Control of Measles in a Custodial Setting

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The recent U.S. measles outbreak is the largest since 1992. According to the Centers for Disease Control and Prevention, more than 1,000 infections have been reported from 28 states in 2019. It is just a matter of time before measles is introduced into a custodial setting. Are we prepared?

Measles is a contagious disease with a high attack rate in vulnerable populations, with one infected person having the potential to infect 17 to 20 susceptible people. When measles is introduced into closed settings such as jails, prisons or juvenile detention centers, the number of potential new infections will rise exponentially depending on the immunization status of the residents. Therefore, closed settings have to be prepared to rapidly identify, isolate and vaccinate vulnerable residents.

This article presents steps to take to prevent the spread of measles in a custodial setting.

Outbreak Prevention

Measles will most likely be introduced from external sources such as staff, visitors and vendors. Screening for immunity (staff and residents) ahead of an outbreak during this high-alert period is cost-effective and necessary to prevent measles introduction. The goal of screening is to identify potential vulnerable residents and staff and, in the event of an outbreak, exclude them from work or isolate them to prevent disease transmission.

Steps to take in the event of an outbreak are as follows:

1. Immediately isolate the suspected resident or inmate and implement contact precautions and postexposure prophylaxis (PEP).
2. Call your local health department upon suspicion; confirm disease using clinical and laboratory parameters (see definitions).
3. Staff, visitors and vendors exposed to measles who cannot readily show that they have evidence of immunity against measles should be offered PEP or be excluded from the facility.
4. To provide protection or modify the clinical course among susceptible residents, staff or vendors, either administer the MMR vaccine within 72 hours of initial exposure or immunoglobulin (IG) within six days of exposure. Do not administer the MMR vaccine and IG simultaneously, as this practice invalidates the vaccine.
5. If the MMR vaccine is not administered within 72 hours as PEP, the vaccine should still be offered in order to offer protection from any future exposures. Those who receive the MMR vaccine or IG as PEP should be monitored for signs and symptoms consistent with measles for at least one incubation period (7-21 days).
6. Infected residents or inmates should be isolated for four days after they develop a rash.
7. Work on logistics such as getting security clearance to enable local health department staff to enter the facility.
8. Stop the transfer of residents or inmates in and out of the facility to reduce the risk of spreading measles to other parts of the facility.

According to the Federal Bureau of Prisons immunization guideline, during a measles outbreak in an adult custodial setting, it is recommended that one dose of MMR vaccine be given to anyone identified to be at risk and to those who have no evidence of immunity to measles within 72 hours of exposure.

Discussion

To the best of our knowledge, no measles outbreak has been reported in a juvenile custodial setting, and a search of databases revealed few reported outbreaks in adult settings. In the United States, the receipt of two or more MMR vaccines is documented in more than 90% of adolescents aged 13 to 17 years across all ethnic groups, metropolitan statistical areas, rural and non-rural counties and states, according to the National Immunization Survey. The MMR vaccine uptake trend in these birth cohorts remains high from 2008 through 2017, and we postulate that this high MMR vaccine uptake might contribute to the paucity of the measles outbreak in juvenile custodial settings.

Previous mitigation efforts during prison outbreaks demonstrated that mass vaccination following an outbreak is not always likely to prevent new infections among susceptible individuals. Favorable mitigating factors include implementing opt-out testing, vaccination and requiring full immunization of staff, contractors and vendors.

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