News

Update on Middle East Respiratory Syndrome

(Prepared by the section editor)—Since the update 2 weeks ago in Clinical Infectious Diseases News and as of 13 September 2013, the case count of Middle East respiratory syndrome (MERS) coronavirus has significantly risen from 108 cases with 51 deaths to 132 cases with 59 deaths. These numbers make it even more apparent that person-to-person transmission of the MERS coronavirus has occurred to close contacts. There have been clusters of infection in families, but most person-to-person transmission has been in healthcare situations, mainly to healthcare providers. It seems that the size of the clusters is increasing.

A total of 16 asymptomatic patients have been identified in healthcare providers. It seems likely that camels are not the source of human infection and that the intermediate host remains to be discovered.

Forty-eight (83%) of all cases were confirmed by positive measles IgM or RTPCR result. Genotype D8 was identified in 17 cases, consistent with the known current circulation of this genotype in the United Kingdom. No other genotype was identified.

In 52% of cases, measles was likely acquired from a relative. Complications included pneumonia in 1 child; 2 pregnant women required hospitalization, including 1 who miscarried. The last case onset occurred on 9 June 2013.

Approximately 3500 contacts were identified in healthcare, school, and home settings. Control measures included the administration of immune globulin or MMR vaccine postexposure prophylaxis; home isolation; alerts to medical providers; the active recall of children in medical practices who were not up-to-date with measles vaccine; notifications to families, schools, and day-care providers through letters, flyers, and advertisements in newspapers; immunization audits of schools; and meetings with religious leaders and elected officials. The New York City Department of Health and Mental Hygiene recommended that obstetricians in affected communities test for measles immunity during pregnancy and vaccinate women without evidence of measles immunity postpartum. Because infants were affected, vaccination recommendations during the outbreak period were expanded to include MMR vaccine for all children aged 6–11 months in the affected communities, with the second dose of MMR vaccine administered early, as soon as 4 weeks after the first dose of MMR vaccine.

Measles elimination was declared in the United States in 2000. However, importations of measles continue to present risks for outbreaks in the United States. This outbreak was propagated by a few extended families whose members declined vaccination.

Measles Outbreak Among Members of a Religious Community—Brooklyn, New York

On 13 March 2013, an intentionally unvaccinated adolescent aged 17 years returned to New York City from London, the United Kingdom, while infectious with measles. This importation led to the largest outbreak of measles in the United States since 1996.

A total of 58 cases were identified, including 6 generations of measles infection in 2 neighborhoods of the borough of Brooklyn, New York. All cases were in members of the orthodox Jewish community. No case was identified in a person who had documented measles vaccination; 12 (21%) of the cases were in infants too young (aged <12 months) for routine immunization with measles, mumps, and rubella (MMR) vaccine.

The outbreak was first recognized in Brooklyn’s Borough Park neighborhood, where the median age of 28 infected persons was 10 years (range, 0–32 years), and 79% of cases in persons aged ≥12 months were in 3 extended families whose members declined use of measles vaccine. The outbreak spread to the Williamsburg neighborhood, where the median age of 30 infected persons was 19 months (range, 0 months–32 years), and again the primary reason for lack of vaccination in those ≥12 months was refusal.

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MMR vaccine and by children with delays in receiving MMR vaccine in densely populated neighborhoods. High vaccination coverage within the Brooklyn orthodox Jewish community likely limited the scope of the outbreak. The insular nature of the affected community and high population-level vaccination coverage outside this community likely prevented further spread of measles.

Researchers to Move Ahead With Thai HIV Vaccine Study

9 September 2013 (Reuters Health [Alisa Tang])—Researchers in Thailand will move ahead with another phase of a human immunodeficiency virus (HIV) vaccine study, building on a 2009 efficacy trial that provided the first evidence that a preventive HIV vaccine is possible.

The 2009 trial—known as RV144—involved >16 000 volunteers in Thailand and found that the vaccine regimen tested reduced the risk of HIV infection by 31.2% at the end of the study, although the scientists noted that the efficacy rate at 12 months was significantly higher.

“The RV144 Thai HIV vaccine study results, announced in 2009, showed that a HIV vaccine is possible, and the protective effect at 1 year may have been as high as 60%,” Col. Jerome Kim, principal deputy of the US Military HIV Research Program (MHRP), told Thomson Reuters Foundation.

“Later scientific studies told us why the vaccine might have worked. This will allow us to tweak the vaccine and the schedule, which will hopefully increase the level of protection.”

MHRP began a small clinical study, RV305, in April 2012 in Thailand to evaluate reboosting in volunteers who participated in the RV144 study.

RV306, the immunogenicity study to begin this year, will compare additional vaccine boosts in 360 new volunteers and aims to determine “what types of immune responses the vaccine regimen generates, and which boost combinations generate the strongest response,” said Lisa Reilly, the MHRP’s communications director.

“It is not an efficacy study, so it does not need to be large . . . We are hoping to conduct an efficacy study with an improved vaccine boost/adjuvant in Thailand, but it will not start until 2016–2017,” Reilly said.

The RV306 study will be conducted at 3 sites: the Vaccine Trial Center at Mahidol University and the Royal Thai Army Armed Forces Research Institute of Medical Sciences, both in Bangkok, and the Royal Institute for Health Sciences in Chiang Mai.

Scientists have long sought an AIDS vaccine, with several failed attempts, including a 2007 trial in which a Merck vaccine appeared to make people more vulnerable to infection, not less.

Since the findings from the 2009 trial in Thailand, discoveries have pointed to even more powerful vaccines using HIV-fighting antibodies.

Drug-resistant ‘Superbugs’ Deemed Urgent Threats

16 September 2013 (Reuters Health [Julie Steenhuyzen])—According to a new report by the US Centers for Disease Control and Prevention (CDC), at least 2 million people in the United States develop serious bacterial infections that are resistant to 1 or more types of antibiotics each year, and at least 23 000 die from the infections.

Among the top 3 threats deemed “urgent” is carbapenem-resistant Enterobacteriaceae, which Dr Thomas Frieden, director of the CDC, last March called a “nightmare bacteria” because even the strongest antibiotics are not effective against it.

Clostridium difficile, the most common hospital-based infection in the United States, made the list of urgent threats both because it has begun to resist antibiotics and because it preys on the overuse of antibiotics.

The third “urgent” threat in the report is drug-resistant Neisseria gonorrhoeae. Gonorrhea is increasingly becoming resistant to tetracycline, cefixime, ceftriaxone, and azithromycin—formerly the most successful treatments for the disease.

Dr Edward Septimus, a member of the Infectious Diseases Society of America’s (IDSA) Antimicrobial Resistance Workgroup, added methicillin-resistant Staphylococcus aureus and drug-resistant tuberculosis.

Not surprisingly, it underscores the need for new antibiotics, citing ever-slowing development efforts by pharmaceutical companies due to the high cost of such programs and relatively low profit margins of the drugs.

It also stresses the need for hospitals to prevent infections from occurring and to contain the spread of resistant infections and ensuring that antibiotics are prescribed only to patients who need them.