

Measles: A Rapidly Developing Patient Safety Concern

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HEADLINES ARE REPLETE about measles cases occurring around the country and the concerns about it. A recent article discussed a flight attendant in a coma with encephalitis after contracting the disease. She had completed a flight between Israel and New York.¹ In January of this year, the state of Washington declared a state of emergency because of the rising number of measles in the state.² Two universities in California quarantined staff and students.³ Already in the first 3 months of 2019, there are more measles reported than in all of 2014. In addition, the reported number of measles in the first quarter of 2019 has surpassed all of 2018 reported measles cases.⁴ Measles is a highly infective, airborne illness. One in a thousand will develop acute encephalitis and permanent brain damage.⁵ One or two of thousand children who contract measles will die from it.⁵ Pneumonia, encephalitis, dehydration, and death are complications of measles.⁵ Measles, the highly contagious virus, thought to be eradicated from the United States in 2000⁵ has returned with a vengeance.

Controlling measles within health care facilities is crucial. During 2001 to 2008, 27 reported measles cases were transmitted in health care facilities, or 5% of the measles cases, during that period.⁶ Measles is a highly contagious virus because when an infective person sneezes or coughs, those pathogens remain suspended in the air for about 2 hours active. In addition, direct contact with an infected person or touching an item they handled recently can also transmit the virus.⁵ Many people are un-

aware that an infected person was even in their area. As such, measles spreads at a much higher rate than other viruses like influenza to those at high risk. Those people at high risk include the following: unvaccinated individuals, pregnant women, infants and children less than 5 years old, and immunosuppressed people (HIV, leukemia, and chemotherapy patients).⁵

Although measles was said to be eradicated from the United States in 2000, its return to the United States is from foreign travel of unvaccinated individuals, who then bring it back to the United States. This infected person can then spread the virus to any unvaccinated person living in the United States. It is estimated that every two of three infected overseas travelers are unvaccinated Americans.⁵ Ninety percent of unimmunized people exposed to measles could become infected.⁶ The main reason the United States is confronting an increase in measles outbreak is due to the rise in unvaccinated individuals across the country. In the United States, many people have decided to not vaccinate themselves and their children. The Centers for Disease Control (CDC) estimates that the nationwide immunization status for childhood vaccines is at 70.7%, far below the needed 97% to prevent virus outbreaks.⁷ Currently, 17 states allow parents to decline to vaccinate their children for personal or philosophical reasons, and 47 states have religious exceptions. At this time in the United States, the CDC has listed the following areas as having measles outbreaks: New York City, Rockland County in NY, Washington, New Jersey, Michigan, and Butte County in California.⁵

One of the challenges with measles is early diagnosis. Its prodromal period has nonspecific symptoms of coughing, runny nose, conjunctivitis, and fever. Many health care providers may not associate these with measles, but rather consider other more common diagnoses, such as an upper respiratory infection. The rash itself from measles

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Conflict of interest: None to report.

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1089-9472/\$36.00

<https://doi.org/10.1016/j.jopan.2019.05.002>

does not present until 3 to 5 days after the initial symptoms, allowing the patient to be contagious for several days. The maculopapular rash starts at the face and spreads to trunk, ends at lower extremities.⁵ The infected person is contagious 4 days before the rash appears and 4 days after the rash appears.⁵

If a patient is suspected of having measles, the nurse should have the patient immediately use a mask and move into an appropriate isolation room (airborne infection isolation room).^{5,8} If the health care facility does not have an airborne infection isolation room, then the patient suspected of having measles can be placed in a private room with the door closed.⁸ The patient should have a mask and health care providers should wear protective gear (gloves, masks, eye cover, and a properly fit N-95 particulate respirator).^{5,8} After a blood test for measles any positive findings are conveyed to the local health department as measles is a reportable disease.

Beyond unvaccinated individuals, some people may be under-protected from measles. The CDC noted that at one dose, the measles-mumps-rubella (vaccine; MMR) is about 93% effective against measles, but with the second dose it is 97%.⁵ Many people who were born after 1957 may have not received the second dose of the MMR vaccine. If health care providers were born after 1957, they should have documented evidence of immunization with two doses of measles-containing vaccine or laboratory confirmation of disease or immunity.⁶ If the person is unable to do so then second dose of MMR vaccine is indicated for health care providers, and no testing or laboratories is needed prevaccination.⁶ There are state laws that stipulate vaccines for health care workers to ensure compliance with those.⁹

If there is measles exposure then the option for post-exposure prophylaxis can be offered to health care providers and other individuals who have been exposed.^{5,8} Evidence shows that providing the vaccine within 72 hours of exposure will prevent or modify the disease.⁸ Immunoglobulin is an option for those individuals at high risk (immunosuppressed, infants younger than 11 months, and unvaccinated pregnant women) who were exposed to measles.⁵ Immunoglobulin reduces the risk of

complications and infection associated with measles; it does not control outbreaks of measles.⁵ The recommended dose of immune globulin intramuscular is 0.5 mL/kg of body weight (maximum dose = 15 mL)⁵; and the recommended dose of immune globulin intravenous is 400 mg/kg.⁵

As with all emerging threats to patient safety, education of health care providers is crucial and planning for potential threats is imperative. The threat of measles exposure within health care facilities is dangerous because it is so contagious and has major complications including death.⁹ With the rise in measles cases, it is important to have a screening protocol in place for patients with upper respiratory infection symptoms. This protocol should include questions about recent exposure to measles, patient's immunization status, and recent travel abroad.⁹ Questions regarding foreign travel is significant as the measles virus is often transmitted from foreign countries to the United States. Current countries experiencing measles outbreaks include Israel, Ukraine, Brazil, Japan, and Philippines.⁵

Nurses are very effective at assessment. Knowing what questions to ask and symptoms to be aware of are necessary in today's environment. For example, perianesthesia nurses are often conducting pre- and postoperative phone calls. Simple questions, including if the patient has been experiencing any coughing, bloodshot eyes, and runny nose could discern potential prodromal symptoms of measles. Additional inquiry into recent travel abroad would be helpful, in addition to their vaccination status. Travel to countries experiencing high measles outbreaks and an unvaccinated patient can alert the nurse to a potential problem. The discussion of vaccination status should be considered regardless in this current state measles outbreak. Discuss with your leadership the most effective methods to accomplish this. If patients or parents are not vaccinated, then the risks of not vaccinating should be discussed with them by the appropriate provider. If the patient does not want to get vaccinated and the state law permits this, then the health care provider should strongly consider having the patient sign an informed refusal form.⁹

Measles could become an endemic.⁵ Working collaboratively, the goal is to prevent the spread of measles by being more aware of its signs and

symptoms and potential risks. Education of both health care providers and patients is key. Rapid vaccinations and public health response is essential.⁵ Keeping patients and health care

providers healthy and safe is a priority. The CDC and local health departments should be considered as sources for additional information during this period.

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