# Lessons Learned & Best Practices for Measles Cases in Healthcare Settings

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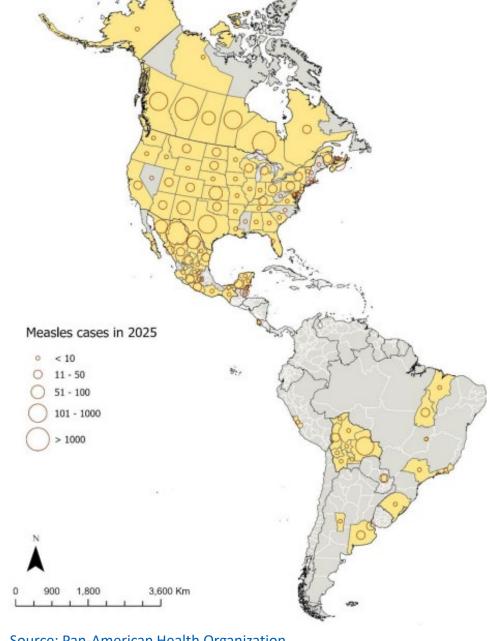




## Outline

- Measles surveillance update
- Kentucky measles cases: lessons learned
- Recommendations for healthcare settings
- Public health notification & laboratory testing
- Measles resources

## Measles surveillance update



Source: Pan-American Health Organization

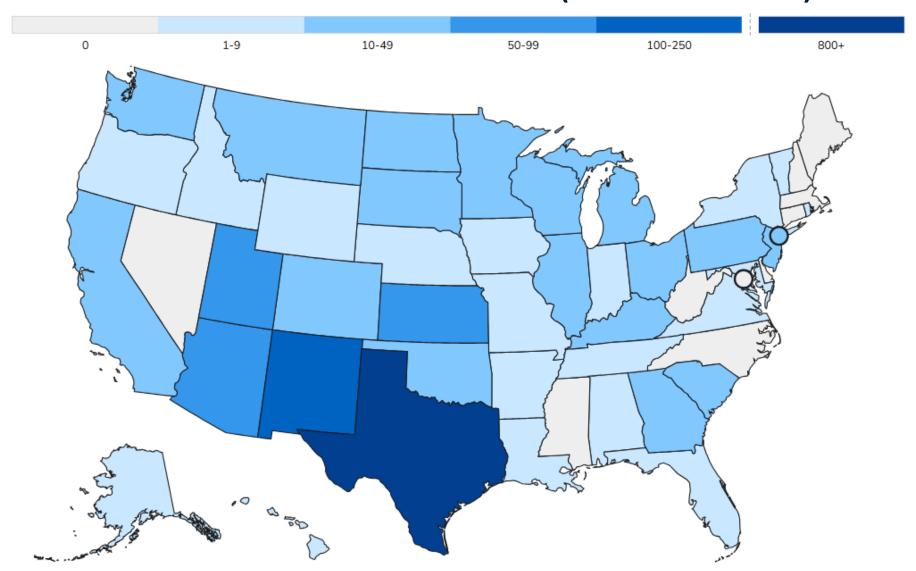
## Measles in the United States - 2025

- **As of Oct 28, 2025\*:** 
  - 1,648 total confirmed cases in US in 42 jurisdictions
    - 1,625 among US residents
  - 92% unvaccinated or unknown vaccination status
  - 27% under age 5 years
  - 12% hospitalized
  - 3 deaths (2 pediatric, 1 adult)

- **43** total outbreaks
  - 3 or more cases
- 87% of confirmed cases are outbreak-associated
- Majority of cases associated with 'Southwest Outbreak'
- Large outbreaks ongoing in SC, UT, AZ

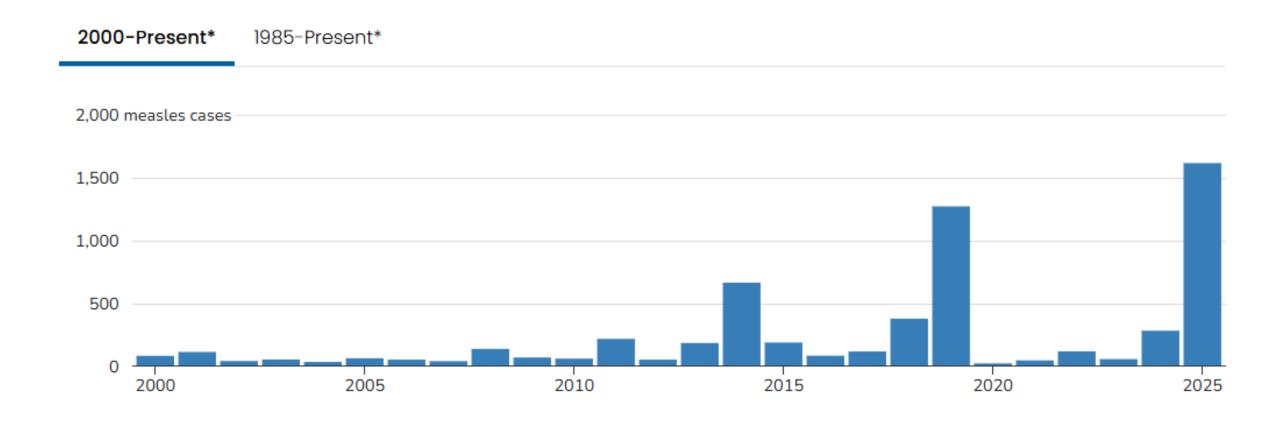
<sup>\*</sup>CDC Measles Cases and Outbreaks page updated weekly on Wednesdays. Case counts often lag reports by individual states.

## 2025 US measles cases (as of Oct 28)



Source: CDC

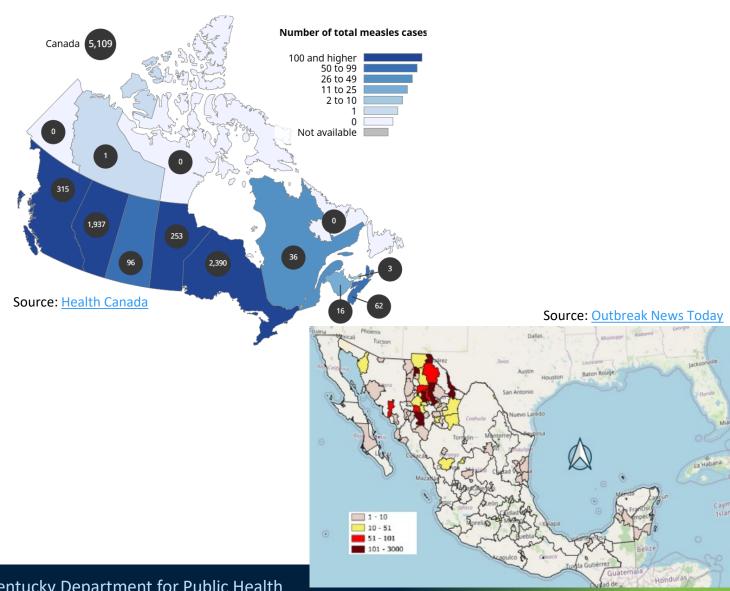
## U.S measles cases by year since elimination



Source: CDC

## International cases & travel recommendations

- Large outbreaks ongoing in Canada and Mexico
  - Many cases associated with Mennonite communities
  - Account for ~50% of U.S. measles. importations in 2025
- All international travel should be considered a risk factor
  - All KY cases this year connected to international travel
- CDC recommends full vaccination for all international travelers age >6 months at least 2 weeks prior to travel



## Kentucky measles cases

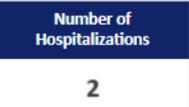
#### Kentucky Measles Case Data

KENTUCKY.



Refreshed Date: 10/13/2025

2025 Confirmed Cases
13

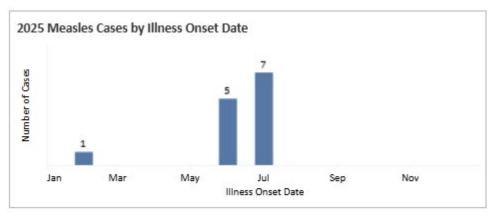




2025 Measles Cases by County		
Fayette County	6	
Franklin County	1	
Jefferson County	2	
Todd County	1	
Woodford County	3	

2025 Measles Cases by Age Group		
<5 years	0	
5-17 years	10	
18+ years	3	

2025 Measles Cases by Vaccination Status	
Unknown/unvaccinated	12
1 MMR Dose	1
2+ MMR Dose	0



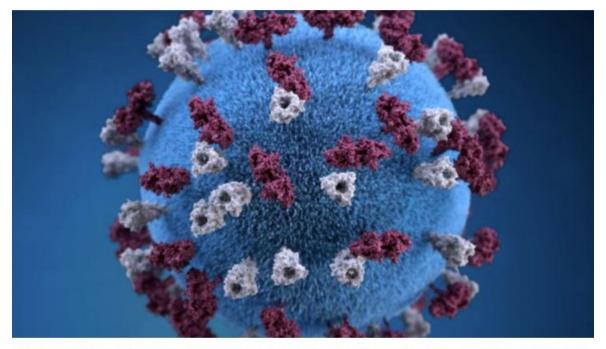


KDPH measles website link

## Kentucky measles cases: lessons learned

#### KENTUCKY

## Measles outbreak spreads to KY. Who is at risk and who needs to update their vaccine



Measles — which can live in the air up to two hours after someone infected leaves — is highly contagious but rare. Win McNamee *Getty Images via Idaho Capitol Sun* 

- Day 0: A middle-aged adult KY resident returned from travel to a country endemic for measles
- Day 5: Initial symptoms begin—flu-like symptoms x5 days
- Day 7 (infectious): Patient visits multiple public locations and private homes
- Day 8 (infectious): Patient interacts with family, including un/underimmunized young children
- Day 9: (infectious) Rash begins—maculopapular, spreading from head downward

- Day 10: (infectious): Symptoms worsen, patient admitted to large hospital in another county
  - Initially seen in ED at second hospital
- Day 11: (infectious): Measles swab collected and sent to Labcorp for PCR
  - Patient reports being vaccinated but does not have documentation (eventually located by public health)
  - Patient also diagnosed with COVID-19 & bacterial GI illness; discharged home until end of infectious period
- Day 14: Electronic lab results received by hospital late in the evening
- Day 15: Patient has follow-up visit with provider, given measles diagnosis
  - Measles case reported to local health department via fax and KDPH via electronic lab report; case investigation begins

### Lessons learned

- All international travel is a risk factor
  - Diagnosis can be complicated by co-infection and by other common pathogens in countries visited
- MMR vaccination is highly effective (even 1 dose), but not 100% protective
- Public health should be contacted immediately when measles is suspected
  - 4 days of response time were lost due to specimen going to commercial lab
- Proper signage & procedure can help avoid exposures in ED settings

- Day 0: Adolescent KY resident returns from international travel to a country with a large ongoing measles outbreak
  - Specific location they stayed in had no recent cases, but they passed through an area with cases
- Day 1: Symptoms begin—headache, body ache, chills, eventually high fever, cough, red eyes
- Day 2 (infectious): Visit to outpatient clinic
  - Not initially reported by patient and not confirmed until Day 9
- Day 4 (infectious): Visit to second outpatient clinic for worsening symptoms
  - Onset of descending maculopapular rash
  - Patient's mother reports they are fully vaccinated, but no documentation ever located
  - Patient has a relative at home that is unimmunized

- Day 5 (infectious): Visit to emergency department at large hospital for worsening symptoms
  - Triaged immediately upon entering ED, placed in non-airborne precaution room for 25 minutes, then moved to airborne precaution room
  - Patient negative for Group A strep, mono and full respiratory panel
  - Measles is suspected and swab is collected for testing but stored until next business day (2 days later)
  - Patient sent home to isolate until results come back
- Day 7 (infectious): Hospital calls local health department first thing in the morning to notify them of case and seek approval for testing at state lab
  - LHD notifies DPH, who approves testing
  - Specimen arrives at state lab mid-day
  - PCR results come back positive for measles ~4:00 PM

- Day 8: Call takes place with KDPH, local health department, & representatives of the second outpatient clinic & large hospital
  - Contact tracing begins
  - Several individuals exposed at both locations, including un/under-vaccinated infants who required (and were given) post-exposure prophylaxis (PEP)
  - Several exposed individuals were eventually tested
- Day 19: Local health department is notified during monitoring call that unvaccinated relative of the index case developed fever and rash one day prior
  - No other secondary cases were identified

## Lessons learned

- Documentation of immunization is critical
- Patients/families are not always great historians and may not always be forthcoming
- Facilities should have a plan in place to provide PEP to individuals exposed in their facility
  - Large hospitals could potentially be asked to support public health with administration of PEP to people exposed in the community
- Facilities should have a good understanding of shared airspaces
- Close coordination between healthcare and public health is critical

## Recommendations for healthcare settings

# BE READY FOR MEASLES

Consider measles in patients presenting with febrile rash illness and clinically compatible symptoms (cough, coryza, and conjunctivitis).



Ask patients about recent travel internationally or to areas with an ongoing measles outbreak, as well as their recent contacts.



Source: CDC

- > Isolation & infection prevention
- Detailed clinical assessment / differential diagnosis
- Ascertain immunity
- Identify possible exposures
- Collect appropriate specimens for diagnostic confirmation
- Notify public health
- Post-exposure prophylaxis for susceptible contacts

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- Encourage patients to call ahead
- Post signage
- Mask patient and family
- Move to isolation room
- Appropriate PPE
- Limit transport/movement
- Ensure providers have immunity

- > Isolation & infection prevention
- Detailed clinical assessment / differential diagnosis



- Identify possible exposures
- Collect appropriate specimens for diagnostic confirmation
- Notify public health
- Post-exposure prophylaxis for susceptible contacts

- Cough
- Coryza
- Conjunctivitis
- Fever
- Koplik spots
- Maculopapular rash (2-4 days after)
- Note onset/progression of each
- Rule out other etiologies

- Isolation & infection prevention
- Detailed clinical assessment / differential diagnosis
- Ascertain immunity
- Identify possible exposures
- Collect appropriate specimens for diagnostic confirmation
- Notify public health
- Post-exposure prophylaxis for susceptible contacts

- Documented MMR vaccination (2 doses, depending on age)
  - Check KYIR
- Previous measles infection
- Born before 1957

- Isolation & infection prevention
- Detailed clinical assessment / differential diagnosis
- Ascertain immunity
- Identify possible exposures
- Collect appropriate specimens for diagnostic confirmation
- Notify public health
- Post-exposure prophylaxis for susceptible contacts

- Consider 21 days before rash onset
- Exposure to measles case
- Travel history
- Interactions with foreign visitors (home, tourist attractions, etc.)
- Other congregate settings?

- > Isolation & infection prevention
- Detailed clinical assessment / differential diagnosis
- Ascertain immunity
- Identify possible exposures
- Collect appropriate specimens for diagnostic confirmation
- Notify public health
- Post-exposure prophylaxis for susceptible contacts

- NP/OP swab in VTM for PCR high priority
- Serum for IgM serology –send to reference lab
- Epi approval needed for testing at state lab if high suspicion

## CDC measles testing recommendations

#### Measles Tests When to Collect? Gold standard, preferred by **KPDH** As soon as possible upon suspicion of measles: Nasopharyngeal PCR ideally **0-3 days** after rash onset, up to **10 days** (NP) or Throat Can be done at DLS (OP) Swab after rash onset. Acute Disease Not generally requested by Within 10 days of rash onset KDPH, but can be sent if PCR \*Collecting a urine specimen along with an NP/OP paired with swab Urine swab may improve test sensitivity, especially if at May show positive later than the end of the PCR detection window. NP swab Should only be done in Collect with specimen for PCR. Can be negative lgΜ conjunction w/ PCR up to 3 days after rash onset. IgM can be Serum Cannot be done at DLS (can detected for 6-8 weeks after acute measles. send to reference lab) Immunity When assessing evidence of immunity, can be Immunity testing only lgG Serum detected ~2 weeks after MMR vaccination Can be done at DLS

Source: CDC

- > Isolation & infection prevention
- Detailed clinical assessment / differential diagnosis
- Ascertain immunity
- Identify possible exposures
- Collect appropriate specimens for diagnostic confirmation
- Notify public health
- Post-exposure prophylaxis for susceptible contacts

- <u>Immediately upon suspicion to</u> ensure rapid investigation
- Request approval for testing at state lab (DLS)
- Management of exposed contacts

- Isolation & infection prevention
- Detailed clinical assessment / differential diagnosis
- Ascertain immunity
- Identify possible exposures
- Collect appropriate specimens for diagnostic confirmation
- Notify public health
- Post-exposure prophylaxis for susceptible contacts

- For known <u>susceptible</u> contacts
- MMR within 72 hours
- Immune globulin (IG) up to 6 days post-exposure

## Public health notification & laboratory testing



## KDPH measles testing overview

Measles PCR testing for highly suspicious cases is available at the state public health laboratory (DLS) with KDPH Epidemiology approval

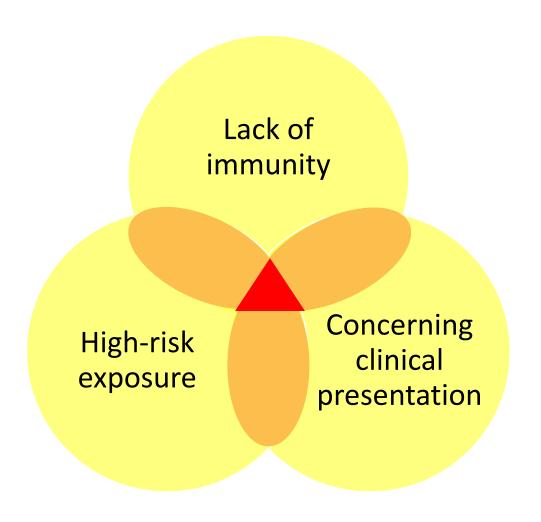
- KDPH Epi approval is not meant to indicate whether measles testing is clinically warranted
  - Rather, purpose is to ensure that risk is sufficient to warrant use of finite public health resources + identify true cases as quickly as possible
  - Providers may still pursue testing at commercial lab if approval for DLS testing is not granted

## Public health notification

- © Encourage providers to contact the **local public health department** covering the **patient's** jurisdiction as soon as measles is suspected
  - Particularly during business hours
  - Some LHDs have after-hours on call numbers
  - LHD Website
    - Select 'Directors Listing' for contact info
- If unable to reach LHD, can contact KDPH
  - Business hours (8:00-4:30, M-F): (502) 564-4478
  - After hours (nights, weekends): 888-9-REPORT

KDPH Epidemiology must give approval before specimens can be sent to the state lab.

## Approval criteria for measles testing



## Specimen collection and transport

- ∇ Refrigerate (4° 8°C or 39.2° 46.4°F) all specimens immediately after collection
- ♥ If specimen cannot be shipped immediately, freeze at -70°C or -94°F and ship on dry ice. DO NOT store samples in a standard freezer
- The Lab Form 275 Virology should be completed and sent with all specimens going to DLS.
- V KDPH and DLS do not have a dedicated courier
  - Coordinate with a birthing hospital and send via newborn screening courier
  - Use other private courier
  - Coordinate with LHD for private transport

## Obtaining results

- ♥ Results typically available same day if specimen arrives by ~12:00
  - Results available early next morning if received in early/mid-afternoon
  - Weekend testing reserved for very high-risk circumstances
- Tests can be ordered, and results obtained, through Outreach website
  - DLS website homepage includes Outreach access instructions
- Local health department will also call to communicate results

## Measles resources



Source: CDC



## Health Care Provider Resources:

When Measles is Suspected

When to Test for Measles

CDC| Interim Infection Prevention and Control Recommendations for Measles in Healthcare Settings

## KDPH measles website

KDPH | Measles

Investigation Quicksheet

KDPH| Measles Post-Exposure

Prophylaxis (PEP) for Non-

Symptomatic Susceptible

Contacts

MMR Vaccination & Management

of OBGYN Patients During a

Measles Outbreak

#### Additional Resources:

KDPH | Measles Response Guide

#### News and Alerts:

- KDPH Press Release Jun.
   30 Health Officials Announce
   Measles Outbreak in Central
   Kentucky
- KDPH Press Release Jun. 27
   Kentucky Health Officials
   Report 4 New Measles Cases
- Health Care Providers: Health
   Alert Notification (HAN) June
   27, 2025

#### Kentucky Health Care Provider Information

## When Measles Is Suspected





#### ISOLATE THE PATIENT IMMEDIATELY UPON SUSPICION OF MEASLES

 Provide instructions for arrival to facility, including entrance to use and precautions to take (such as wearing mask), put in Airborne Infection Isolation Room (AIIR) or private room with door closed.



#### WEAR PPE

- Follow guidelines for airborne precautions while in contact with patient.
- Healthcare personnel should have documented immunity against measles.



#### **OBTAIN A THOROUGH MEDICAL HISTORY**

· This should include possible exposures, symptom onset, siblings in home or others who may have been exposed and vaccination status.



#### LOOK FOR THE 3-C'S (COUGH, CORYZA, AND CONJUNCTIVITIS) + plus fever and then rash

Koplik's spots may appear 2-3 days before the rash.



#### COLLECT SAMPLES FOR LABORATORY CONFIRMATION OF MEASLES \*

- · Preferably nasopharyngeal swab or oropharyngeal swab (or both) for PCR, put into Viral Transport Media (refrigerate at 4°C or freeze), \*\*
  - \* https://www.chfs.kv.gov/agencies/doh/oc/Documents/FY26-Clinical-Service-Guide.pdf#page=280
  - \*\*https://www.chfs.ky.gov/agencies/dph/dls/Documents/Multishipperwithcoldpackvirusweb.pdf

#### NOTIFY LOCAL HEALTH DEPARTMENT (EVEN IF ONLY SUSPECTED CASE): \*

 Follow their recommendations for sending lab specimen to KY State Lab for testing. \*Local Health Department Listing: https://www.chfs.ky.gov/agencies/dph/dafm/LHDInfo/AlphaLHDListing.pdf



Contact your LHD first, if unavailable, call: 1-888-9-REPORT (1-888-973-7678)



#### OFFER POST-EXPOSURE PROPHYLAXIS (PEP)

- Offer PEP to patients exposed to measles with no history of vaccination or immunity.
- The MMR vaccine can be administered within 72 hours of initial exposure or immunoglobulin (IG) within 6 days of last exposure. (Do not administer together).



#### PROVIDE SUPPORTIVE CARE FOR PATIENTS POSITIVE FOR MEASLES

- There is no specific treatment for measles.
- Encourage fluids, including treatment for fever, discomfort and other treatable symptoms.
- Educate the patient and their family about the contagious nature of measles and the importance of isolation to prevent further spread.
- · Monitor the patient for complications, such as pneumonia or encephalitis, and provide appropriate treatment as needed.



#### PATIENTS NEGATIVE FOR MEASLES

 Follow up with the exposed individuals after PEP to ensure they have received their second dose of MMR vaccine, if needed.



Scan the OR code to view CDC Interim Infection Prevention and Control Recommendations or visit: https://www.cdc.gov/infection-control/hcp/measles/index.html Kentucky Public Health

#### When Measles is Suspected

#### When to Test for Measles



Did any of the following events take place in the 21 days before having symptoms?

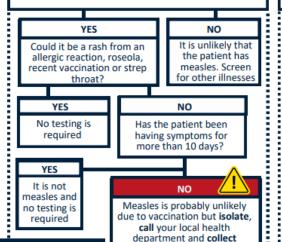
- Came into contact with a person who has or was exposed to measles
- Any international travel or travel to an area with a measles outbreak
- Exposure to someone who has recently traveled

If the patient was born after 1957 AND has not received 2 doses of MMR vaccine:

Kentucky Public Health

Did any of the following events take place in the 21 days before having symptoms?

- · Came into contact with a person who has or was exposed to measles
- · Any international travel or travel to an area with a measles outbreak
- Exposure to someone who has recently traveled



specimen by obtaining

nasopharyngeal or

oropharyngeal throat swab and

put in Viral Transport Medium

(may collect both types of

specimens and put both in

same Viral Transport Medium)

YES Isolate, call your local health department and collect specimen by obtaining nasopharyngeal or oropharyngeal throat swab and put in Viral Transport Medium (may collect both types of specimens and put both in same Viral Transport Medium)



NO

Measles is not likely but call your local health

department

to make sure

......

YES

Isolate, call your local health department and collect specimen by obtaining nasopharyngeal or oropharyngeal throat swab and

NO

put in Viral Transport Medium (may collect both types of specimens and put both in same Viral Transport Medium)



RASH

RUNNY NOSE

**FEVER** 

COUGH

AND

one of the

following:

**CONJUNCTIVITIS** 

(Pink Eye)

Kentucky Department for Public Health, Immunization Branch: 502-564-4478 (8:00am- 4:30pm) After office hours reporting: 1-888-9-REPORT

Send collected specimens to the Division of Laboratory

Services (DLS) for testing after receiving KDPH approval

## Kentucky Department for Public Health (KDPH) Kentucky Measles Response Guide For Health Care Providers & Local Health Departments (LHDs)

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## Kentucky Division of Lab Services website

#### **Updated Documents:**

Reference List of Tests

Outreach Test Codes

#### Email Outreach registration forms to:

#### chfs.csco@ky.gov

#### **Outreach Information**

- KDLS Outreach Access Request Form .pdf
- HIPAA form
- · Password Procedure for Outreach
- Outreach User Manual
- Outreach Test Codes

#### **Laboratory Submission Forms**

- Lab Form 194 CTGC
- Lab Form 197 HIV
- Lab Form 212 Prenatal Profile
- Lab Form 213 Serodiagnosis
- Lab Form 254 Rabies
- Lab Form 275 Virology
- Lab Form 207 Mycobacteriology

#### **Collection and Packaging Instructions**

- Multishipper Instructions
- Enteric and Norovirus Collection and Packaging Guidelines
- · Food Collection
- HPAI Collection and Shipping Guidance
- · Method for Sputum Collection
- · Multishipper with Cold Pack Blood
- Multishipper with Cold Pack Hepatitis A
- Multishipper with Cold Pack Hepatitis C
- Multishipper with Cold Pack Virus-Swab
- · Newborn Screening Collection
- Rabies Packaging
- Water Collection

## CDC "Be Ready For Measles" Toolkit

#### For providers

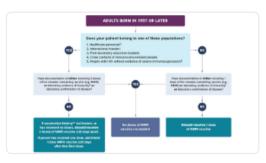


#### Measles alerts

Learn what you can do to help protect your patients during a measles outbreak.

- Healthcare Providers: Stay Alert for Measles Cases
- Expanding Measles Outbreak in the United States and Guidance for the Upcoming Travel Season

#### Adult MMR vaccination decision tree



Measles vaccine recommendations for nonpregnant adults aged 19 or older, by birth year in the United States PDF

Providers can use this visual aid to make decisions about MMR vaccination for adults.

MAY 23, 2025

◆ Download PDF

#### Fact sheets

Caring for Patients with Measles Fact Sheet PDF

Information for providers about supportive care to help manage measles complications.

#### Measles Clinical Diagnosis Fact Sheet

Learn the disease course and symptoms for measles and what to do if you have a suspected case.

#### Preparedness and response tools

Preparing and Responding to Measles: Checklist for Healthcare Workers PDF

Clinical Provider Flowsheet: A tool to guide providers in evaluating a patient presenting with rash and fever PPT

Clinical Overview of Measles: Diagnosis, Lab Testing & Outbreak Response (See video description for CE)

Recommendations for Testing Measles, Mumps, Rubella, and Varicella PDF

## CDC – Measles Preparedness & Response in Healthcare Settings

#### Measles Assessment Tool (MAT) for Infection Control in Healthcare Settings Measles Preparedness and Response During Community Outbreaks

healthcare facilities to act in a forested review of mostles provention and response policies and precedures at a healthcare facility and guide infection prevention and control (IPC) observations during an outbreak of measies in the community. Findings from this assessment can help the healthcare facility determine if it is currently able to safely identify, isolate, and care for a patient with messles. It also facilitates addressing any identified gaps ideally, this assessment would be used by a health department or healthcare facility to proactively identify and address any gaps in IPC policies and practices before a mesoles exposure occurs, either through importation of

resented transmission in the community or bealthcare setting. If used as a preparedness tool, before measies is is at use of measles-specific signage) that would be taken in response to cases in the community. Further, as practices related to screening and rapid isolation broadly apply to anyone presenting with signs or symptoms of scute respiratory filmers, concepts could be broadened to address pathogens beyond needles

This MAT includes information for different types of facilities and units land their related specific challenges). To

Measles Assessment Tool (MAT) for Infection Control in Healthcare Settings PDF

Tool to facilitate a conversation and prompt action, if appropriate, during community outbreaks.

◆ Download PDF



- Similar to CDC Infection Control Assessment and Response (ICAR) Tool
- Includes "Patient Tracer" exercise that includes recommendations for shared airspaces

#### Steps for Responding to Measles Exposures in Healthcare Settings

eventgation and can conjument existing applicable lay and public health department guidance. Refer to the lot in the confusion of Control (CCC for recommendation of Messales) in the disparation of Control (CCC for recommendation). seem - on number because and visiting and sessions that exhibit, for post-exhibits propry with

- Definition of exposure to measles in healthcare settings: Discours to measles in a healthcare setting means predicts any lone while caprollected if a cold vesseling recommended respective production)

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- been formally stycled in Neathcare settings. No ware, to cate and travel on available information, measure travelness to set foreign reported view or supervised receiving setting a appropriately described all only measures and quantity. Transposted is an entiting to infection available or search(ASE), or such covariable equipment read as contradered for a but in

and UKCHI, are the folio-ing for existence considerations about extracting the time for \$6.0% removal efficiency of

Steps for Responding to Measles Exposures in Healthcare Settings PDF

Guide to implement a measles exposure investigation. Can complement guidance from health departments.

↓ Download PDF



- Good supplement to Interim Infection **Prevention and Control** Recommendations for Measles in **Healthcare Settings**
- Facilities may handle contact tracing for staff, provide info on exposed patients to public health

Sample script to assess patients and visitors in healthcare settings for exposure to measles and need for post-exposure prophylasis

intended User. This sample spript is intended to help aspect patients and visitors in healthcare settings for exposure to messles and need for post-exposure prophylaris. This does not address any community epiration, that might be recommended by a health department for exposed individuals who do not have presumptive existence of meeties immunity and distinct manner post-expensive amplityless, such unstallation-specific information may be added by users where appropriate.

For post-exposure progriylants. If soed for that purpose, include additional details about exposure (e.g., use of a NEOP approved "RS1" regulated and, Findicated, reconversabilities for work exclusion.

Additionally, HCP may be exposed outside of their work (e.g., as a violents on all family member outside of work duties). HCP exposed to messies outside of work should inform their occupational health program for assistance with appropriate work exclusions, if necessary.

Sample Script to Assess Patients and Visitors in Healthcare Settings PDF

Assess if someone was exposed to measles and is eligible for post-exposure prophylaxis.

◆ Download PDF



Website includes customizable version of script, as well as exposure notification letter

## Closing recommendations

- © Develop a facility-specific measles response plan and review annually
- Incorporate measles detection and response into regular staff trainings
- Work with Facilities Management to identify shared air spaces
- The staff have documented measles immunity
- Explore addition of triggers/alerts in EMR systems reminding providers to contact public health when measles is suspected

## Thank you!

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502-545-9764





