Acute Neurologic Illness of Unknown Etiology in Children—Colorado, August–September 2014

(MMWR 63:901–2, 2014)—On 12 September 2014, the Centers for Disease Control and Prevention (CDC) was notified by the Colorado Department of Public Health and Environment (CDPHE) of a cluster of 9 children evaluated at Children’s Hospital Colorado with acute neurologic illness characterized by extremity weakness, cranial nerve dysfunction (eg, diplopia, facial droop, dysphagia, or dysarthria), or both. Neurologic illness onsets occurred during 8 August–15 September 2014. The median age of the children was 8 years (range = 1–18 years). Other than neck, back, or extremity pain in some patients, all had normal sensation. All had a preceding febrile illness, most with upper respiratory symptoms, occurring 3–16 days (median = 7 days) before onset of neurologic illness. Seven of 8 patients with magnetic resonance imaging (MRI) of the spinal cord had nonenhancing lesions of the gray matter of the spinal cord spanning multiple levels, and 7 of 9 with MRI of the brain had nonenhancing brainstem lesions (most commonly the dorsal pons). Two of 5 with MRI of the lumbosacral region had gadolinium enhancement of the ventral nerve roots of the cauda equina. Eight children were up to date on polio vaccination.

Eight patients demonstrated a mild to moderate cerebrospinal fluid (CSF) pleocytosis (>5 white blood cells/μL), predominantly lymphocytic, consistent with an inflammatory or infectious process. CSF glucose was normal; CSF protein was normal or mildly elevated. Initial testing of CSF from 8 patients showed no evidence of West Nile virus antibodies. CSF testing for enteroviruses, including enterovirus D68 (EV-D68), enterovirus 71, and poliovirus, by reverse transcription–polymerase chain reaction (RT-PCR) was negative in all patients.

Initial nasopharyngeal specimens were available for 8 children. Six were positive for rhinovirus/enterovirus by RT-PCR. These 6 positive nasopharyngeal specimens were subsequently typed: 4 were identified as EV-D68, one as rhinovirus A24, and one was not EV-D68. The specimen positive for rhinovirus A24 also was positive for adenovirus by RT-PCR. Single rectal swabs or stool samples from 8 patients were negative for enterovirus (including poliovirus) by RT-PCR.

This cluster of acute neurologic illnesses occurred against a backdrop of detection of EV-D68 causing severe respiratory disease in many parts of the United States, including Colorado. There are 2 case reports in the literature of EV-D68 causing neurologic illness (acute flaccid paralysis and encephalomyelitis) as evidenced by detection of EV-D68 in the CSF. However, given the current suspected widespread circulation of EV-D68 respiratory infections in Colorado, and the antecedent respiratory illness in most of these children, the detection of EV-D68 in nonsterile upper respiratory tract specimens in those with neurologic illness might be coincidental. On 19 September, the CDPHE issued a Health Alert requesting reports of similar cases. One additional case with similar neurologic findings was reported as a result of this. On 26 September, CDC issued a national Health Advisory (available at: http://www.bt.cdc.gov/han/han00370.asp), which provides guidance for identifying and reporting cases. Clinicians should report to their local and state health departments patients aged ≤21 years with (1) acute onset of focal limb weakness occurring on or after 1 August 2014, and (2) MRI showing a spinal cord lesion largely restricted to gray matter.

Editorial comment. As of 4 October 2014, at least 42 cases of polio-like illnesses in the United States and Canada are under investigation. From mid-August to 1 October 2014, there have been a total of >500 confirmed cases of infection with enterovirus D68 in the United States, and this is undoubtedly just the tip of the iceberg.

Ebola Drug Trials to Be Fast-Tracked in West Africa

14 September 2014 (Reuters [Kate Kelland])—Experimental Ebola drugs including compounds from Mapp Biopharmaceutical, Sarepta, and Tekmira will be tested in affected West African states for the first time in a bid to fast-track trials, the Wellcome Trust said.

The Wellcome Trust said several potential drugs are under consideration and a group of independent experts appointed by the World Health Organization is working to recommend which to prioritize based on factors such as which is likely to work best, their availability, the ability to give them safely, and whether they can be manufactured to a useful scale.

It said various pharma companies including Mapp, Sarepta, and Tekmira were working with the initiative and providing data on efficacy, safety, and production abilities for a number of the experimental treatments.

Mapp Pharmaceutical’s experimental drug ZMapp has already been used to treat several Ebola patients who have since recovered, but doctors cannot say for sure whether the drug helped them or whether they would have recovered anyway.
The Canadian drugmaker Tekmira said that US and Canadian regulators had authorized the use of its Ebola treatment in patients who have confirmed or suspected infections.

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Editorial comment. ZMapp is a combination of 3 humanized monoclonal antibodies. Sarepta’s agent is a gene-targeting drug. Tekmira’s drug is an anti-Ebola viral RNA interference therapeutic.

Ever-Present Endemic Ebola Now Major Concern for Disease Experts

14 September 2014 (Reuters [Kate Kleland])—West Africa’s Ebola epidemic is the largest the world has ever seen, but infectious disease experts are almost as fearful of a long-term legacy in humans as they are about the deaths it is causing right now.

While the current outbreak is out of control, even pessimistic forecasts suggest it will eventually recede. But if the virus continues to transmit from person to person for a year or more, the risk is that Ebola will become endemic in humans and constitute an ever-present threat to people in the region and the rest of the world.

“The big question here for me is, will this virus become endemic—meaning it’s being transmitted at low levels (in humans all the time)?” said Peter Piot, director of the London School of Hygiene and Tropical Medicine and one of the scientists who identified the Ebola virus almost 40 years ago.

Jeremy Farrar, director of the Wellcome Trust and an expert in infectious diseases, said, “The concern is that if it keeps going, it will turn from an epidemic disease, which is terrible, to becoming endemic in humans, which means it would no longer require an overspill from animals to cause an outbreak.”

Farrar said that if Ebola were to become endemic, it would almost inevitably simultaneously become less virulent and be likely to kill a smaller proportion of the people it infected.

Ebola infection is caused by a virus whose raison d’etre is to survive for as long as possible so that it can replicate and multiply, Piot explained. Because so many humans are killed so quickly, they are in fact a very ineffective “host” for the Ebola virus. A mortality rate of up to 90% may be frightening, but at least it means the outbreaks eventually kill themselves off.

“We (humans) are a very bad host from the virus’s point of view,” said Piot. “A host that’s killed by a virus in a week or so is absolutely useless.

“So in all other outbreaks it [the virus] eventually just disappeared from the human host and retreated into animals.”

If it were to adapt to humans, perhaps becoming less deadly and allowing them to survive and become better hosts, the virus could settle and pool into a human reservoir.

“The time you really start to worry is when mortality rate drops because that suggests the probability that the disease is adapting to humans and risks becoming endemic,” said Farrar.

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Reeling From Ebola, WHO Warns of MERS Risk to Africa

1 October 2014 (Reuters [Tom Miles])—Vulnerable countries, especially in Africa, need to defend themselves against the possible seasonal spread of Middle East respiratory syndrome (MERS) in the first half of 2015, the World Health Organization (WHO) said.

A WHO Emergency Committee recommended steps “to strengthen infection prevention control practices, build capacity of health care workers, and provide protective equipment in vulnerable countries, especially African countries.”

The committee also called for improved MERS awareness among pilgrims going to Saudi Arabia for the annual Muslim Hajj journey and for surveillance of pilgrims during and after Hajj.

“The current data suggest that MERS-CoV [coronavirus] transmission could be seasonal, with an upsurge expected next spring,” it said.

MERS, which is thought to originate in camels, has killed 333 people and infected >850 since it emerged in 2012. But unlike Ebola, which has killed 10 times as many people, there has still been no evidence of sustained human-to-human transmission of MERS in communities, and the committee said the disease still did not constitute a “public health emergency of international concern.”

Aside from travel-related cases, MERS has been confined to the Arabian peninsula, Lebanon, Jordan, and Iran. The number of cases of MERS had fallen since an upswing in April and although transmission was still occurring in small clusters “in health care settings,” the spread of the disease seemed “generally contained,” the committee said.