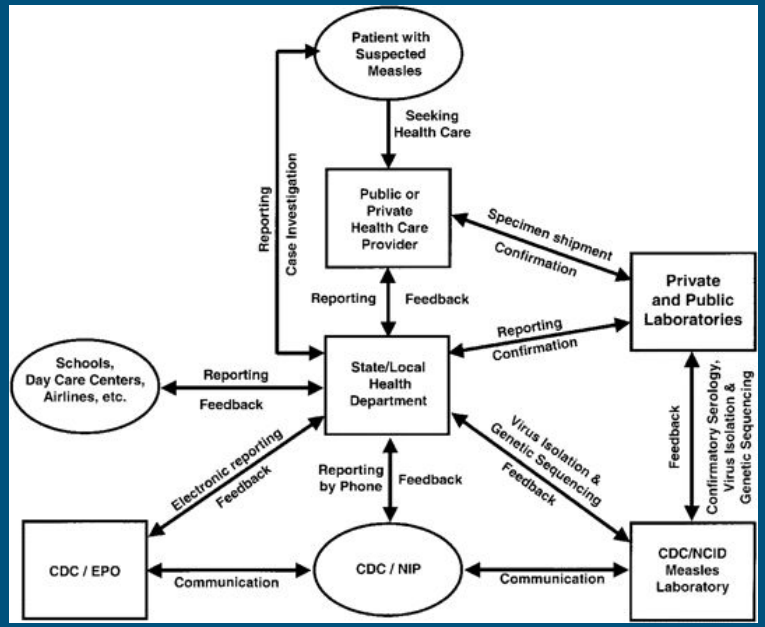
According to the Detroit News, Michigan's fifth confirmed case of measles in 2024 was detected on Tuesday, August 9th. The city's Health Department said the case was recorded in a 4-year-old resident who had not received any doses of the measles vaccine and that the family of the child is following all isolation protocols.

Measles confirmed in Detroit 4-year-old, raising Michigan's total to 5 cases (detroitnews.com)

Others may have been exposed to measles at three health care locations where the child was taken for medical treatment. These locations include:

- Acadian Urgent Care, 2117 Springwells, Detroit, April 1, noon–3 p.m.
- Rite Health Pharmacy, 5851 West Vernor, Detroit, April 1, 1:45-4 p.m.
- Children’s Hospital of Michigan Emergency Room, Beaubien Boulevard, Detroit, April 3,5–10 a.m.

Measles Surveillance Systems



System as described in 2004

Surveillance in US can be traced back to 1912.

Coordinated between the state and federal agencies.

Involves coordination between multiple departments.

Still uses technologies like telephone calls and fax to report cases.

Role of Informatics in Measles Surveillance

An article from the National Library of Medicine discussed the role of participatory health informatics (PHI) in pandemic detection and management, as well as how informatics plays a pivotal role in measles surveillance by leveraging participatory health informatics (PHI) to monitor and detect outbreaks effectively.

While much attention is on diseases like influenza and COVID-19, informatics also helps track diseases like measles using data from sources like social media. Despite challenges like privacy concerns, informatics tools are vital for analyzing social media data to detect measles outbreaks early and guide public health responses.

Role of Informatics in Measles Surveillance

- **Participatory Health Informatics(PHI):** Use the information of measles as provided through the web, smartphones, or wearables to increase the participation of patients and health care professionals.
- **Geographic Information System(GIS):**Utilize GIS to map and visualize disease outbreaks, vaccination coverage, and high-risk areas
- **Revamping current surveillance system:** Updating and improving the methods used to monitor and track measles.
- **Predictive tools based social media trends and immunization rates:** Utilize the data from the social media platforms and immunization records to forecast disease outbreaks and identify areas at risk.

Opportunities: New Research

New opportunities for research involve exploring innovative approaches to enhance measles surveillance.

- Enhanced surveillance methods.
- Integrated data sources for comprehensive insights.
- Geographic mapping for hotspot identification.
- Real-time monitoring systems for rapid response.
- Technological education initiatives for healthcare workers and the public.
- Digital communication strategies for measles awareness.
- Interdisciplinary collaboration for innovative solutions.

Challenges: Measles Informatics

- Incomplete and delayed reporting
- Data Quality Issues
- Limited Data Sharing and Integration
- Resource Constraints
- Privacy Concerns
- Underreporting and Misdiagnosis
- Global Coordination and Collaboration

Ethical and Legal Considerations

Ethical considerations for measles encompass

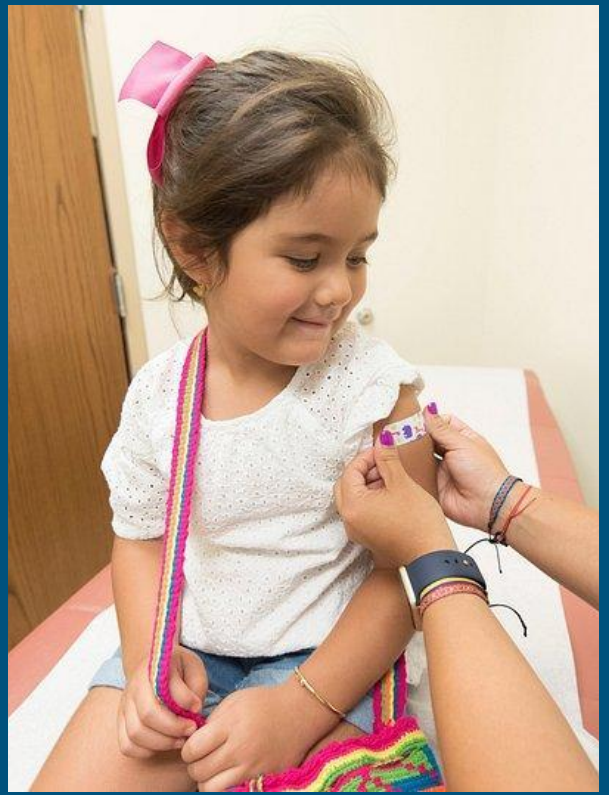
- equitable vaccine access,
- patient privacy in surveillance,
- countering misinformation and hesitancy, and respecting cultural beliefs.

Legal obligations may include

- mandatory vaccination,
- case reporting, and
- safeguarding personal health data.

Conclusion: A Big Catch-Up

- Measles resurgence over the past 4 years raises concerns over the health care infrastructure.
- A major infectious disease from the 20th century has existing countermeasures.
- Modernisation of the disease surveillance system.
- Implementing PHI techniques from combating lowering immunization rates.
- Effects of social media trends



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The Detroit News