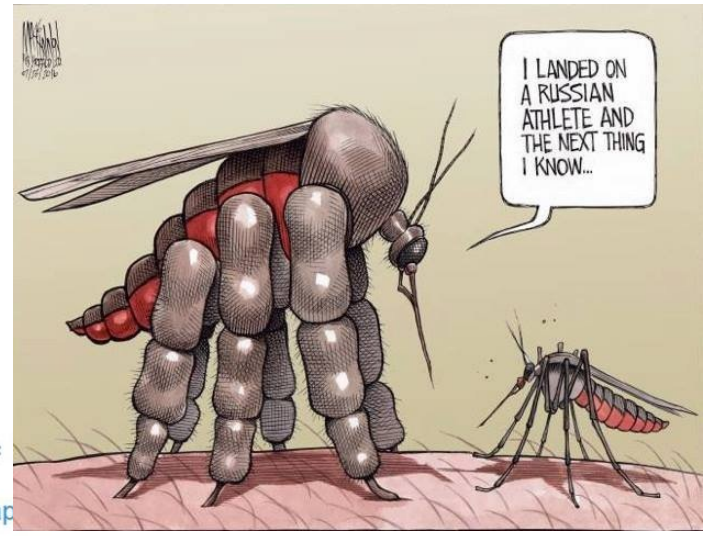
NEW ZEALAND BIOSECURE

BORDER HEALTH NEWSLETTER - August 2016

WELCOME!

Hi everybody! Olympia is over. But here comes a retrospective about the sport event out of a mosquito perspective.



The crowd booed US football goal Keeper Hope Solo and chanted Zika! Zika"!" in the match versus New Zealand.

TWITTER: Hope Solo posted a picture of mosquito netting and more than a dozen bottles of repellent The posts caused a backlash, with some Brazilians seeing them as a slight to their country, which has been battling a nationwide Zika outbreak.

The Brazilian authorities deployed thousands of soldiers to fumigate key areas and to educate people about mosquito prevention measures.

The top four golfers in the world, including Rory McIlroy, pulled out of the Games because of fears over the virus.

But despite the concern voiced by some scientists, the World Health Organization had said mosquito activity was relatively low in Brazil during August.

The WHO has said there have been no confirmed cases of Zika among travellers or athletes at the Rio Olympics and the prediction that the Games would not fuel the spread of the Zika virus was being proved correct.

Peter Salama, said of the Paralympics, due to start on 7 September: "We are optimistic that the same risk assessment will hold and there will be little additional risks." But Zika remains a global public health emergency.

Phone 021 522 476 Email Taxonomy@nzbiosecure.net.nz or Enquiries@smsl.co.nz Website www.smsl.co.nz
BIOSECURITY SPECIALISTS

SAMPLES

During August 629 samples were collected by staff from 12 DHBs with only 50 positive.
The numbers are slightly higher compared to last year due to more *Aedes notoscriptus* specimens. *Culex pervigilans* and *Cx. quinquefasciatus* have somewhat swapped their numbers and interestingly we have had a few *Ae. antipodeus* this month.

Species	Adults		Larvae	
New Zealand Mozzies	**August**	**August**	**August 16**	**August**
Aedes antipodeus (winter mosquito)	14	Nil	Nil	Nil
Ae. notoscriptus (striped mosquito)	69	20	1059	868
Culex astilae	Nil	Nil	5	Nil
Cx pervigilans (vigilant mosquito)	4	1	5	27
Cx. quinquefasciatus (southern house)	1	2	31	4
Opifex fuscus (rockpool mosquito)	Nil	Nil	22	1
Total	**88**	**23**	**1679**	**900**

INCURSIONS/INTERCEPTIONS

During August 4 suspected interceptions were detected.
Please note that the interceptions of live unwanted mosquitoes are highlighted in red. Exotic species in general are highlighted in light blue.

2.8.2016 1 dead female *Culex sitiens* was found in a container with electronics from India at a Transitional Facility in Porirua. Since there was still live arthropod activity in the container an enhanced surveillance has been set up.

3.8.2016 2 dead chironomids were found in a container with peaches from USA at Fresh Direct Transitional Facility In AKL. The specimen has been sent to the MPI entomology lab.

6.8.2016 One dead female *Aedes vittiger* was found at Air NZ Cargo. After an initial delimit no further action was required.

13.8.2016 One live *Cx. quinquefasciatus* was found at AIAL risk assessment area – likely to be a local one, alternatively associated to flights from Australia or Samoa.

NATIONAL ONLINE MOSQUITO DATABASE

The Mosquito names in the National Online Mosquito Database have been changed.
For example it used to say *Ochlerotatus notoscriptus* after Reinert, who in 2000 restored *Ochlerotatus* from its status of an *Aedes*-subgenus to its original status as a full genus. After a contentious worldwide debate regarding the effect the taxonomic changes would have on names established over decades of work in scientific, government and lay communities, many scientists and others affected by the change espoused the continued use of the previously established name “Aedes”.
So more work for people who have changed the name accordingly to Reinert, as it meant changes were required twice. It’s taken a while but now it is done. Watch out!

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BIOSECURITY SPECIALISTS

PICTURE THE MONTH

Tear: Jamie.Rachelle.com

STORYOF THE MONTH

Crying Zika: Virus Material Found in Tears

By Rachael Rettner, Live Science Health, September 6, 2016

When an animal is infected with Zika, the virus can spread to the eyes, and genetic material from the virus can find its way into the tears, according to a new study in mice.

The finding raises the possibility that people might contract Zika through contact with the tears of an infected person, the researchers said.

However, much more research is needed to show that such transmission is possible, the researchers said. In the new study, the researchers did not find live Zika virus in the tears of mice. Instead, they found RNA (a type of genetic material) from the virus in the animals' tears.

They also found that one week after an animal was infected with Zika, the mouse's tears could not spread the virus to other mice. But the researchers cautioned that more studies are needed to determine whether tears can spread Zika in people.

"Even though we didn't find live virus in mouse tears, that doesn't mean that it couldn't be infectious in humans," study co-author Dr. Jonathan Miner, an instructor in medicine at Washington University School of Medicine in St. Louis, said in a statement. "There could be a window of time when tears are highly infectious and people are coming in contact with it and able to spread it," Miner said.

In people, the Zika virus is known to cause symptoms in the eyes. In adults, the virus can cause conjunctivitis (pink eye), which involves inflammation of the transparent membrane that lines the inside of the eyelid and the covering of the white part of the eyeball. In rare cases, the virus can cause uveitis, or inflammation of the middle tissue layer of the eye, which can lead to pain, blurred vision and, in severe cases, blindness. Babies infected with Zika in the womb can also have damage to their eyes or blindness after birth, the researchers said.

In the new study, the researchers injected adult mice with the Zika virus. The investigators found that the virus was able to travel to the animals' eyes and infect several regions of the eye, including the iris, retina and optic nerve.

Because the body's immune system is less active inside the eye, infections of the eye can sometimes linger for long periods after they have been cleared from the rest of the body, the researchers noted. For example, in previous research, some patients infected with Ebola were found to have that virus in their eyes months after they were considered cured of the disease.

The researchers in the new study said they are planning to conduct more experiments to find out whether Zika can persist in the compartments of the eye. If Zika does linger in the eye, this could have implications for corneal transplants, because the virus might be spread from a donor to a recipient during transplantation, the researchers said. In the

future, it's possible that doctors may need to test corneal tissue used for transplantation for the Zika virus, the researchers said.
The study is published today (Sept. 6) in the journal Cell Reports.

VECTOR-BORNE DISEASES - OUTBREAK NEWS

South Pacific

RADIO NEW ZEALAND
TE REO IRIRANGI O AOTEAROA

Dengue persisting in French Polynesia
6 September 2016
Health authorities in French Polynesia say despite it being the dry season, dengue has continued to spread, with 49 more people being infected in the last week of August.
One person has been taken to hospital.
Dengue was still present in Tahiti, Bora Bora and Nuku Hiva in the Marquesas, they said in a statement.
There had been no new case of leptospirosis recently, but 125 cases have been registered this year.
Since the beginning of the year 163 people contracted a sexually transmitted infection, they said.

World Health Organization Western Pacific Region

Pacific syndromic surveillance report – Week 33, ending 21 August 2016

Zika virus: American Samoa: Since 1 January 2016, there have been 768 cases as of 4 August. Of these 44 were laboratory confirmed, including 16 pregnant women. The weekly number of cases has reduced from May. Source: American Samoa Ministry of Health.
Yellow Fever: As of 11 August 2016, Angola has reported 3922 suspected cases of yellow fever with 369 deaths. Among those cases, 879 have been laboratory confirmed. The outbreak is receding and there have been no confirmed cases in the country during the month of July.
Since the beginning of the outbreak, the Democratic Republic of Congo has reported (as of 18 August) a total of 2357 suspected cases including 16 reported deaths.

Public Health Surveillance
Information for New Zealand Public Health Action

MONTHLY NOTIFIABLE DISEASE SURVEILLANCE REPORT - July 2016

Key notifiable disease trends

Chikungunya fever: Two confirmed cases of chikungunya fever were notified in July 2016 compared to two cases notified during the same month of the previous year. Seventeen cases have been notified in the year to date compared to 46 at the same time in the previous year. The cases were both female, in the 30–39 years and 40–49 year's age groups, from Bay of Plenty and Southern DHBs, respectively. Both cases had travelled during the incubation period for the disease; countries visited were Tonga (1 case), Brazil and Argentina (1 case).

ZIKA

Singapore

Singapore Zika cases hit 275; new potential cluster at Bishan found

Channel News Asia, 06 Sep 2016

117 new cases of locally transmitted Zika were confirmed on Tuesday (Sep 6), bringing the total number of confirmed cases in Singapore to 275. Authorities added that there is a potential new cluster at Bishan Street 12, involving a previously reported case and a new case today.

In a joint statement, the Ministry of Health (MOH) and National Environment Agency (NEA) added that, of the 17 new cases, 10 are linked to the Aljunied Crescent / Sims Drive / Kallang Way / Paya Lebar Way cluster.

Apart from the Bishan Street 12 case, the other six cases have no known links to any existing cluster.

NEA said it will be carrying out vector control operations and outreach efforts at the new potential cluster at Bishan Street 12.

The agency added that it has been continuing with vector control operations and outreach efforts in Aljunied Crescent, Sims Drive, Paya Lebar Way and Kallang Way, and that it has expanded operations and outreach efforts at the periphery of this cluster at Circuit Road, Geylang East Central, and Geylang East Avenue 1.

As of Sep 5, 65 breeding habitats – comprising 38 in homes and 27 in common areas or other premises – have been detected and destroyed, it said.

The agency added that it is continuing with vector control operations and outreach efforts in Bedok North Avenue. As of Sep 5, 67 breeding habitats – comprising 56 in homes and 11 in common areas and other premises – have been detected and destroyed. Mosquito control measures are ongoing.

NEA said vector control operations and outreach efforts at Joo Seng Road are ongoing. As of Sep 5, two instances of breeding in common areas or other premises have been detected and destroyed.

The agency added that it would continue to work with stakeholders and the community to reduce mosquito breeding, as vector control is key to reducing the transmission of Zika in the community.

Earlier on Tuesday, Prime Minister Lee Hsien Loong told ASEAN leaders at the group's summit in Laos that, given the presence of the Aedes mosquito, Zika may become endemic in the region, like dengue, and called for the 10-member grouping to join hands in fighting a possibly extended campaign against the virus.

West Nile

Canada

1st West Nile Virus death for 2016 reported in McCone Co.

NBC Montana By: KECI Staff: Sep 06, 2016

MISSOULA, Mont. - The following is a press release from Montana Department of Public Health and Human Services:

The McCone County Health Department and the Montana Department of Public Health

and Human Services are reporting Montana's first human death from West Nile Virus (WNV) for 2016.

This case brings the total number of West Nile Virus (WNV) cases reported in Montana to six for 2016. Previously, four cases were reported in Dawson County and one in Garfield County. Additionally, several horses and mosquito pools, predominately in eastern Montana, tested positive for WNV.

The deceased, an adult McCone County resident, passed away from complications related to West Nile Virus infection. The individual had no history of travel outside the state within the past month and the infection was believed to be locally acquired.

"This is an unfortunate reminder that infection from WNV can have serious consequences," said DPHHS Director Richard Opper. "We want to remind people to take precautions and protect themselves." Nationally, 406 human cases of WNV have been reported to the Centers for Disease Control and Prevention thus far in 2016, including ten deaths.

WNV is transmitted to humans by infected mosquitos through bites. Most, about 4 out of 5, people infected will experience no symptoms and become immune to the WNV infection. About 1 in 5 infected people develop a low-grade fever, headache and muscle aches that begin a week or two after becoming infected. Generally, no treatment is needed.

However, in less than 1 percent of infected people, serious, life-threatening symptoms develop including headache, rash, high fever, stiff neck, mental confusion, and other symptoms. Individuals who develop any of these symptoms should see their health-care provider immediately.

Mid to late summer is a high-risk period for WNV and public health officials encourage everyone to take steps to avoid mosquito bites and prevent infections. Public health officials want to remind the public that while local transmission WNV is a concern in Montana, local transmission of Zika virus is not. In fact, the mosquitos that carry Zika virus have not been found in Montana or neighboring states.

To minimize risk of WNV, experts recommend reducing mosquito populations by removing mosquito-breeding areas in and around the home. Simple steps such as draining birdbaths, wading pools or any container with still water every few days will minimize breeding sites.

Because it is not possible to eliminate all breeding sites, people are reminded to follow specific recommendations to avoid being bitten.

The number of WNV human cases in Montana varies from year to year. Over 200 cases were reported in 2003 and 2007, but generally the average is about 10 reported human infections each year. "No one can predict the severity of WNV season," said Christine Mulgrew, DPHHS WNV Program Manager. "But we can protect ourselves from mosquito bites and eliminate breeding sites around your home."

USA

5 birds test positive for West Nile Virus

VENTURA COUNTY STAR Megan Diskin, September 6, 2016

Five birds collected during the last two weeks of August have tested positive for West Nile Virus, according to the Ventura County Environmental Health Division.

State health officials notified the agency Friday that the wild birds were found in Simi Valley, Thousand Oaks and Ventura, the division reported. The latest tests bring the total number of infected birds collected in the county this year to 25, according to

the division (Photo by John Apperson)
County health officials said the virus is well established in the region and is expected to show up in more birds.
West Nile is spread by mosquitoes and affects humans, birds and horses.
To minimize exposure, people should eliminate standing water where mosquitoes can breed, make sure doors and windows have tight screens without tears, wear long-sleeve shirts and long pants when outdoors, apply insect repellent when outdoors and limit outdoor activity at dawn and dusk when mosquitoes are active, according to the division.
To report wild birds that have died recently, call 877-968-2473.

CHIKUNGUNYA

India

Chikungunya crosses 500 mark, dengue 771 in Delhi

Anonna Dutt, Hindustan Times, New Delhi | Updated: Sep 05, 2016 21:34 IST

With Delhi reporting 128 new cases of chikungunya, the total number of people infected with the mosquito-borne viral disease has reached 560 this season.
This is an unusually high number as last year only 64 cases of chikungunya were reported. In the last five years, the highest number of chikungunya cases – 120 – was reported in 2010. "It's not an outbreak but an unusually high number of cases because of a high pool of people infected and low immunity, as people in Delhi have not been exposed to the infection," said Dr DK Seth, municipal health officer. In Delhi, unlike dengue, chikungunya is not endemic — regularly found in a particular area. But, the numbers spiked last week, when 412 cases were registered in a single week. Before that, only one case was reported till July 30, 8 till August 13, and 20 till August 20. In the week that ended on September 3, the civic body reported 284 cases of dengue, which takes the total in Delhi-NCR to 771.

In the week that ended on September 3, the Delhi civic body reported Chikungunya has crossed 550 mark. (Hindustan Times)

Compared to this, 1,259 cases were reported by the civic body during the same period last year, when Delhi witnessed its worst dengue outbreak that affected almost 16,000 and killed 60.
There has been a sharp increase in the number of dengue cases. Only 29 new cases were reported in the week that ended on July 30, 57 new cases in the week ending on August 13, 83 new cases in the week ending on August 20, and 176 in the week ending on xx and 284 this week.
Read: Delhi: Civic bodies don't have enough staff to fight dengue
According to the civic body, the number of deaths due to dengue is two. But, Hindustan Times has independently confirmed six deaths.
However, unlike last year, beds in the fever wards in government and private hospitals aren't filled to capacity as chikungunya hardly leads to complications and a mild strain of

dengue – type3 – is doing the rounds.
"Experts have isolated milder type 3 strain, which doesn't cause symptoms severe enough to require hospitalisation," said CK Mishra, health secretary, government of India.
At Dr Ram Manohar Lohia hospital, of the 110 beds demarcated for fever patients, dengue patients occupy only about 40 beds at a time. "Keeping around 10 beds as buffer, we use the rest for other cases. These beds can be used in case the number of cases go up," said a doctor from the hospital.

DENGUE

China

3rd local dengue transmission reported in Hong Kong
Posted by News Desk on September 6, 2016
The Hong Kong Centre for Health Protection (CHP) of the Department of Health (DH) is today investigating a local case of dengue fever (DF), and hence again urged the public to maintain strict environmental hygiene; anti-mosquito and personal protective measures both locally and during travel.
The female patient, aged 40 with underlying illness, has presented with fever, headache, muscle pain, vomiting and diarrhea since August 27. She attended Ruttonjee Hospital (RH) and was admitted on August 29 and discharged today. She has all along been in stable condition.
Testing of her blood specimen by the CHP's Public Health Laboratory Services Branch today confirmed dengue virus infection.
Initial inquiries revealed that the patient lives in Conduit Road, Midlevels. She had no recent travel history. During the incubation period, the patient had visited Graham Street Market almost daily via the Central-Mid-Levels Escalator and Walkway System.
Her home contacts have remained asymptomatic so far and have been put under medical surveillance. "The CHP immediately commenced epidemiological investigations and promptly informed the Food and Environmental Hygiene Department (FEHD) for vector investigation and mosquito control. Investigations and health education in vicinities where the patient frequented are proceeding," a spokesman for the CHP said.
Officers of the CHP will conduct site visit and field investigations by questionnaire surveys at the patient's residence for active case finding and arranging blood tests.
"Further to the first two locally acquired DF cases this year reported in August, we are conducting extensive investigations with FEHD to ascertain if this case is linked with the previous two cases with a view to controlling the possible spread," the spokesman said.
Persons who have been to the vicinity of Conduit Road, Central-Mid-Levels Escalator and Walkway System, Shelley Street, Hong Kong Zoological and Botanical Gardens and Graham Street Market with DF symptoms should call the CHP's hotline (2125 2266) for laboratory investigation or referral as appropriate. The hotline will operate from 9am to 6pm between Monday and Friday to receive inquires.

Dengue vaccine may worsen infections if used in areas with low rates of disease
Life Science & Medicine Published on September 6, 2016 at 8:37 AM
The world's only licensed vaccine for dengue may worsen subsequent dengue infections if used in areas with low rates of dengue infection, suggests new research.
These infections are also more likely to need hospitalisation, suggests the study, by scientists from Imperial College London, John Hopkins Bloomberg School of Public Health and the University of Florida.

The research, published in the journal Science, analysed all publicly available clinical trial data for the vaccine. The results suggest that in people who have never been exposed to dengue before, the vaccine primes the immune system so that if they are subsequently infected, the infection is more severe.

However in people who are have been exposed to the virus before vaccination, the vaccine reduces the severity of future infections.

The researchers recommend testing people before they receive the vaccine, to establish if they have previously been exposed to the dengue virus. This would help avoid triggering an increase in serious cases of the disease.

Dengue is a viral infection that causes just under 400 million cases per year. According to the latest estimates, around half of the world's population are thought to be at risk. The virus is spread by mosquitoes, and causes fever, headache, muscle and joint pain. In some cases, it can lead to a life-threatening condition called haemorrhagic fever, which is a leading cause of death and serious illness among children in some Asian and Latin American countries.

Unlike most infectious diseases, the second time a person is infected with dengue is usually far more serious than the first. This may be why the vaccine appears to amplify the illness in some individuals, particularly young children.

Normally, when a person is infected with a virus their immune system builds defences against it. This means when they are infected a second time, the virus is destroyed before triggering symptoms. However, with dengue, the virus primes the immune system to work against the body. So when a person is infected a second time, a component of the immune system - called antibodies - help the virus infect the cells, leading to a more severe infection.

This has serious implications for the vaccine, explains Professor Neil Ferguson, co-lead author, who is the Director of the MRC Centre for Outbreak Analysis and Modelling at Imperial College London:

If someone has never been exposed to dengue, the vaccine seems to act like a silent infection. The initial exposure to the virus from the vaccine primes the immune system, so when they are infected again, the symptoms are more likely to be severe.

The vaccine, produced by the company Sanofi-Pasteur, is available in six countries and has been trialed on around 30,000 people from ten countries.

After analysing the data, the research team formulated a computer model to predict the effectiveness of the vaccine if used more widely.

Professor Neil Ferguson said:

Having a licensed dengue vaccine available is a significant step forward for dengue control. However, we should be careful in considering where and how to use this vaccine as there is still uncertainty about the impact.

The team stress the vaccine stills holds benefits - but only if used in areas heavily affected by dengue, where individuals being vaccinated are likely to have encountered the virus before.

Derek Cummings, Professor of Biology at the University of Florida and co-author of the study added:

In places with high transmission intensity, most people have been already exposed to

dengue at the time of vaccination, and the vaccine has higher efficacy on average. However, in places with lower transmission intensity, were individuals haven't been previously exposed, the vaccine can place people at risk of severe disease and overall, increase the number of hospitalized cases.

Dr Isabel Rodriguez-Barraquer, joint first author of the research from Johns Hopkins Bloomberg School of Public Health, explained:

Our results indicate that screening potential vaccine recipients could maximize the benefits and minimise the risk of negative outcomes.

The World Health Organization recommends that countries consider introduction of the dengue vaccine only in geographic settings (national or subnational) where data suggests a high burden of disease.

Professor Ferguson added:

Our model refines estimates of which places would see a decline in dengue incidence with large-scale vaccination programmes, and which places should not implement programmes at this point in time. These results present the first published, independent predictions of the potential impact of vaccination that take account of recent data showing that the vaccine can increase the risk of severe dengue disease in young children.

The authors hope their analysis can help inform policy-makers in evaluating this and other candidate dengue vaccines.

YELLOW FEVER

Africa

Millions protected in Africa's largest-ever emergency yellow fever vaccination campaign

WHO 2 SEPTEMBER 2016

GENEVA - A major part of the largest emergency vaccination campaign against yellow fever ever attempted in Africa has been completed, with more than 7.7 million people vaccinated in record time in the city of Kinshasa, Democratic Republic of Congo (DRC). This has been accomplished through an extraordinary network of partnerships and collaborations.

In less than two weeks, the campaign successfully reached the targeted population of Kinshasa, most of them (7.3 million people) using an emergency vaccine – one fifth of the full dose of yellow fever vaccine. This dose sparing strategy was recommended by the WHO Strategic Advisory Group of Experts on Immunization (SAGE) as a short-term emergency measure to reach as many people as possible given limited supplies of the vaccine.

"WHO commends the Government of the DRC for this significant achievement to roll out such a complex campaign in such a short period of time," said Dr Yokouide Allarangar, WHO Representative in the DRC.

Planning a mass vaccination campaign on this scale usually takes up to 6 months. This complex and ambitious emergency campaign was put in place in a matter of weeks to end transmission of yellow fever before the rainy season starts in September.

The dose sparing strategy required the purchase and shipment of 10 million specialized syringes as well as specific training of more than 40 000 vaccinators to

use this new method.

The Ministry of Public Health, WHO and more than 50 global partners worked closely together through the complex planning and logistics needed to roll out the campaign in more than 8000 locations across the country – both in dense, urban areas and in hard-to-reach, remote border regions.

Partners working together

WHO played a key role in ensuring technical soundness and feasibility of the strategy, the availability of millions of vaccine doses, syringes and other materials, as well as maintaining the cold chain to ensure vaccines are stored and transported in the right conditions. Together with national health authorities, WHO led the coordination efforts during the planning and implementation phases of the campaign, trained health workers and engaged with communities and leaders in disseminating information about the campaigns.

UNICEF helped to ensure that vaccines and injection devices were in place and led social mobilizers on the ground to engage with communities and encourage people to get vaccinated.

World Food Programme (WFP) was a key logistics partner in providing temporary safe storage of the huge volumes of waste generated by this campaign that will be sent for incineration in mid-September.

Médecins sans Frontières (MSF) mobilized 200 staff from 20 countries to manage the vaccination of over 710 000 people in three health zones in Kinshasa in collaboration with Ministry of Health staff, including training of the vaccination teams, supervision, logistic support, waste and cold chain management.

The Red Cross of the Democratic Republic of Congo, supported by the International Federation of Red Cross and Red Crescent Societies, mobilized thousands of volunteers across affected areas to promote and support the campaign and share yellow fever prevention and protection information.

Save the Children deployed a team of specialists from their Emergency Health Unit to provide technical and operational support to the Ministry of Public Health in Binza Ozone health zone. The team, with help from national staff, assisted the Ministry to vaccinate more than 360 000 people, more than half of them children.

The US Centers for Disease Control (CDC) has supported the international response and vaccination campaigns, deploying more than 45 experts to support these efforts since February 2016, in roles including: Incident Manager in Angola, Response Team Leads, Emergency Management Specialist, Laboratory experts, Public Health Advisors, Vaccine Specialists, Communications Specialists and Epidemiologists. CDC is also working with the Institut National de Recherche Biomédicale (INRB) in DRC to support the dose sparing approach used in the Kinshasa campaign, including facilitating an evaluation of the immune response it provides. This study, funded by USAID, will help provide more information and inform decisions on future use of this method for yellow fever vaccination.

Through its US$ 20.3 million contribution to the global yellow fever vaccine stockpile, Gavi, the Vaccine Alliance, has supported the majority of vaccine doses used in DRC and Angola outbreak response. Overall Gavi has contributed 16.5 million vaccine doses to the stockpile this year. Additionally, the Vaccine Alliance is providing US$ 8.7 million to support the operational costs of the campaign in DRC.

The World Bank provided US$ 3 million to co-finance the yellow fever vaccines as well as other services needed as part of the overall plan prepared by the Government. The World Bank also has contributed US $5 million to the Government of Angola to finance the yellow fever vaccination programme in the country.

Vaccination campaigns in DRC and Angola

On 16 August, the Government of DRC launched the vaccination campaign in Kinshasa with the goal to vaccinate 7.5 million people within 2 weeks in order to interrupt viral circulation and prevent the outbreak from escalating. From the first day and throughout the campaign, thousands of people have been turning up to get vaccinated at posts across the huge city. By 28 August, the Government reported that 7.7 million people had been vaccinated in the capital city, and a further 1.5 million people in DRC's border regions with Angola. Of the 7.7 million people vaccinated in Kinshasa, around 400 000 pregnant women and babies received the full dose under SAGE recommendations.

Over the next few weeks, vaccination teams will focus on completing the campaign in remote border regions and reaching people at risk who may have missed out on vaccination the first time around. In Angola, vaccination campaigns are ongoing, with an estimated 3 million people vaccinated since mid-August.

This latest campaign that aims at prevention builds on previous emergency yellow fever reactive vaccination campaigns led by national governments that have already reached more than 13 million people in Angola and more than 3 million in DRC since the beginning of the outbreak in December 2015.

Since the beginning of this year, almost 1000 people in both countries have had confirmed yellow fever, with many more suspected cases and more than 400 deaths reported.

The yellow fever outbreak in both countries appears to be declining – no new cases have been confirmed in either country for over a month – However, given that there may still be viral circulation in the mosquito vector, and in other animal reservoirs, and in anticipation of the upcoming rainy season that will result in increased risk of transmission, it is critical to continue to provide support to ensure the countries have the capacity to detect and respond to any further cases of yellow fever.

MALARIA

Oriental

World Health Organisation declares Sri Lanka malaria-free

WHO hails country's 'truly remarkable' achievement after no locally transmitted cases of disease for three-and-a-half years

The guardian Monday 5 September 2016 17.56 BST

The World Health Organisation has certified that Sri Lanka is a malaria-free nation, in what it called a truly remarkable achievement.

WHO regional director Poonam Khetrapal Singh said in a statement that Sri Lanka had been among the most malaria-affected countries in the mid-20th century.

But, the WHO said, the country had begun an anti-malaria campaign that successfully targeted the mosquito-borne parasite that causes the disease, not just mosquitoes. Health education and effective surveillance also helped the campaign.

"Sri Lanka's achievement is truly remarkable," the WHO statement said. "The change in strategy was unorthodox, but highly effective. Mobile malaria clinics in high-transmission areas meant that prompt and effective treatment could reduce the parasite reservoir and the possibility of further transmission."

It said no locally transmitted cases of malaria had been recorded in the country for three-and-a-half years.

To prevent parasites re-entering the country, the anti-malaria campaign is working with local and international partners to maintain surveillance and screening, it said.

WORLD OF MOSQUITO TECHNOLOGY

More about Microsoft

Bill Gates Doubles His Bet on Wiping Out Mosquitoes with Gene Editing - But the technology for extinguishing species is dividing conservationists.

MIT TECHNOLOGY REVIEW by Antonio Regalado September 6, 2016

The Bill and Melinda Gates Foundation plans to double the sum it is spending to create a mosquito-killing technology that relies on CRISPR gene editing.

The technique, called a gene drive, is a way to spread traits through wild populations of animals, but its ability to alter nature is drawing opposition from some environmental groups.

The Gates-funded project, called Target Malaria, is based at Imperial College, London, and has been seeking to add instructions to the DNA of malaria mosquitoes that would cause them to become sterile. If released in the wild, a gene drive could push these species to extinction.

Spokesman Bryan Callahan says the Gates Foundation will give Target Malaria an additional $35 million, bringing Gates's total investment to $75 million. That is the largest sum ever spent on gene-drive technology.

Scientists at Imperial and elsewhere first succeeded in installing gene drives in mosquitoes last year—in lab research—setting off a global debate over whether the technology is safe enough to use.

The new money will help Target Malaria "explore the potential development of other constructs, as well as to start mapping out next steps for biosafety, bioethics, community engagement, and regulatory guidance," says Callahan. "It's basically a lot of groundwork."

The Gates Foundation views the technology as a "long shot" that won't necessarily work but, if it does, could effectively end malaria.

The foundation previously said it plans to have a gene-drive approved for field use by 2029 somewhere in Africa. But Gates, the founder of Microsoft, offered more enthusiastic prognostications in comments made this summer, saying the technology might be ready in just two years.

A gene drive works by spreading genetic instructions as animals mate. For instance, if a drive causes only male animals to be born, a population would quickly crash as it runs out of females. It may also be possible to change mosquitoes so they are unable to transmit malaria, which is a significant cause of death in children in sub-Saharan Africa.

The Seattle organization had dueled behind the scenes with researchers including MIT Media Lab professor Kevin Esvelt, who argues that gene-drive research should be more transparent and open to public input and has warned about the risk of a genetic bio-spill if mosquitoes were released accidentally.

In a report earlier this year, the National Academies of Sciences, Engineering, and Medicine in Washington, D.C., said gene drives were not yet ready for environmental release, but laid out steps that should be taken to test them safely, recommendations the Gates Foundation says it will follow.

Splitting conservationists

Genetic techniques for "bio-control" have also caught the eye of conservationists as a way to kill off invasive species, including mosquitoes, rats, toads, or fish that take over ecosystems and can drive local species to extinction.

Over the weekend, during the world congress of the International Union of Conservation of Nature in Hawaii, the nonprofit Island Conservation announced it had started a project to genetically engineer mice so they only produce male offspring.

The group believes gene drives will be a way to wipe invasive rodents off islands and archipelagos, where they prey on birds and lizards. Other researchers hope to eradicate mosquitoes from Hawaii in order to save the island chain's remaining native birds, which are succumbing to the avian form of malaria.

Other conservation groups, however, circulated a petition at the Hawaii meeting calling for a moratorium on the idea. They worry that promoting drives as conservation tools could pave the way for commercial use of gene drives, say to manage agricultural pests. "Genetic extinction technologies are a false and dangerous solution to the problem of biodiversity loss," Erich Pica, president of the Friends of the Earth, said in a statement signed by anti-GMO campaigners that called the technology reckless.

Heath Packard, a spokesman for Island Conservation, said his group is willing to consider the technology because 90 percent of the world's island chains are infested with rodents. It has previously eradicated rats from some islands, including in the Galapagos, using poisoned bait. But efforts to poison rats are expensive, hard to pull off on larger islands, and can create risks for other animals.

Packard says the mouse project is being carried out with Texas A&M, North Carolina State University, and the U.S. Department of Agriculture. While mice aren't as big a problem as rats, they have infested the Midway atoll in the Pacific, and videos posted online of them eating albatross chicks alive have galvanized bird lovers. He says the nonprofit hopes to have a proposal in front of regulators for a field trial within four years.

The debate over drives could rival that over GMOs in its intensity and, ultimately, its global consequences. That is because, like GMO plants, the gene drives would affect our shared environment.

But conservationists and public health campaigners see a one-of-a-kind chance to solve big problems and aren't likely to stop their efforts to perfect the technology in the lab. "We need some transformative end-game technologies, and this is one of them," says Callahan.

DID YOU KNOW?

More about Russian Mosquitoes

Washington Post Morning Mix, By Katie Mettler August 15

With 43 bites, 9-year-old wins 'tastiest girl' competition at annual Russian Mosquito Festival

Irina Ilyukhina, 9 years old, walked into a forest in the Russian town of Berezniki over the weekend, skin bare.

Among the trees, she picked berries, a task required of those competing for the top prize at one of Russia's most bizarre annual festivals, but collecting delicious fruit was just her vehicle for victory. To win, Ilyukhina was the one who needed to be delicious.

A woman dresses as a mosquito during the Russia Mosquito Festival in the town of Berezniki. (Associated Press)

And when she finally emerged from the woods alongside her competitors, the 43 raised, itchy bumps peppering her legs proved that, at least to the blood-sucking bugs of Russia, she was the most scrumptious of them all.

The pain earned her the title of "tastiest girl" in a contest that would cause great anxiety in many parts of the world but has become a staple of the Russian Mosquito Festival each summer, reported the Associated Press. Her prize was a ceramic cup.

In 2013, the winner collected more than 100 mosquito bites, according to the BBC, but unusually hot and dry weather in Berezniki, a town in the Ural Mountains, diminished the insect population this year, the AP reported. Most years, attendees can participate in a mosquito hunt that rewards whomever can collect the most bugs in a glass jar.

Other traditions include most horrible mosquito squeak contest, mosquito costume contest and best themed festival souvenir, according to the festival's website. There is dancing to mosquito-themed music and a barbecue competition. In 2013, those with the most spindly, mosquito-like legs were offered a prize, Carbonated.TV reported.

The Russian Mosquito Festival was founded four years ago as a tongue-in-cheek affair, reported the BBC, a commonplace practice in a country that holds a cow herder festival featuring a manure-throwing competition.

In 2015, the "tastiest girl" competitors were required to stand in shorts and vests for 20 minutes while the mosquitoes feasted. Then, organizer Natalya Paramonova said, an "expert panel of judges, including a doctor," examined their bodies for bites, reported the BBC. Paramonova called the events "absurd." But Berezniki isn't the only city in the world-celebrating mosquitoes. Each summer, Texans in Clute, a small town southeast of Houston, host The Great Texas Mosquito Festival, originally designed to attract tourists. Though it also sponsors a mosquito legs and call contest, it does not feature any sort of competition encouraging attendees to let the insects bite them.

Unlike Russia, which has confirmed just five cases of travel-related Zika in recent months, the United States has reported nearly 2,000. Texas alone has reported 106.

Outbreaks are registered in mostly tropical regions, where the insects tend to thrive and are therefore more likely to carry and spread disease. Russia is not one of the places, mostly because the country remains cold for much of the year and mosquitoes generally don't bite in temperatures below 50 degrees.

In regions of the world where mosquitoes don't carry disease, the greatest risk a bite brings is several days of excessive scratching. For 9-year-old Ilyukhina, the title of "tastiest girl" is worth.