

## **2MM: Two-Minute Measles for EMS**

14 May 2019

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### **Background**

There have been no confirmed cases of measles in Broome County in many years. Nevertheless, people travel a lot these days, so vigilance and a brief review would be prudent.

There have been a little over 1000 cases of measles in the US from autumn 2018 to present. Many are part of outbreaks in New York City (primarily Williamsburg and Borough Park neighborhoods of Brooklyn) and Rockland County, particularly among the devout orthodox Jewish community. However, cases have occurred in other settings and many other states. Outbreaks are also ongoing in a number of other countries.

### **The virus and its transmission**

Measles is caused by a virus. It is transmitted by the airborne route and by respiratory droplets: infected patients expel virus into the air, where it can float for up to two hours and be inhaled by other people in the room or the ambulance. Surfaces can also be contaminated by respiratory secretions.

Measles is highly communicable: 90% of non-immune people who are exposed to infected patients will become infected themselves. Infected patients can transmit measles to other non-immune people for **4 days before to 4 days after** the onset of the rash. The time from infection to first symptoms (the incubation period) typically is 10-12 days.

### **Measles vaccine**

Measles vaccine is highly effective (93-97%) so current outbreaks are primarily based on failure to vaccinate. Vaccine doses are usually given at age 12 months and again at 4-6 years. In outbreaks it can be given as young as 6 months.

### **Clinical features**

**The hallmark of measles is fever, rash, and the “3 Cs”:** **C**oryza (high-volume runny nose), **C**onjunctivitis (“pink eye”), and **C**ough. Rare but important early complications include pneumonia and brain infection (encephalitis.) Any non-healthcare worker born before 1957 is assumed to have had measles in childhood and is therefore immune.

### **Actions in the field if you suspect measles**

Obviously not every patient with fever, cold symptoms, and rash has measles, but your index of suspicion should be high if your patient has the clinical picture described above, plus any of the following additional features:

- Known to be unvaccinated or insufficiently vaccinated against measles (could include infants too young to be eligible for vaccine—see above)
- Some connection to the devout orthodox Jewish community downstate
- Recent travel overseas or to a known outbreak region in the US

### **If you consider measles a reasonable possibility in your patient:**

- Use airborne and droplet isolation precautions—
  - wear an N95 mask,
  - if clinically appropriate, place a simple surgical mask on the patient
  - Use gown and eye protection for airway procedures or managing respiratory secretions
- If ambient weather conditions permit, maximize outside airflow into the ambulance during transport.
- Notify your receiving hospital of your concerns. They will consult with the Broome County Health Department (BCHD) if necessary.
- If the ED, based on your report and their triage assessment, takes your patient directly to an airborne isolation room (or a surrogate room because the airborne isolation room is not available), this suggests sufficient concern for measles that the ambulance should be **taken out of service for 2 hours**, ventilated, and disinfected per your protocol. Any EPA-registered healthcare-grade surface disinfectant should be sufficient (read the label for a measles virus indication). Personnel doing the disinfection inside the ambulance during the 2-hour period should continue wearing an N95 mask.