To: (10)(2e) [(10)(2e)@rivm.nl]
From: (10)(2e)
Sent: Wed 8/26/2020 10:40:15 AM
Subject: FW: ProMED Digest, Vol 98, Issue 68
Received: Wed 8/26/2020 10:40:16 AM

Zie 2e item, groet, (10)(2e)

-----Original Message-----
From: (10)(2e)@promedmail.org <(10)(2e)@promedmail.org> On Behalf Of (10)(2e)@promedmail.org
Sent: woensdag 26 augustus 2020 12:37
To: (10)(2e)@promedmail.org
Subject: ProMED Digest, Vol 98, Issue 68

Today's Topics:

1. PRO/AH/EDR> West Nile virus (10): Europe (Spain) horse
   ((10)(2e)@promedmail.org)
2. PRO/AH/EDR> COVID-19 update (374): animal, ferret, research,
   epidemiology ((10)(2e)@promedmail.org)
3. PRO/EDR> Poliomyelitis update (17): Africa declared wild
   poliovirus free ((10)(2e)@promedmail.org)

Message: 1
Date: Tue, 25 Aug 2020 21:03:26 +0000
From: (10)(2e)@promedmail.org
Subject: PRO/AH/EDR> West Nile virus (10): Europe (Spain) horse
To: (10)(2e)@promedmail.org, (10)(2e)@promedmail.org,
(10)(2e)@promedmail.org
Message-ID:
<(10)(2e)@email.amazonses.com>

Content-Type: text/plain; charset=UTF-8

WEST NILE VIRUS (10): EUROPE (SPAIN) HORSE
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A ProMED-mail post
<http://www.promedmail.org>
ProMED-mail is a program of the
International Society for Infectious Diseases <http://www.isid.org>

Date: Mon 24 Aug 2020 15:34 CEST
Source: The Olive Press [edited]
<https://www.theolivepress.es/spain-news/2020/08/24/deadly-mosquito-borne-west-nile-virus-detected-in-19-horses-in-spains-andalucia/#:~:text=Lead-,Deadly%20mosquito-borne%20West%20Nile%20vi>

The [Regional Government of Andalusia] announced this Sunday [23 Aug 2020] that the mosquitoborne West Nile virus has been detected in 19 horses. The outbreaks have been detected in the Provinces of Sevilla, Huelva, and Cadiz.

Specifically 2 in Cadiz (one in Puerto Real and another in Jerez de la Frontera), 5 in Huelva (2 in Almonte, and one each in Moguer, San Bartolome and Gibraleon); and 12 in Sevilla (4 in Lebrija, 3 in Los Palacios, 3 in Dos Hermanas, 2 in Las Cabezas de San Juan).

The surveillance system, implemented by the Department of Animal Health of the Regional Ministry in 2010, serves as a health alert for a possible outbreak of the virus in humans.

[byline: Cristina Hodgson]

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communicated by:
ProMED-mail
<(10)(2e)@promedmail.org>

[West Nile fever is a mosquitoborne viral disease that can affect birds, humans, and horses causing inapparent infection, mild febrile illness, meningitis, encephalitis, or death. West Nile virus (WNV) is a member of the genus _Flavivirus_ in the family Flaviviridae. The arbovirus is maintained in nature by cycling through birds and mosquitoes; numerous avian and mosquito species support virus replication. For many avian species, WNV infection causes no overt signs while other birds, such as American crows and blue jays, often succumb to fatal systemic illness. Among mammals, clinical disease is primarily exhibited in horses and humans.

Infections are dependent on mosquito transmission and are seasonal in temperate climates, peaking in the early autumn in the northern hemisphere.

Clinical signs of WNV infection in horses arise from viral-induced encephalitis or encephalomyelitis. Affected horses frequently demonstrate mild to severe ataxia. Signs can range from slight incoordination to recumbency. Some horses exhibit weakness, muscle fasciculation, and cranial nerve deficits. Fever is not a consistently recognised feature of the disease in horses. The above and additional information, including detailed diagnostic techniques and vaccine requirements, are available at <https://www.oie.int/fileadmin/Home/eng/Health_standards/tahm/3.01.24_WEST_NILE.pdf>.

Spain has been reporting the OIE on clinical cases of West Nile fever in horses, in Andalusia, since 2010 (no cases reported to the OIE from Andalusia during 2005-2009). Exacerbations were recorded in 2010, 2013, and 2016, as follows:
- 2010: 35 outbreaks (44 cases, 3 deaths);
- 2011: 5 outbreaks;
- 2012: 4;
- 2013: 35 outbreaks (40 cases, 11 deaths);
- 2014: 7;
- 2015: 16;
- 2016: 62 outbreaks (70 cases, 5 deaths);
- 2017: 12;
- 2018: 4;
- 2019: 5 outbreaks.

Few cases have been reported throughout the said years, in Castile and Leon or in Extremadura. - Mod.AS

Maps of Spain:
<http://www.ezilon.com/maps/images/europe/political-map-of-Spain.gif>
and <http://healthmap.org/promed/p/2376>.]

[See Also:
2019

West Nile virus (52): Europe (France) horse, OIE
http://promedmail.org/post/20191115.6779315
West Nile virus (47): Europe (Portugal) horse, OIE
http://promedmail.org/post/20191023.6740416
West Nile virus (41): Europe (Germany) horse, OIE
http://promedmail.org/post/20191007.6713786
West Nile virus (17): Europe (Greece) horse, OIE
http://promedmail.org/post/20190716.6570119
2018

West Nile virus (54): Europe (Portugal) equine, OIE
http://promedmail.org/post/20181012.6088331
West Nile virus (48): Europe (Germany) equine
http://promedmail.org/post/20180929.6060492
West Nile virus (44): Europe (Germany) captive bird zoo, equine, OIE
http://promedmail.org/post/20180926.6053857
West Nile virus (33): Europe (France) equine, OIE
http://promedmail.org/post/20180910.6020850
West Nile virus (28): Europe (Romania) equine, OIE
http://promedmail.org/post/20180903.6005029
West Nile virus (08): Europe (Greece) equine, OIE
http://promedmail.org/post/20180719.5912641
West Nile virus: Europe (France) equine, human, OIE
http://promedmail.org/post/20180112.5555372
2017

West Nile virus - Europe (07): Portugal, equine, OIE
http://promedmail.org/post/20171009.5369450
West Nile virus - Europe (02): Greece, equine, OIE
http://promedmail.org/post/20170802.5221450
2016

West Nile virus - Europe (02): Portugal, equine, OIE
http://promedmail.org/post/20160906.4469056
2015

West Nile virus - Europe (09): France, human, equine
http://promedmail.org/post/20151026.3744464
West Nile virus - Europe (08): France, equine, spread
http://promedmail.org/post/20151022.3735883
West Nile virus - Europe (05): Portugal, equine, OIE
http://promedmail.org/post/20150904.3624767
West Nile virus - Europe (04): France, equine, OIE
http://promedmail.org/post/20150902.3619529
2014

West Nile virus - Europe (13): Italy, equine, mosquito
http://promedmail.org/post/20141115.2956871
West Nile virus - Europe (09): Croatia, equine, OIE
http://promedmail.org/post/20140725.2635642
2013

West Nile virus - Europe (06): Greece, Italy, Spain, equine
http://promedmail.org/post/20130917.1948938
2012

West Nile virus - Eurasia (05): Croatia (VS) equine, OIE
http://promedmail.org/post/20120823.1258325
West Nile virus - Eurasia (02): Greece (XN) equine, OIE
http://promedmail.org/post/20120731.1223151
2011

West Nile virus - Eurasia (15): Macedonia, equine, birds, OIE
http://promedmail.org/post/20111127.3459
West Nile virus, equine - Italy, Spain: OIE
http://promedmail.org/post/20110915.2816
West Nile virus - Eurasia (08): Greece, human, equine
http://promedmail.org/post/20110825.2595
West Nile virus, equine - Greece: (AT) OIE
http://promedmail.org/post/20110801.2318
2010

West Nile virus - Eurasia (13): Spain, equine, update
http://promedmail.org/post/20101119.4203
West Nile virus - Eurasia (12): Portugal, equine, OIE
http://promedmail.org/post/20101028.3910
West Nile virus - Eurasia (10): Spain, equine
http://promedmail.org/post/20101021.3814
West Nile virus - Eurasia (08): SP, GR, equine OIE
http://promedmail.org/post/20101001.3569
West Nile virus, equine - Greece: (MC), OIE
http://promedmail.org/post/20100828.3058
West Nile Fever, equine - Morocco: Central, OIE
http://promedmail.org/post/20100819.2892
2003

West Nile virus, equine - Morocco: OIE
http://promedmail.org/post/20031127.2934]
.....sb/arn/mj/sh

Message: 2
Date: Tue, 25 Aug 2020 21:22:14 +0000
From: (10)(2e) @promedmail.org
Subject: PRO/AH/EDR> COVID-19 update (374): animal, ferret, research,
epidemiology
To: (10)(2e) @promedmail.org, (10)(2e) @promedmail.org,
(10)(2e) @promedmail.org
Message-ID:
<(10)(2e) @email.amazonses.com>

Content-Type: text/plain; charset=UTF-8

CORONAVIRUS DISEASE-19 UPDATE (374): ANIMAL, FERRET, RESEARCH, EPIDEMIOLOGY
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A ProMED-mail post
<http://www.promedmail.org>
ProMED-mail is a program of the
International Society for Infectious Diseases <http://www.isid.org>

Date: Mon 24 Aug 2020
Source: News - Medical.net [abridged, edited] <https://www.news-medical.net/news/20200824/Ferrets-not-susceptible-SARS-CoV-2-infection.aspx>

A recent study by scientists at the Cummings School of Veterinary Medicine at Tufts University has revealed that ferrets are not susceptible to severe acute respiratory syndrome coronavirus 2
(SARS-CoV-2) infection even if they are directly exposed to symptomatic coronavirus disease 2019 (COVID-19) patients for a prolonged time. The study is currently available on the bioRxiv* preprint server.

Analysis of angiotensin-converting enzyme-2 (ACE2), which is responsible for viral entry to host cells, has shown that amino acid residues responsible for viral binding are moderately conserved between humans and domestic animals, and reverse-zoonosis (human to animal transmission) has been noticed in case of SARS-CoV-2 infection.
So far, human to animal transmission of SARS-CoV-2 has been observed in European mink, resulting in outbreaks in several mink farms in the United States and European countries.

Current study design

In the current study, the researchers selected ferrets as an animal model to study SARS-CoV-2 transmission, because these domestic mammals are widely used in laboratories to study experimental infection and clinical outcomes of human diseases caused by respiratory viruses.

During the initial period of COVID-19 pandemic in the New England area (March 2020), the researchers performed a rapid response study to evaluate possibilities of human to animal spillover and onward transmission in many domestic, farm, and wild animals. Their main aim was to understand the possible nature of SARS-CoV-2 transmission at these interfaces to refine public health guidelines as well as assess possible animal or human health risks related to spillover. They also aimed at investigating whether infected animals can potentially act as endemic reservoirs.

The researchers conducted the experiments with 29 ferrets living in one household with 2 human participants suffering from symptomatic (fever, fatigue, sore throat, anosmia, and migraine) COVID-19. Both individuals cared for the ferrets throughout their course of infection.

Absence of natural human to ferret transmission of SARS-CoV-2

To check whether there is human to animal transmission, oral swabs were collected from each ferret over 2 weeks using home sampling kits.
All collected samples were tested for active SARS-CoV-2 infection via polymerase chain reaction (PCR) and enzyme-linked immunosorbent assay (ELISA). Surprisingly, the researchers found that all ferrets tested negative for active or recent SARS-CoV-2 infection. Moreover, they found that none of the experimental ferrets developed antibodies against the receptor-binding domain of SARS-CoV-2, indicating the absence of seroconversion.

Identification of 3 mutations in the surface glycoprotein of mustelid-derived SARS-CoV-2

Because previous studies have shown that ferrets are susceptible to experimentally executed SARS-CoV-2 infection [see commentary], the researchers hypothesized that there might be certain factors that protect ferrets from natural SARS-CoV-2 infection. To confirm their hypothesis, the researchers analyzed available genetic sequences of
SARS-CoV-2 that are known to naturally infect European minks and then experimentally infect ferrets. Three mutations (N501T, D614G, and
S686G) in the viral spike protein were identified. Of these mutations, N501T was in the receptor-binding domain of the viral spike protein, which interacts with host ACE2 at Y41, K353, G354, and D355. Mustelids and humans differ from each other only at ACE2 G354R.
Because both N501T and G354R are present in minks and ferrets, ACE2 is expected to provide a certain level of protection against SARS-CoV-2 infection.
According to the researchers, ACE2 provides only a weak host barrier against viral entry to mustelids, given the fact that SARS-CoV-2 without N501T mutation has been known to infect minks initially. As described by the researchers, N501T mutation may have increased viral pathogenicity in mustelids; however, this mutation is not required for species to species transmission.

Because D614G mutation has become highly prevalent in humans, the researchers concluded that the observed D614G mutation in ferrets may be due to variation in human donors and is not related to ferret infection.

Interestingly, the researchers observed that S686G mutation, which was present only in ferrets, is located directly adjacent to the novel S1/S2 polybasic cleavage site that is associated with virulence. Using computational prediction analysis, the researchers found that this specific mutation is predicted to reduce furin activity, which in turn may reduce viral transmission and pathogenicity. These findings suggest that S686G mutation may provide a strong host barrier, specifically to ferrets. As described by the researchers, the current study findings indicate that natural infection in ferrets is limited by virus and host genetic barriers, which can only be overcome by experimental infections using concentrated viral preparations obtained from humans.

[bioRxiv publishes preliminary scientific reports that are not peer-reviewed and, therefore, should not be regarded as conclusive, guide clinical practice/health-related behavior, or be treated as established information.]

Journal reference:
bioRxiv preprint server. 2020. Sawatzki K. Ferrets not infected by SARS-CoV-2 in a high-exposure domestic setting.
<https://www.biorxiv.org/content/10.1101/2020.08.21.254995v1>

[byline: Sanchari Sinha Dutta]

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communicated by:
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[When minks were found, for the 1st time, susceptible to SARS-CoV-2 infection in the province North Brabant, Netherlands, they were viewed as the 2nd species of the Mustelid family shown to be susceptible to SARS-CoV-2. Earlier, ferrets had been found susceptible in experimental infection trials performed in Chinese and German laboratories. (commentary in 'COVID-19 update (146): Netherlands (NB) animal, farmed mink, epidemiology.
http://promedmail.org/post/20200501.7286113).

The Chinese paper (http://promedmail.org/post/20200402.7173286),
eventually published in Science, stated that SARS-CoV-2 "replicates poorly in dogs, pigs, chickens, and ducks, but efficiently in ferrets and cats" (ref 1).

The German trial was presented in ProMED-mail (COVID-19 update (88):
Germany, animal, research, pig, chicken, bat, ferret.
http://promedmail.org/post/20200407.7196506). It concluded: "Most efficient virus replication was observed in ferrets, with high yields of viral RNA in nasal washing fluids from 8 of 9 animals from 2 days post infection (dpi) to 8 dpi."

The current, Tufts' paper, reference above, underlined a discrepancy in experimental and natural infection in ferrets. The authors concluded that host factors interacting with the novel S1/S2 cleavage site are a barrier in ferret SARS-CoV-2 susceptibility, hence domestic ferrets are at low risk of natural infection. On the other hand, the German FLI team presented the following observation: "Interestingly, all 3 non-inoculated contact ferrets became infected and viral RNA was present in nasal washing fluids starting at 12 dpi. Screening of organ samples revealed prominent viral RNA loads only in the upper respiratory tract as confirmed by positive immunohistochemistry and in situ-hybridization in the nasal cavity. SARS-CoV-2 reactive antibodies were detected from day 8 in the inoculated ferrets and in one contact ferret on day 21 dpi."

While minks are farmed, we are not aware of ferrets being farmed (subscribers are welcome to correct this statement if appropriate). These mustelids are better known as pets. So far no information of 'natural' infection of ferrets has become available.

In the meantime, the total number of infected mink farms in the Netherlands has risen to 40, about 38% of all mink farms maintained in the country. The SARS-CoV-2 infection on the 40th farm was detected due to clinical signs in the animals (official press release at <https://www.rijksoverheid.nl/onderwerpen/coronavirus-covid-19/nieuws/2020/08/24/bevestiging-van-besmetting-covid-19-bij-nertsenbedrijf>;
in Dutch). - Mod.AS

Reference
1. Shi J, Wen Z, Zhong G, et al. Susceptibility of ferrets, cats, dogs, and other domesticated animals to SARS-coronavirus 2. Science 2020; 368 (29 May): 1016-1020. DOI: 10.1126/science.abb7015.
<https://science.sciencemag.org/content/368/6494/1016>]

[See Also:
COVID-19 update (366): animal, USA (UT) mink
http://promedmail.org/post/20200818.7692815
COVID-19 update (365): Germany case data, countries, WHO, global
http://promedmail.org/post/20200818.7690696
COVID-19 update (364): USA (NC,NY) animal, dog, comment
http://promedmail.org/post/20200818.7689234
COVID-19 update (363): animal, Denmark (ND) Netherlands (NB,LI) mink, spread http://promedmail.org/post/20200817.7687830
COVID-19 update (360): USA (NC, NY) animal, dog, comment
http://promedmail.org/post/20200815.7681907

COVID-19 update (340): animal, China, envir monitoring, Netherlands (NB), mink http://promedmail.org/post/20200801.7635820
COVID-19 update (334): animal, Netherlands, mink, spread, UK, cat, 1st rep, OIE http://promedmail.org/post/20200727.7617582
COVID-19 update (324): Netherlands (NB) animal, farmed mink, spread
http://promedmail.org/post/20200719.7591013
COVID-19 update (317): Netherlands (NB) animal, farmed mink, spread
http://promedmail.org/post/20200716.7578453
COVID-19 update (307): Netherlands (NB), Denmark (ND) farmed mink, spread, control http://promedmail.org/post/20200708.7553067
COVID-19 update (301): Denmark (ND) Netherlands (NB) farmed mink, spread, control http://promedmail.org/post/20200703.7536980
COVID-19 update (284): Denmark (ND) animal, farmed mink, spread, dog
http://promedmail.org/post/20200624.7506728
COVID-19 update (281): Netherlands (NB, LI) farmed mink, spread, animal, global http://promedmail.org/post/20200623.7502849
COVID-19 update (266): Denmark (ND) animal, farmed mink, 1st rep
http://promedmail.org/post/20200617.7479510
COVID-19 update (251): Netherlands (NB, LI) animal, farmed mink, spread, culling http://promedmail.org/post/20200610.7453845
COVID-19 update (248): Netherlands (NB, LI) animal, mink, spread, culling, cat http://promedmail.org/post/20200609.7446478
COVID-19 update (236): Netherlands (NB, LI) animal, farmed mink, spread, culling http://promedmail.org/post/20200604.7427849
COVID-19 update (230): Netherlands (NB, LI) animal, farmed mink, spread, control http://promedmail.org/post/20200602.7420433
COVID-19 update (215): Netherlands (NB) animal, mink-to-human, epidem., control http://promedmail.org/post/20200527.7385049
COVID-19 update (209): Netherlands (NB) farmed mink, animal-to-human, cat, epid http://promedmail.org/post/20200525.7375359
COVID-19 update (198): Netherlands (NB) farmed mink, animal-to-human infect susp http://promedmail.org/post/20200520.7359976
COVID-19 update (189): Netherlands (NB) animal, farmed mink, research, cat, dog http://promedmail.org/post/20200517.7344274
COVID-19 update (177): Netherlands (NB) animal, farmed mink, Spain
(CT) cat susp http://promedmail.org/post/20200512.7328587
COVID-19 update (174): Netherlands (NB) animal, farmed mink, comment
http://promedmail.org/post/20200511.7323845
COVID-19 update (169): Netherlands (NB) animal, farmed mink, spread, rabbit susp http://promedmail.org/post/20200509.7316646
COVID-19 update (154): Netherlands (NB) animal, farmed mink, research
http://promedmail.org/post/20200503.7294846
COVID-19 update (146): Netherlands (NB) animal, farmed mink, epidemiology http://promedmail.org/post/20200501.7286113
COVID-19 update (135): Netherlands (NB) animal, farmed mink http://promedmail.org/post/20200427.7272289]
.....arn/ao/sh

Message: 3
Date: Wed, 26 Aug 2020 10:34:28 +0000
From: (10)(2e)@promedmail.org
Subject: PRO/EDR> Poliomyelitis update (17): Africa declared wild
poliovirus free
To: (10)(2e)@promedmail.org, (10)(2e)@promedmail.org
Message-ID:
<(10)(2e)@email.amazonses.com>

Content-Type: text/plain; charset=UTF-8

POLIOMYELITIS UPDATE (17): AFRICA DECLARED WILD POLIOVIRUS FREE
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A ProMED-mail post
<http://www.promedmail.org>
ProMED-mail is a program of the
International Society for Infectious Diseases <http://www.isid.org>

[1]
Date: Tue 25 Aug 2020
Source: WHO Africa [edited]
<https://www.afro.who.int/news/africa-eradicates-wild-poliovirus>

The independent Africa Regional Certification Commission (ARCC) for Polio Eradication officially declared on Tuesday [25 Aug 2020] that the World Health Organization (WHO) African Region is free of wild poliovirus. This marks the eradication of the 2nd virus from the face of the continent since smallpox 40 years ago.

"Today is a historic day for Africa. The African Regional Certification Commission for Polio Eradication is pleased to announce that the Region has successfully met the certification criteria for wild polio eradication, with no cases of the wild poliovirus reported in the Region for 4 years," said Professor Rose Gana Fomban Leke, ARCC chairperson.

The ARCC's decision comes after an exhaustive, decades-long process of documentation and analysis of polio surveillance, immunization and laboratory capacity of the region's 47 member states, which included conducting field verification visits to each country.

In 1996, African heads of state committed to eradicate polio during the 32nd ordinary session of the Organization of African Unity in Yaounde, Cameroon. At the time, polio was paralyzing an estimated 75
000 children annually on the African continent. In the same year [1996], Nelson Mandela, with the support of Rotary International, jumpstarted Africa's commitment to polio eradication with the launch of the Kick Polio Out of Africa campaign. Mandela's call mobilized African nations and leaders across the continent to step up their efforts to reach every child with polio vaccine.

The last case of wild poliovirus in the region was detected in 2016 in Nigeria. Since 1996, polio eradication efforts have prevented up to 1.8 million children from crippling life-long paralysis and saved about 180 000 lives.

"This is a momentous milestone for Africa. Now future generations of African children can live free of wild polio," said Dr Matshidiso Moeti, WHO regional director for Africa. "This historic achievement was only possible thanks to the leadership and commitment of governments, communities, global polio eradication partners and philanthropists. I pay special tribute to the frontline health workers and vaccinators, some of whom lost their lives, for this noble cause.
However, we must stay vigilant and keep up vaccination rates to avert a resurgence of the wild poliovirus and address the continued threat of the vaccine-derived polio," said Dr Moeti. While the eradication of wild poliovirus from the WHO African Region is a major achievement, 16 countries in the region are currently experiencing cVDPV2 outbreaks, which can occur in under-immunized communities.

"Africa has demonstrated that despite weak health systems, significant logistical and operational challenges across the continent, African countries have collaborated very effectively in eradicating wild poliovirus," said Dr Pascal Mkanda, coordinator of WHO Polio Eradication Programme in the African Region. "With the innovations and expertise that the polio programme has established, I am confident that we can sustain the gains, post-certification, and eliminate cVDPV2," added Dr Mkanda.

"The expertise gained from polio eradication will continue to assist the African region in tackling COVID-19 and other health problems that have plagued the continent for so many years and ultimately move the continent toward universal health coverage. This will be the true legacy of polio eradication in Africa," said Dr Moeti.

Thanks to the dedication of the Global Polio Eradication Initiative, polio cases have reduced by 99.9% since 1988, bringing the world closer than ever before to ending polio. The initiative is a public-private global partnership comprising national governments, WHO, Rotary International, the US Centers for Disease Control and Prevention, UNICEF, the Bill & Melinda Gates Foundation, Gavi, and a broad range of long-term supporters.

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communicated by:
ProMED-mail
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[2]
Date: Tue 25 Aug 2020
Source: BBC [edited]
<https://www.bbc.com/news/world-africa-53887947>

Africa has been declared free from wild polio by the independent body, the Africa Regional Certification Commission.

Polio usually affects children under 5, sometimes leading to irreversible paralysis. Death can occur when breathing muscles are affected. Twenty-five years ago, thousands of children in Africa were paralysed by the virus. The disease is now found only in Afghanistan and Pakistan. There is no cure, but the polio vaccine protects children for life.

Nigeria is the last African country to be declared free from wild polio, having accounted for more than half of all global cases less than a decade ago. The vaccination campaign in Nigeria involved a huge effort to reach remote and dangerous places under threat from militant violence, and some health workers were killed in the process.

What is polio and has it now been eradicated in Africa?
Polio is a virus that spreads from person to person, usually through contaminated water. It can lead to paralysis by attacking the nervous system. Two out of 3 strains of wild polio virus have been eradicated worldwide. On Tuesday [25 Aug 2020], Africa was declared free of the last remaining strain of wild poliovirus. More than 95% of Africa's population has now been immunised. This was one of the conditions that the Africa Regional Certification Commission set before declaring the continent free from wild polio.

Now only the vaccine-derived polio virus remains in Africa, with 177 cases being identified this year [2020]. This is a rare form of the virus that mutates from the oral polio vaccine and can then spread to under-immunised communities. WHO has identified a number of these cases in Nigeria, the Democratic Republic of the Congo, Central African Republic and Angola.

How did Africa eliminate wild polio?
Without a cure a vaccine developed in 1952 by Dr Jonas Salk gave hope that children could be protected from the disease. In 1961, Albert Sabin pioneered the oral polio vaccine that has been used in most national immunisation programmes around the world. In 1996, poliovirus paralysed more than 75 000 children across the continent -- every country was affected. That year [1996] Nelson Mandela

launched the "Kick Polio Out of Africa" programme, mobilising millions of health workers who went village to village to hand-deliver vaccines. It was backed by a coalition of groups, including Rotary International, which had spearheaded the polio vaccination drive from the 1980s. Since 1996, billions of oral polio vaccines have been provided, averting an estimated 1.8 million cases of wild poliovirus.

What have the challenges been?
The last communities at risk of polio live in some of the most complicated places to deliver immunisation campaigns. Nigeria is the last country in Africa to have reported a case of wild polio -- in Borno state in Nigeria's remote north east, and the epicentre of the Boko Haram insurrection, in 2016. At the time it was a frustrating setback, as the country had made huge progress and had gone 2 years without any cases being identified.

Outside Nigeria, the last place [in Africa] to have seen a case of polio was in the Puntland region of Somalia in 2014. Conflict with the Islamist militant group Boko Haram has made parts of Nigeria particularly difficult to reach, Borno state in particular. More than 2 million people have been displaced by the fighting. Frontline workers, 95% of whom were women, managed to navigate areas of conflict like Lake Chad by boat and deliver vaccines to remote communities.
Widespread rumours and misinformation about the vaccine have also slowed down immunisation efforts.

In 2003, Kano and a number of other northern states suspended immunisations following reports by Muslim religious leaders that the vaccine was contaminated with an anti-fertility agent as part of an American plot to make Muslim women infertile. Laboratory tests by Nigerian scientists dismissed the accusations.

Vaccine campaigns resumed the following year [2004], but the rumours persisted. In 2013, 9 female polio vaccinators were killed in 2 shootings thought to be carried out by Boko Haram at health centres in Kano. It has taken decades to achieve eradication and overcome suspicion around the vaccine.

How polio survivors made a difference
Winning the trust of communities has been key. Misbahu Lawan Didi, president of the Nigerian Polio Survivors Association, says that the role of survivors has been crucial in persuading people to accept the campaign. "Many rejected the polio vaccine, but they see how much we struggle to reach them, sometimes crawling large distances, to speak to them. We ask them: 'Don't you think it is important for you to protect you child not to be like us?'"

>From polio survivors, to traditional and religious leaders, school
teachers, parents, volunteers and health workers, a huge coalition developed to defeat polio. Working together, they travelled to remote communities to immunise children.

How serious is polio?
Polio, or poliomyelitis, mainly affects children aged under 5. Initial symptoms include fever, fatigue, headache, vomiting, stiffness of the neck and pains in the limbs. It also invades the nervous system and can cause total paralysis in a matter of hours. One in 200 infections leads to irreversible paralysis. Among those paralysed, 5% to 10% of people die when their breathing muscles become immobilised.

Could wild polio return?
Polio can be easily imported into a country that is polio free and from there it can spread rapidly among under-immunised populations. This happened in Angola, which despite decades of civil war, defeated polio in 2001. The country remained free from polio for 4 years until 2005, when a number of cases were thought to have been brought in from outside the country.

WHO says that it is important countries remain vigilant and avoid complacency until there is global eradication. If they let down their defence by failing to vaccinate, then wild polio could once again begin to spread quickly. For all types of polio to be eliminated, including vaccine-derived polio, vaccination efforts will need to continue alongside surveillance, to protect children from being paralysed by the disease in the future.

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[First, I owe our subscribers an apology for our void in polio coverage. It has been collateral damage related to the COVID-19 pandemic, and I have to assume responsibility for this occurrence.

That said, I am delighted to break the silence with a ray of sunshine
-- the declaration of Africa being wild poliovirus (WPV) free. The official announcement from WHO Africa combined with the above BBC report are excellent synopses of the situation in Africa. The overall vaccination coverages of 95% are excellent, but unfortunately there are remaining pockets of lower coverage where the vaccine-derived polioviruses (VDPVs) have taken hold, as evidenced by the cited 177 cases this year (2020; there will be an update to follow covering the situation globally). As mentioned, the key will be to not let down the guard on the continent and maintain consistently high vaccination coverages to eliminate those pockets of lower coverages. As long as the WPV is still circulating elsewhere (Pakistan and Afghanistan), the threat of re-introduction into countries with pockets of susceptible communities exists.

There are still areas globally with civil unrest leading to difficult access for vaccinators, combined with the ongoing COVID-19 pandemic having compromised vaccination programs in many areas -- we hope now recovering -- so there remains the urgent need to ensure vaccination coverages remain high.

I recommend the map and graphic in the media report at the BBC source URL. A map showing the locations of all polioviruses -- WPVs and cVDPVs (circulating vaccine-derived polioviruses) -- can be found at <http://polioeradication.org/polio-today/polio-now/>. - Mod.MPP

HealthMap/ProMED-mail maps:
Africa: <http://healthmap.org/promed/p/6075>
Nigeria: <http://healthmap.org/promed/p/62>]

[See Also:
COVID-19 update (77): global, polio vacc on hold, new countries, WHO
http://promedmail.org/post/20200404.7182744
Poliomyelitis update (16): global (WPV1, cVDPV2) Philippines, Pakistan
http://promedmail.org/post/20200216.6993599
Poliomyelitis update (15): Pakistan (KP, SD)
http://promedmail.org/post/20200209.6972016
Poliomyelitis update (14): global (WPV1 Pakistan, cVDPV2 DRC, Angola)
http://promedmail.org/post/20200209.6969379
Poliomyelitis update (13): Pakistan (SD)
http://promedmail.org/post/20200205.6958445
Poliomyelitis update (12): global (WPV1,cVDPV) Pakistan (SD,BA,KP,PJ)
http://promedmail.org/post/20200204.6950451
Poliomyelitis update (11): Pakistan (KP) tribal districts
http://promedmail.org/post/20200126.6919131
Poliomyelitis update (10): global, Pakistan (BA, SD)
http://promedmail.org/post/20200124.6911971
Poliomyelitis update (09): Pakistan (KP) 1st WPV1 case in 2020, cVDPV2, RFI http://promedmail.org/post/20200120.6898946
Poliomyelitis update (08): global (WPV, cVDPV) Philippines, Pakistan, violence http://promedmail.org/post/20200116.6891334
Poliomyelitis update (07): Pakistan (KP)
http://promedmail.org/post/20200114.6889725
Poliomyelitis update (06): Pakistan (SD)
http://promedmail.org/post/20200111.6884192
Poliomyelitis update (05): Malaysia (SA) RFI
http://promedmail.org/post/20200110.6883281
Poliomyelitis update (04): Ghana (BO, BE, AF) RFI
http://promedmail.org/post/20200110.6882389
Poliomyelitis update (03): global (WPV1 Afghan., Pak., cVDPV2 Zambia), Pakistan http://promedmail.org/post/20200110.6881006
Poliomyelitis update (02): Pakistan (KP, BA, SD)
http://promedmail.org/post/20200105.6872314
Poliomyelitis update (01): global (WPV1, cVDPV2), Pakistan (KP, SD)
http://promedmail.org/post/20200103.6869841
2019

Poliomyelitis update (106): Pakistan (KP) RFI
http://promedmail.org/post/20191231.6865382
Poliomyelitis update (01): global
http://promedmail.org/post/20190104.6241814
2018

Poliomyelitis update (62): (Nigeria, Niger) cVDPV2
http://promedmail.org/post/20181228.6226490
Poliomyelitis update (01): global (Afghanistan)
http://promedmail.org/post/20180105.5539242
2017

Poliomyelitis update (47): Pakistan, global (Congo DR)
http://promedmail.org/post/20171229.5526565
Poliomyelitis (01): Pakistan (GB), global, RFI
http://promedmail.org/post/20170314.4898724
and other items in the archives]
.....sh/mpp/rd/sh

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