EPI WATCH

Monthly Epidemiology Newsletter

Polio Virus Detected in New York

By: Jessica McFarland

Despite poliomyelitis (polio) cases that originated in the United States being effectively eradicated since 1979, the first case of polio in nearly a decade that was not travel-related was detected on July 18 in Rockland County, New York. Sequencing of the clinical specimen confirmed by the Centers for Disease Control and Prevention (CDC) showed the implicated individual was most likely exposed to a person that received the oral polio vaccination (OPV) as they were confirmed positive for the revertant polio Sabin type 2 virus. The OPV has not been administered in the U.S. since 2000 and instead the inactivated polio vaccine (IPV) is recommended. The epidemiologic investigation revealed the patient attended a large gathering while also denying any international travel during the 7-21 day exposure period. It should be noted that the infected person was unvaccinated. As part of the public health response, testing of wastewater samples for poliovirus from Rockland and surround counties was initiated. As of August 10, 21 of 260 wastewater samples from Rockland and neighboring Orange County tested positive for poliovirus. Twenty of the samples were genetically linked to the virus from the reported case while one sample collected in April was identified as poliovirus 2, but unable to be fully genetically sequenced. The number of positive wastewater samples suggest that the polio virus is circulating in the local community.

Poliovirus is typically spread person to person through fecal-oral transmission, but can also be spread through contained food or water, though this is rare. For most individuals, infections are mild, or no symptoms are observed. Symptoms that may arise vary from sore throat, fever, nausea/vomiting, abdominal pain, headache, or fatigue with symptoms dissipating between 2-5 days. However, some infected individuals will develop more severe symptoms that can affect the brain and spinal cord causing paralysis.

Figure 1. " CDC scientist extracting viral RNA from samples of poliovirus genetic material for molecular testing." Courtesy of CDC's Public Health Image Library.

Three types of polioviruses were identified in 1949 by David Bodian, which aided in the development of a vaccine that would provide immunity for each type. The polio epidemic began in 1952 which launched the race for vaccinations. In 1954, 1.3 million children were part of a trial to test the efficacy of the IPV. By the following year, it was shown that the IPV had an 80-90% efficacy rate. Given the results, the IPV vaccine was licensed and set for mass distribution. The OPV was developed by Albert Sabin and was preferred in other countries due to being a cheaper, easier to administer, and a better option in quickly responding to the epidemic. The IPV was preferred in the United States as inactivated virus cannot revert to virulent forms as can the viruses in the OPV. It wouldn't be until 1963 that a trivalent vaccine to provide protection against all types of polio was licensed in the United States.

Children should receive their polio vaccine at the ages of 2 months, 4 months, 6-18 months, and 4-6 years. Adults who were never vaccinated should receive their first dose as soon as possible, second dose 1-2 months later and the third dose 6-12 months after their second dose. An adult who has not completed their vaccination series should do so no matter how long ago they received the previous dose(s).

For any inquiries on vaccination recommendations: https://www.cdc.gov/vaccines/vpd/polio/public/index.html

References:

- https://health.ny.gov/press/releases/2022/2022-08-12_nys_nyc_wastewater_polio.htm
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4212416/
- https://historyofvaccines.org/history/polio/timeline

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Marburg Virus Disease

By: Alissa Brown, MPH, CIC

On July 1, 2022, blood samples that were collected from two men tested positive for Marburg virus by transcriptase polymerase chain. This particular test is used to identify the level of genetic material of the virus in sample. Both cases were identified in the Ashanti region of Ghana. This would mark the first time Marburg virus disease has been identified in Ghana. After an epidemiological investigation, the source of infection remains unknown. Both cases exhibited symptoms of fever, general malaise, bleeding from the nose, mouth, and vessels in the eye. Neither case had history of contact with dead animals, sick persons or animals, and had not attended any social gatherings prior to symptom onset. Although both men were farmers, they worked in different locations.

Marburg virus disease is a rare, but severe hemorrhagic fever which affects people and non-human primates. The virus is a unique zoonotic RNA virus of the filovirus family that also includes the Ebola virus. African fruit bats serve at the primary reservoir but do not display signs of illness when infected. The first transmission from animal to human was suspected to have occurred through contact with infected bat feces or aerosols. Transmission can then occur through person to person contact, by direct contact with blood or body fluids, or with objects contaminated with body fluids of an infected person with the Marburg virus. An outbreak of Marburg virus is a serious public health threat as it is severe and often fatal.

The virus has the potential to spread to other people, especially healthcare staff and family members who care for the patient. Increasing awareness in communities and among healthcare providers of the clinical symptoms of patients with Marburg virus disease is critical. Awareness can lead to earlier and stronger precautions against the spread of Marburg virus in both family members and healthcare providers.

For more information, please visit CDC Marburg virus

Parechovirus (PeV) Causing Illness in Infants

By: Rebecca Bohinc MPH, CPH

Human parechovirus (PeV) is part of a group of viruses that is common among young children under the age of five. Although some children may never display signs of illness, the virus can cause mild diarrhea, fever, irritability, cold-like symptoms, poor feeding or sucking, floppiness, and/or rash. Transmission occurs through respiratory or fecal-oral routes, highlighting the importance of prevention through hand hygiene, covering your cough or sneeze, disinfection of fomites, and staying home when ill[1]. The reason PeV is of concern is that infections among infants less than three months of age can cause severe outcomes including sepsis, seizures, or meningitis.


(Illustration: Getty)

On July 12, 2022, the Centers for Disease Control and Prevention (CDC) issued an alert to notify clinician and public health authorities that PeV was circulating in the United States. As there is not a structured surveillance system in place to track infections, its difficult to compare current trends to previous trends of PeV circulating in the community. The CDC did receive reports from multiple states since May that the virus was detected in neonates and young infants. Currently, all specimens were of the PeV-A3 subtype, which is known to cause more severe illness. Clinicians were advised to consider PeV in their differentials and consider testing[2].

One report reviewed a total of 23 infants who were hospitalized and treated for PeV in Tennessee between April 12- May 24. Of those patients, 21 recovered without complications while the remaining two cases will be followed for possible late onset hearing loss and hypercoagulation and anticipated severe developmental delays[3]. Another child who was diagnosed with PeV in Connecticut had passed away in June at only 34 days old[4].

Parents are advised to contact their pediatrician or seek medical attention if their child displays signs of illness.

References:

1. Cleveland Clinic. (2022, July). Human Parechovirus (PeV). https://my.clevelandclinic.org/health/diseases/23496-parechovirus
2. Centers for Disease Control and Prevention. (2022, July). Recent Reports of Human Parechovirus (PeV) in the United States – 2022. https://emergency.cdc.gov/han/2022/han00469.asp
3. Centers for Disease Control and Prevention. (2022, July). *Notes from the Field:* Cluster of Parechovirus Central Nervous System Infections in Young Infants — Tennessee, 2022. https://www.cdc.gov/mmwr/volumes/71/wr/mm7130a5.htm
4. Hartford Healthcare. (2022, July). CDC Issues Alert for Parechovirus Following Death of Connecticut Infant. https://hartfordhealthcare.org/about-us/news-press/news-detail?articleid=43080&publicId=395

Select Reportable Diseases in Pinellas County

	Pinellas		YTD Total		Pinellas County Annual Totals		
Disease	**July 2022**	**July 2021**	**Pinellas 2022**	**Florida 2022**	**2021**	**2020**	**2019**
A. Vaccine Preventable							
Measles	**0**	**0**	**0**	**0**	0	0	1
Mumps	**0**	**0**	**0**	**7**	1	1	3
Pertussis	**0**	**0**	**1**	**36**	1	8	27
Varicella	**5**	**5**	**17**	**266**	25	18	32
B. CNS Diseases & Bacteremias							
Creutzfeldt-Jakob Disease (CJD)	**0**	**1**	**3**	**45**	1	0	3
Meningitis (Bacterial, Cryptococcal, Mycotic)	**1**	**1**	**9**	**88**	5	5	7
Meningococcal Disease	**1**	**0**	**1**	**48**	1	2	1
C. Enteric Infections							
Campylobacteriosis	**19**	**13**	**122**	**2238**	213	247	303
Cryptosporidiosis	**2**	**0**	**13**	**312**	28	38	62
Cyclosporiasis	**8**	**7**	**8**	**229**	9	9	28
E. coli Shiga Toxin (+)	**1**	**4**	**14**	**543**	16	10	22
Giardiasis	**5**	**2**	**17**	**647**	29	28	52
Hemolytic Uremic Syndrome (HUS)	**0**	**0**	**0**	**6**	0	0	1
Listeriosis	**1**	**2**	**3**	**33**	3	2	2
Salmonellosis	**20**	**19**	**88**	**3128**	182	200	200
Shigellosis	**2**	**5**	**18**	**435**	37	19	22
D. Viral Hepatitis							
Hepatitis A	**3**	**0**	**17**	**231**	6	3	377
Hepatitis B: Pregnant Woman +HBsAg	**2**	**1**	**13**	**227**	10	18	21
Hepatitis B, Acute	**3**	**3**	**13**	**439**	52	40	71
Hepatitis C, Acute	**9**	**8**	**78**	**889**	89	117	75
E. VectorBorne/Zoonoses							
Animal Rabies	**0**	**0**	**0**	**36**	0	0	2
Rabies, possible exposure	**14**	**13**	**92**	**2734**	135	118	128
Chikungunya Fever	**0**	**0**	**0**	**1**	0	0	0
Dengue fever	**0**	**0**	**1**	**128**	0	1	3
Eastern Equine Encephalitis	**0**	**0**	**0**	**0**	0	0	0
Lyme Disease	**1**	**2**	**3**	**122**	7	11	19
Malaria	**1**	**0**	**1**	**28**	2	2	5
West Nile Virus	**0**	**0**	**0**	**0**	0	0	0
Zika Virus Disease	**0**	**0**	**0**	**0**	0	0	3
F. Others							
Chlamydia	**326**	**361**	**2317**	**n/a**	4090	3956	4575
Gonorrhea	**146**	**170**	**1097**	**n/a**	1882	1634	1526
Hansen's Disease	**0**	**0**	**0**	**5**	0	0	0
Legionellosis	**2**	**2**	**23**	**317**	36	33	30
Mercury Poisoning	**0**	**0**	**0**	**22**	2	1	1
Syphilis, Total	**61**	**62**	**439**	**n/a**	633	479	493
Syphilis, Infectious (Primary and Secondary)	**32**	**32**	**189**	**n/a**	273	212	218
Syphilis, Early Latent	**22**	**24**	**168**	**n/a**	239	166	197
Syphilis, Congenital	**0**	**0**	**4**	**n/a**	7	5	6
Syphilis, Late Syphilis (Late Latent; Neurosyphilis)	**7**	**6**	**78**	**n/a**	114	96	72
Tuberculosis	**3**	**0**	**14**	**n/a**	24	24	33
Vibrio Infections	**1**	**3**	**5**	**143**	13	12	18

*YTD up to July 31, 2022. n/a = not available at this time