Center for Infectious Disease Research and Policy
University of Minnesota

CIDRAP Leadership Forum
Infectious Disease BRIEFING

February 15th, 2017

CIDRAP

UNIVERSITY OF MINNESOTA

CIDRAP Leadership Forum (CLF)
Daily News Rounds

February 15, 2017

The latest in infectious disease threats provided by CIDRAP News exclusively for the use of EXECUTIVE member organizations of the CIDRAP Leadership Forum. This communication is intended for member organizations only.

Zika

Infectious Disease Research Institute (IDRI) signs agreement with NanoPass Technologies to develop and test an intradermal replicating viral RNA Zika vaccine [link]

A study in the *Am J of Epi* provides a real-time assessment of health care requirements during the Zika virus epidemic in Martinique [link]

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1. **Influenza**
   - Avian
   - Human
2. **Vectorborne diseases**
   - Yellow Fever, Zika, Chikungunya
3. **MERS-CoV**
4. **Antimicrobial resistance**
5. **CEPI**
6. **Ebola**
7. **Global Health leaders**
8. **Other**
   - Trump Administration
   - Other topics

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World Health Organization

Warning signals from the volatile world of influenza viruses

February 2015

The current global influenza situation is characterized by a number of trends that must be closely monitored. These include: an increase in the variety of animal influenza viruses co-circulating and exchanging genetic material, giving rise to novel strains; continuing cases of human H7N9 infections in China; and a recent spurt of human H5N1 cases in Egypt. Changes in the H3N2 seasonal influenza viruses, which have affected the protection conferred by the current vaccine, are also of particular concern.

Viruses in wild and domestic birds

The diversity and geographical distribution of influenza viruses currently circulating in wild and domestic birds are unprecedented since the advent of modern tools for virus detection and characterization. The world needs to be concerned.

Viruses of the H5 and H7 subtypes are of greatest concern, as they can rapidly mutate from a form that causes mild symptoms in birds to one that causes severe illness and death in poultry populations, resulting in devastating outbreaks and enormous losses to the poultry industry and to the livelihoods of farmers.

World Health Organization

Warning signals from the volatile world of influenza viruses

February 2015

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World Health Organization

Warning signals from the volatile world of influenza viruses

February 2015

Since the start of 2014, the Organisation for Animal Health, or OIE, has been notified of 41 H5 and H7 outbreaks in birds involving 7 different viruses in 20 countries in Africa, the Americas, Asia, Australia, Europe, and the Middle East. Several are novel viruses that have emerged and spread in wild birds or poultry only in the past few years.

ALL Findings

Update on Avian Influenza Findings
Poultry Findings Confirmed by USDA's National Veterinary Services Laboratories

Animal Health

- Contact Us
- Program Overview
- Animal Disease Information
- Emergency Management
- Export from the U.S.
- Import into the U.S.
- Laboratory Information Services

223 Detections Reported	**48,091,293** Birds Affected
12/19/14 First Detection Reported	**6/17/15** Last Detection Reported

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Airborne flu detection at bird markets hints at human exposure risk

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Sep 01, 2016

Viable avian flu virus is easily detectable in the air of live-poultry markets, which may explain why those who visit markets but don't have direct contact with the birds become infected, according to air sampling from sites in China and Hong Kong.

A research team based at Hong Kong University isolated three subtypes during their sampling activities: H5N6, H7N9, and H9N2. They reported their findings today in the latest edition of *Eurosurveillance*.

Their results come just weeks after a report from Chinese researchers who isolated H5N6 during bioaerosol surveillance at live-poultry markets in the Guangdong province city of Zhongshan.

fotokon / iStock

Chicken defeathering at a live-bird market in China.

The New York Times

W.H.O. Warns of Worrisome Bird Flu in China

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By DONALD G. McNEIL Jr. JAN. 25, 2017

After a spate of deaths from bird flu among patients in China, the World Health Organization has warned all countries to watch for outbreaks in poultry flocks and to promptly report any human cases.

Several strains of avian flu are spreading in Europe and Asia this winter, but the most worrisome at present is an H7N9 strain that has circulated in China every winter since 2013.

China has reported over 225 human cases since September, an unusually high number. The nation's Lunar New Year vacation starts soon, and as it does, live poultry shipments increase, and holiday travelers often spread the flu.

The fatality rate is not yet known, because some victims are still hospitalized. But Dr. Margaret Chan, the health organization's director general, said this week that China had had more than 1,000 cases in the last four years, of which 39 percent were fatal.

"All countries must detect and report human cases promptly," she said. "We cannot afford to miss the early signals."

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Five nations report more, varied avian flu outbreaks

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Jan 27, 2017

Countries in different parts of the world reported more avian flu outbreaks involving different strains, from a recurrence of highly pathogenic H5N1 in India to the detection of H5N5 for the first time in Slovenia.

Keith Bacongco / Flickr cc

H5N1 in India

India's agriculture ministry today announced the new H5N1 outbreaks in a pair of reports to the World Organization for Animal Health (OIE). One described two events at farms in the western part of the country, one at a resort in Daman and the other a rescue center in Memnagar.

The outbreaks began on Dec 22 and Jan 2, respectively, killing 7 of 669 birds between the two locations. Authorities culled the remaining birds.

In a separate report, officials said H5N1 struck village birds in Orissa state in east central India, beginning on Jan 4 and resulting in the deaths of 11 of 1,657 birds. Orissa state had reported two H5N1 outbreaks involving crows about a month ago.

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Macedonia reports first H5N8 outbreak; more strains noted elsewhere

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Jan 30, 2017

In several new avian flu developments, Macedonia today reported its first highly pathogenic H5N8 outbreak, as France reported a recurrence of H5N9 and other strains implicated in outbreaks last year.

In addition, as several European countries reported more H5N8 outbreaks, German officials reported what early tests suggest is a new highly pathogenic H5N2 detected in wild birds, and Greece became the latest European country to report the highly pathogenic H5N5 strain.

Julie Mac / Flickr cc

H5N8 in Macedonia, other European countries

Macedonia's first H5N8 detection occurred in backyard birds near Struga in the southwestern part of the country, according to a report from the agriculture ministry to the World Organization for Animal Health (OIE). The outbreak began Jan 20, killing 3 of 438 birds.

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H5N8 detected again in Nigeria, H5N1 in Cambodia

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Jan 31, 2017

Signaling continued activity of highly pathogenic H5N8 avian flu in Africa, Nigeria reported that the virus hit more farms, with three European countries reporting more outbreaks in poultry and wild birds.

In developments with other high-path strains, Cambodia today reported its first H5N1 outbreak of the year, which affected backyard poultry.

Paul Lewin / Flickr cc

Finland reported H5N8 in a dead white-tailed eagle.

Latest H5N8 outbreaks

Nigeria, which reported its first H5N8 outbreak in the middle of December, yesterday reported two more events, both involving farms in Plateau state in the center of the country, according to a report yesterday to the World Organization for Animal Health (OIE).

The outbreaks started on Jan 18 and Jan 20, one at a layer farm and the other at a facility housing 17-week-old pullets. Of 4,000 birds at the two locations, the virus sickened 410 and killed 60. Authorities destroyed the remaining birds as part of their control measures.

Though the source of the virus wasn't determined, agriculture ministry officials said poor farm biosecurity may have played a role.

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Taiwan reports its first H5N6 avian flu outbreak

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Feb 06, 2017

Taiwan over the weekend reported its first highly pathogenic H5N6 avian influenza detection, signaling further spread of the virus into Asia, as European countries saw no let-up in H5N8 activity in wild birds and poultry.

Elsewhere, Japan reported a new H5 outbreak in Saga prefecture, the sixth to be affected in recent months.

MiNe / Flickr cc

Taiwan confirms H5N6, plus more H5N2

Animal health officials in Taiwan today said tests on a dead goose found near Yuli township in Hualien County on the east side of the island were positive for H5N6, according to a government statement translated and posted by Avian Flu Diary, an infectious disease news blog. Authorities will be stepping up monitoring of migratory birds and surveillance at local poultry farms.

A report today on the outbreak from the World Organization for Animal Health (OIE) said the young goose was found on Feb 2 on a country road by members of the Wild Bird Society, adding that test on

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Myanmar confirms its first H5N6 outbreak

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Feb 07, 2017

Myanmar today reported its first highly pathogenic H5N6 avian influenza outbreak in poultry, confirmed in chickens imported from China, as European countries reported more H5N8 detections and Nigeria reported more outbreaks from the H5N1 strain.

hansslegers/ iStock

The H5N6 report from Myanmar comes just days after Taiwan noted its first H5N6 finding, signifying increasing spread of the virus in Asia. The H5N6 strain has been linked to 17 illnesses in humans, all from China.

H5N6 in healthy birds

In a report to the World Organization for Animal Health (OIE) today, Myanmar said that in the wake of H7N9 outbreaks in China in 2013 it stepped up screening in chickens and ducks and their environments at live-bird markets and poultry collecting points. The fifth round of active surveillance turned up H5N6 in chickens and their environments in Monglar in Shan state in the east, on the border with China.

Chickens that tested positive for the virus were apparently healthy, were from live markets, and were imported from China. The report said H5N6 was also found in ducks imported from China.

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Widespread avian flu continues; China details H5N8 clues

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Feb 08, 2017

Poland today reported another highly pathogenic H5N5 avian flu detection, as Nigeria reported another outbreak involving the H5N8 strain in poultry, signaling that the virus is still circulating in parts of Africa.

In other developments, more European countries reported new H5N8 outbreaks, Chile reported another outbreak involving low-pathogenic H7N6, and Chinese researchers described H5N8 findings in wild birds found dead in Qinghai Lake in central China.

Arnstein Ronning / Flickr cc

Poland reports H5N5 for the second time

Poland's agriculture ministry today said H5N5 has been detected again, this time in a mute swan found dead on Jan 31in Lower Silesia province in the country's southwest, according to a report to the World Organization for Animal Health (OIE).

The announcement comes just 5 days after Poland's first report of H5N5, also involving mute swans from the same province.

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Taiwan reports further H5N6 spread, other strains strike more birds in Europe and Africa

Filed Under: Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Feb 13, 2017

Coming just a week after the first highly pathogenic H5N6 avian flu detection in Taiwan in a wild bird, officials reported four more outbreaks involving poultry, as a handful of countries reported more H5N8 outbreaks and Nigeria reported one more from H5N1.

roibu/ iStock

Taiwan reports four more H5N6 outbreaks

News of Taiwan's latest outbreaks came in a series of government announcements over the weekend, according to translations and posts from Avian Flu Diary (AFD), an infectious disease news blog.

On Feb 11, officials announced that both H5N6 and highly pathogenic H5N2 had been detected in frozen duck carcasses shipped and processed from an area where H5N6 was first detected in a dead gosling found near some poultry farms.

A report on the findings yesterday from the World Organization for Animal Health (OIE) said the ducks at the slaughterhouse in Hualien County's Yuli township on the eastern side of the island were from one of the farms placed under surveillance after the infected gosling was found and were shipped before the poultry movement ban went into effect. Tests also found highly pathogenic H5N2, a subtype linked to several outbreaks in Taiwan since 2015.

REUTERS

HEALTH NEWS | Mon Feb 13, 2017 | 5:33am EST

Taiwan bird flu culls reach nearly 130,000 as H5N6 cases confirmed

Taiwan has culled nearly 130,000 poultry since the start of this year as authorities on Tuesday reported a fresh strain of bird flu cases on the island.

The highly pathogenic H5N6 avian flu has been confirmed in three cities and counties, the Bureau of Animal and Plant Health Inspection and Quarantine said.

"We are very concerned with H5N6, not of the bird-to-human transmission, but that it will become like South Korea where they had to cull around 33 million birds within three months resulting in significant damage to their industry," Huang Tze-chung, the bureau's director general, told a news briefing.

Taiwan can meet about 80 percent of its poultry needs on its own. It imports poultry meat mainly from the United States and exports very little poultry.

According to the bureau, most of the birds culled this year so far were afflicted with the H5N2 and H5N8 strains of the bird flu. A total of 13 poultry farms have been affected this year so far, it said.

REUTERS

HEALTH NEWS | Mon Feb 13, 2017 | 12:15pm EST

Germany has culled 776,000 poultry since bird flu outbreak

Germany has culled 776,000 farm chickens, turkeys, ducks and other types of poultry since November to combat bird flu, its agriculture ministry said on Monday.

Of the total, 622,000 birds were culled on farms where bird flu was discovered and 154,000 were culled as a precaution on farms where the disease was suspected, the ministry said.

Many European countries, as well as Israel, have found cases of the highly contagious H5N8 bird flu in the past three months and some ordered poultry flocks be kept indoors to prevent the disease spreading.

In France in one week alone in early January, 800,000 ducks were culled.

Different bird flu strains have also spread in Asia in recent weeks, leading to the slaughter of millions of birds in South Korea and Japan.

Bird flu has been found in 803 wild birds in Germany since the first case of the H5N8 strain was discovered in November, the German ministry said.

Wild birds are suspected to be spreading the disease.

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H5N8 HPAI GLOBAL situation update

ARCHIVE

06 February 2017, 17:00 hours; Rome

Disclaimer

Information provided herein is current as of the date of issue. Information added or changed since the last H5N8 situation update appears in **red**. Human cases are depicted in the geographic location of their report. For some cases, exposure may have occurred in one geographic location but reported in another. For cases with unknown onset date, reporting date was used instead. FAO compiles information drawn from multiple national (Ministries of Agriculture or Livestock, Ministries of Health, Provincial Government websites; Centers for Disease Prevention and Control [CDC]) and international sources (World Health Organization [WHO], World Organisation for Animal Health [OIE]) as well as peer-reviewed scientific articles. FAO makes every effort to ensure, but does not guarantee, accuracy, completeness or authenticity of the information. The designation employed and the presentation of material on the map do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

Overview

Situation: H5N8 highly pathogenic avian influenza (HPAI) 2016 virus in Africa, Asia, Europe and Middle East with pandemic potential.

Confirmed countries[x]: Austria*, Belgium*, Bulgaria*, Croatia*, Czech Republic*, Denmark*, Egypt*, Finland, France*, Germany*, Greece*, Hungary*, Kuwait*, India*, Iran (Islamic Republic of)*, Israel*, Ireland, Italy*, the Netherlands*, Nigeria*, People's Republic of China, Poland*, Portugal, Romania*, Russian Federation*, Serbia*, Slovakia*, Slovenia, Spain, Sweden*, Switzerland, Tunisia, The Former Yugoslav Republic of Macedonia*, the United Kingdom of Great Britain and Northern Ireland*, Uganda* and Ukraine*.

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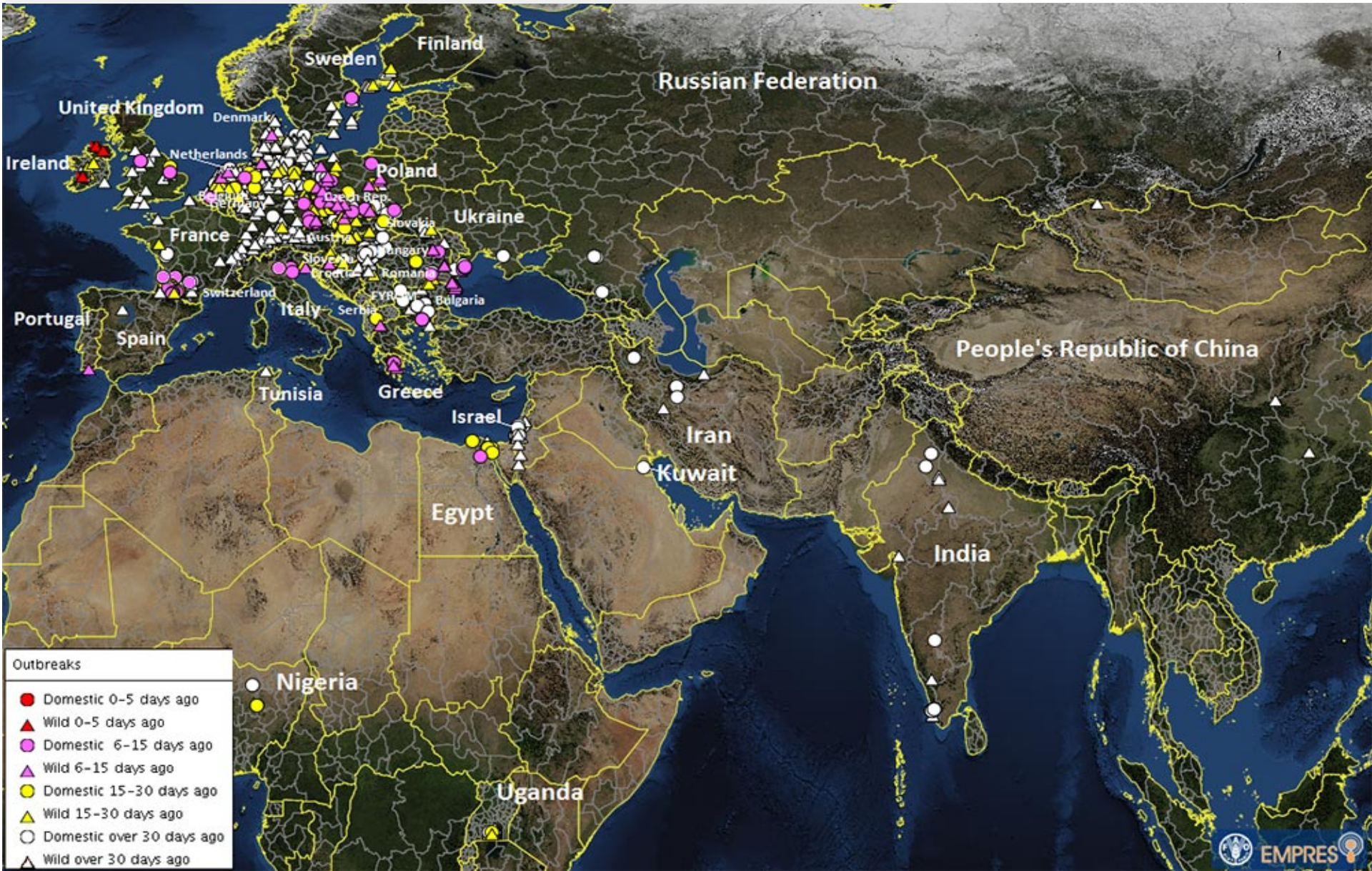
***Map 1**. H5N8 HPAI outbreaks officially reported in Asia, Europe and Africa by onset date, since 1 June 2016*



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H7N9 situation update

8 February 2017, 17:00 hours; Rome

Overview

Situation: Influenza A(H7N9) virus with pandemic potential.
Country: China; three human cases originated in China and were reported in Malaysia (1) and Canada (2).
Number of human cases: **1115** confirmed; **379** deaths (since February 2013)
Provinces/municipalities: Beijing, Shanghai and Tianjin municipalities; Anhui; Fujian; Guangdong; Hubei and Liaoning provinces; Henan; Hunan; Jiangsu; Jiangxi; Shandong; Zhejiang; Guangxi; Guizhou; Jilin; Qinghai; Hubei; **Sichuan**; Taiwan Province of China; Hong Kong SAR; Macao SAR, Ningxia Hui and Xinjiang Uyghur Autonomous Regions; Sabah (Malaysia); British Columbia (Canada).
Animal/environmental findings: over 2,000 virological samples from the environment, chickens, pigeons, ducks and a tree sparrow tested positive; positives mainly from live bird markets, vendors and some commercial or breeding farms.
FAO actions: liaise with China and partners, monitor situation, monitor virus evolution, conduct market chain analysis, risk assessment, surveillance guidance and communication.

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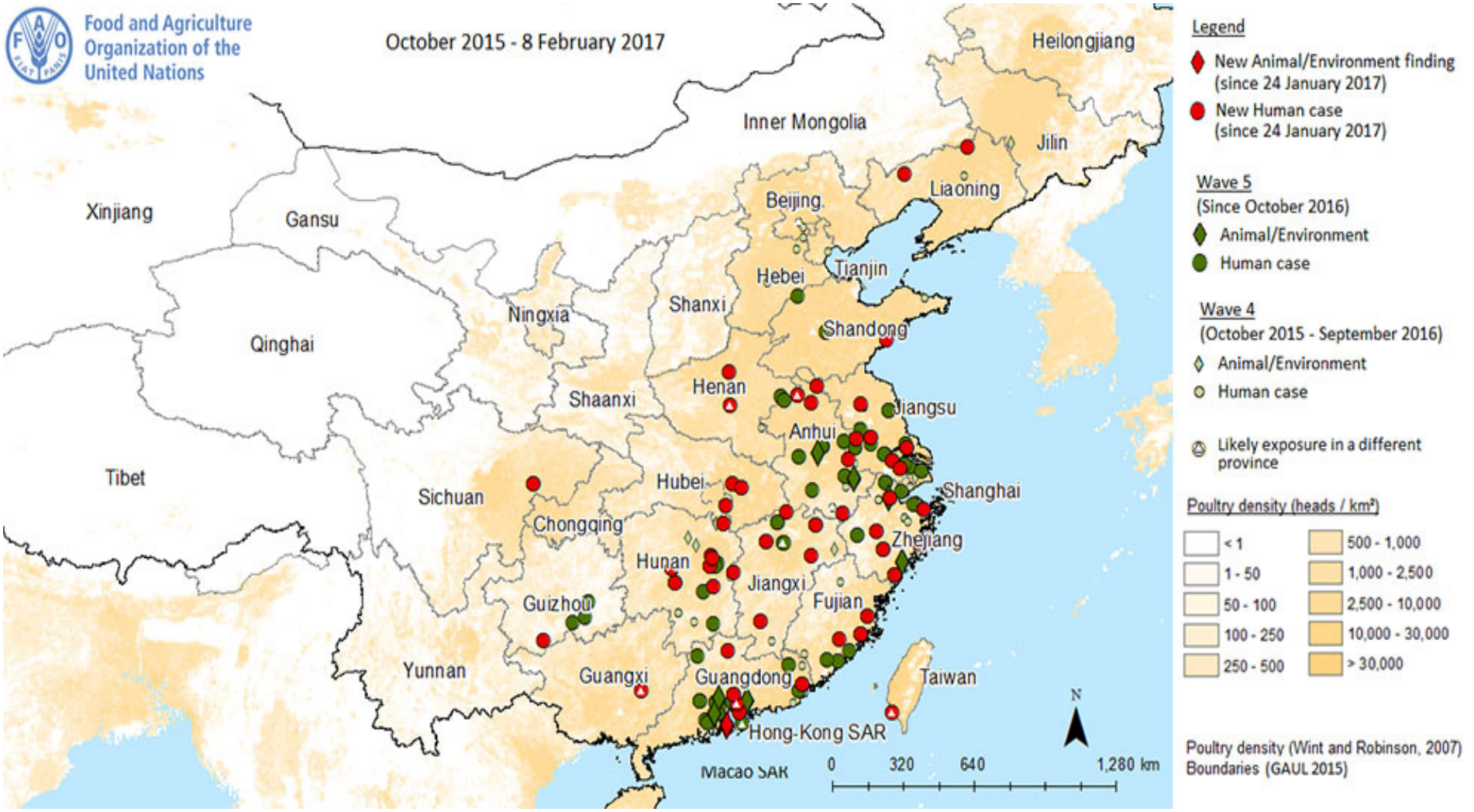

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China now in its worst H7N9 avian flu season on record

Filed Under: H7N9 Avian Influenza; Avian Influenza (Bird Flu)

Lisa Schnirring | News Editor | CIDRAP News | Feb 10, 2017

Adam Cohn / Flickr cc

An early, brisk spike in H7N9 avian flu infections in China, which is in its fifth wave of activity, has now reached at least 347 cases, passing the record 319 of infections seen in the second wave during the winter of 2013-14, just months after the first human cases were detected.

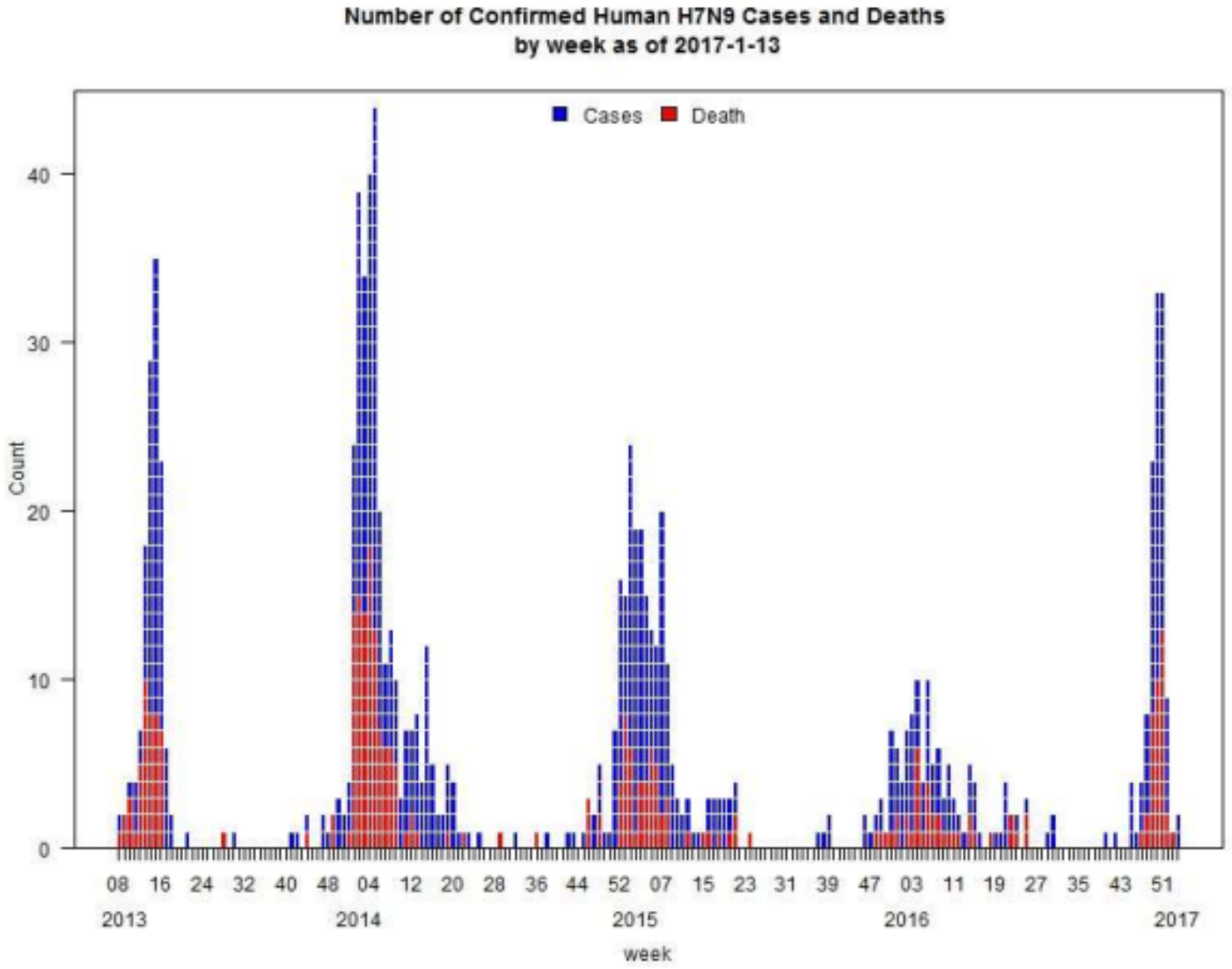
In a related development, the World Health Organization (WHO) weighed in on China's recent H7N9 activity today with a new analysis, which said the agency doesn't see any changes with the transmission pattern or the properties of the virus.

Earlier this season Chinese researchers said the country was experiencing an early H7N9 season, which saw 6 cases in November, then a sharp climb to 106 cases in December. They said an increase in virus detections in poultry, especially at live markets, might be fueling the surge in human cases, but they added that an early start to the general flu season could also play a role.

On a week-to-week basis, it's been difficult to tell if H7N9 cases in China are still rising or have peaked. Some provincial health departments announce individual cases as they are confirmed, while others wait to include them in their monthly communicable disease updates.

World Health Organization

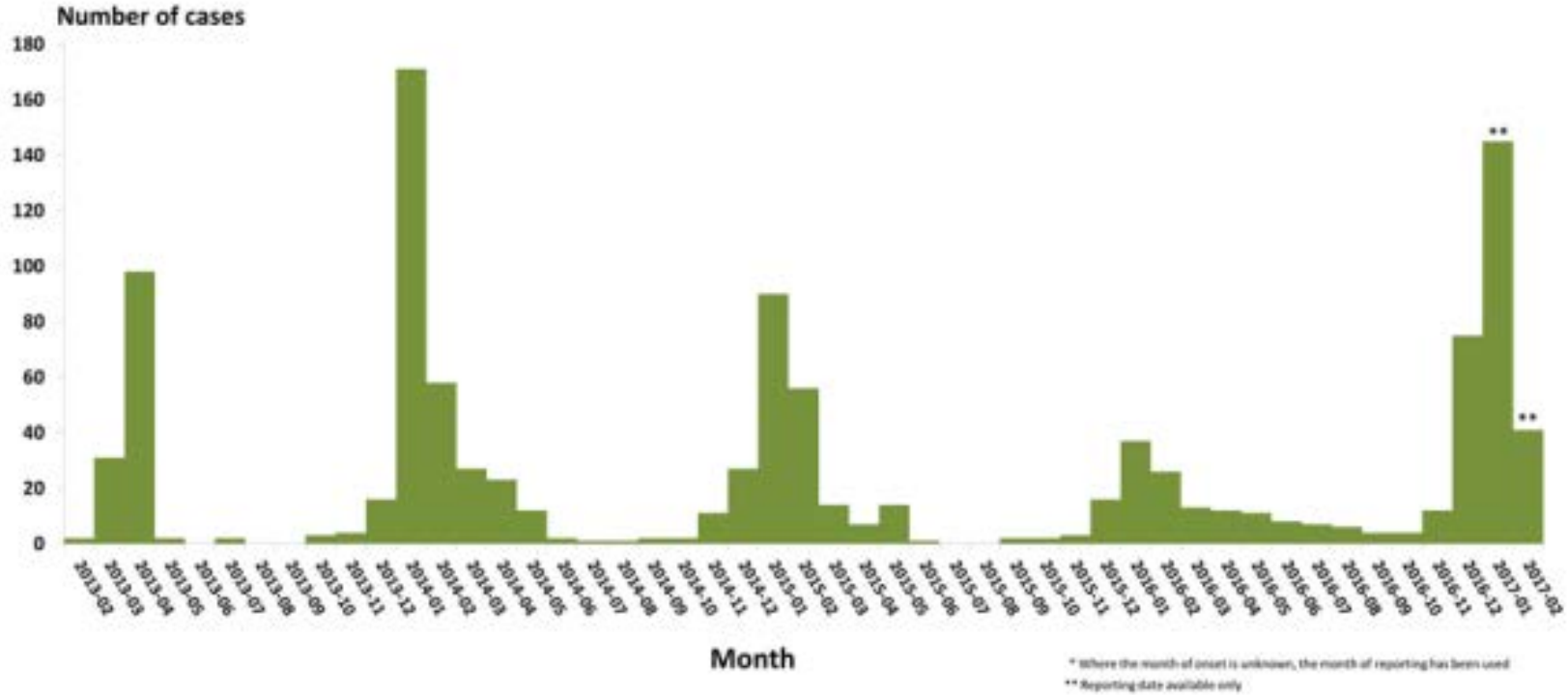
Figure 2: Epidemiological curve of avian influenza A(H7N9) cases in humans by week of onset, 2013-2017



European Centre for Disease Prevention and Control

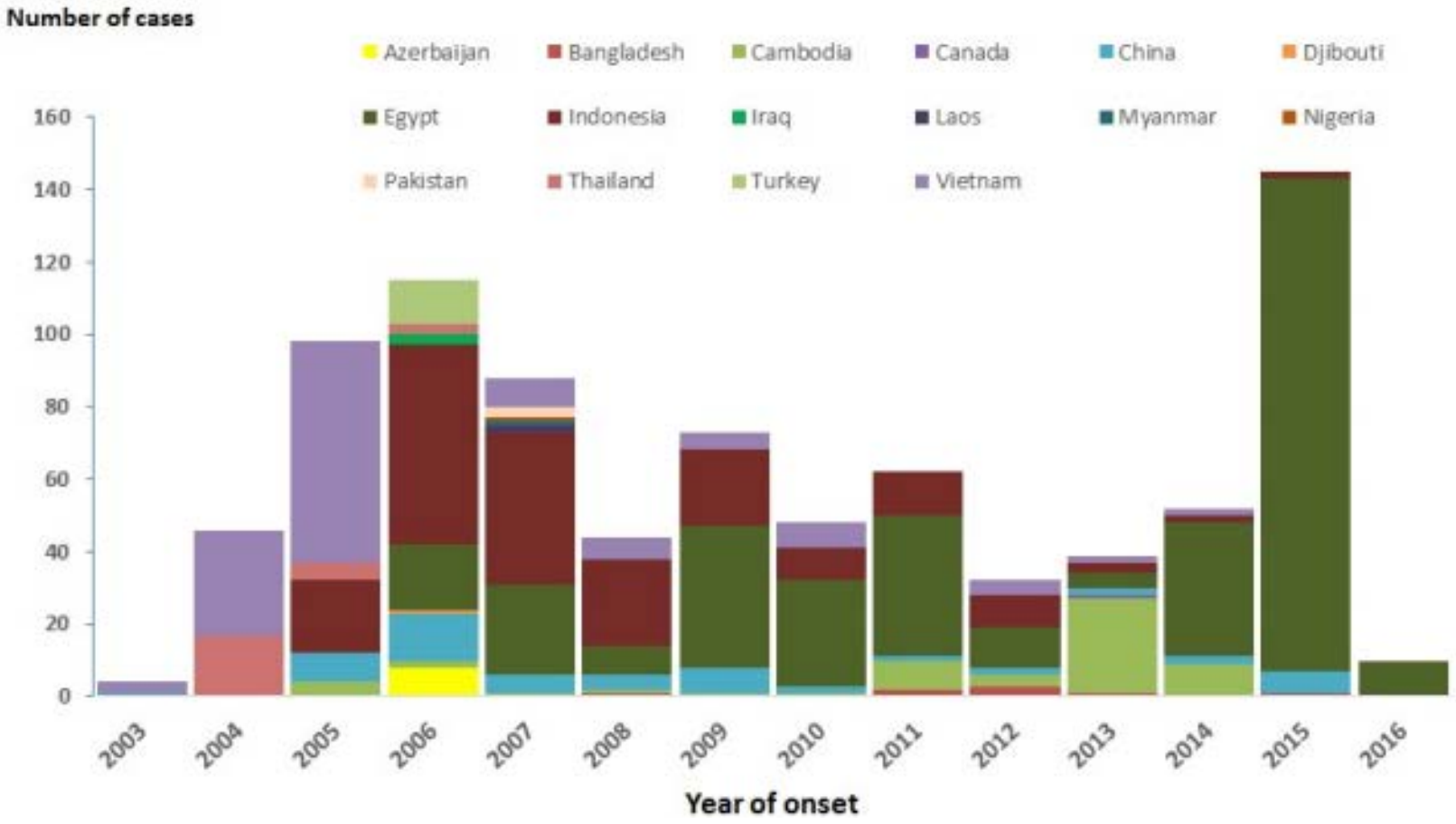
Distribution of confirmed cases of A(H7N9) by month February 2013 to February 2017

ECDC



European Centre for Disease Prevention and Control

Distribution of confirmed cases of A(H5N1) by country of reporting 2003 - 2016



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   - Other topics

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US flu season picks up as European levels stay high

Filed Under: Influenza, General

Lisa Schnirring | News Editor | CIDRAP News | Jan 13, 2017

The US flu season picked up more steam last week, with rising flu indicators and the first three pediatric flu deaths reported, as many countries in Europe grapple with an early, busy flu season led by the H3N2 strain that poses a serious threat to seniors.

shironosov / iStock

In its weekly update today, the US Centers for Disease Control and Prevention (CDC) said all 10 of its regions are above their baseline percentages of clinic visits for flulike illness for the first time, though the country as a whole has been above its national baseline for the marker for 4 straight weeks.

The CDC said it expects flu levels to keep climbing over the coming weeks. "Anyone who has not gotten vaccinated yet this season should get vaccinated now," it said in its situation update.

Test positives rise, geographical spread expands

The percentage of respiratory specimens that tested positive for flu last week rose to 13.9% last week, up slightly from 13.7% the week before. Of influenza A viruses subtyped by public health labs last week, 97.5% were H3N2. Of 139 H3N2 viruses characterized since Oct 1, 132 (95%) are related to the Hong Kong strain included in the Northern Hemisphere flu vaccine this season.

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CDC: Widespread flu leads to 7 new deaths in kids

Filed Under: Influenza, General

Lisa Schnirring | News Editor | CIDRAP News | Feb 03, 2017

Flu activity in the United States continued to rise last week, with most indicators increasing and seven more pediatric flu deaths reported, the US Centers for Disease Control and Prevention (CDC) said today in its regular update.

saiyood / iStock

Clinic visits rise, H3N2 still dominates

The percentage of clinic visits for flulike illness rose to 3.9% nationally, up from 3.4% the week before. The United States has been above the baseline for that marker for 7 consecutive weeks now.

Meanwhile, the percentage of respiratory swabs that were positive for flu was at 18%, down slightly from 18.4% the previous week. Influenza A accounted for 88% of the detections, and, among subtyped influenza A samples, H3N2 remained the dominant strain, making up 94% of the total.

Of H3N2 viruses that have been antigenically characterized since Oct 1, 95.6% belong to the Hong Kong-like strain included in this season's vaccines. So far no influenza A or B viruses tested by the CDC have shown resistance to three neuraminidase inhibitors, the most commonly used antivirals against flu.

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Flu widespread in 43 states, 5 more fatal cases in kids

Filed Under: Influenza, General; Pneumonia

Lisa Schnirring | News Editor | CIDRAP News | Feb 10, 2017

US flu activity jumped higher last week, with widespread activity reported in 43 states and five more pediatric flu deaths reported.

In its weekly update today, the US Centers for Disease Control and Prevention (CDC) reported the marker that tracks clinic visits for flulike illness has now been above the national baseline for eight consecutive weeks.

In one sign that that the flu season is heading into its later months, the number of influenza B detections increased slightly, a development also reported by European officials.

wojciech_gajda/ iStock

CBC news | Health

Flu vaccine effectiveness 'decent' at 42% this season in Canada, researchers say

Canadian Sentinel Practitioner Surveillance Network measures effectiveness by comparing inoculations and cases

The Canadian Press Posted: Feb 09, 2017 4:39 PM ET | Last Updated: Feb 09, 2017 4:39 PM ET

A group of infectious disease experts estimates that this season's influenza vaccine has been more than 40 per cent effective in preventing the respiratory illness in Canadians who got the shot.

The Canadian Sentinel Practitioner Surveillance Network determines vaccine effectiveness by analyzing how many inoculated people tested positive for the flu virus compared to those who were unvaccinated.

Lead researcher Dr. Danuta Skowronski of the B.C. Centre for Disease Control says the 42 per cent effectiveness rating isn't as high as physicians would like, but the level of protection against the flu is still "decent."

- **Doctors optimistic Canada on 'downslope' this flu season**

That **effectiveness level** means the risk of getting sick enough to require medical attention is almost cut in half. And Skowronski says that's important for the elderly and those with underlying health conditions at risk for hospitalization and even death from the flu.

University of Minnesota

CIDRAP Center for Infectious Disease Research and Policy

Studies shed light on effects of serial flu shots, current vaccine's benefits

Filed Under: Influenza Vaccines

Robert Roos | News Writer | CIDRAP News | Feb 10, 2017

A Canadian study released this week added to the evidence that getting a flu shot 2 years in a row may sometimes result in lower protection against flu the second year, while another new Canadian study estimated that this year's flu vaccine is 42% effective against the dominant flu strain in circulation.

US Army Corps of Engineers Europe District / Flickr cc

The first study examined flu vaccine effectiveness (VE) over three recent flu seasons in Canada, yielding new evidence that prior-season flu vaccination may interfere with current season VE—if the flu strains used in the two vaccines are the same or very similar but differ from the current epidemic strain. The report was published yesterday in the *Journal of Infectious Diseases* (*JID*).

In the second study, involving the same group as the first and published in *Eurosurveillance*, the researchers estimated this year's flu VE against H3N2 viruses, the dominant strain this season. They said the modest 42% effectiveness they found is consistent with previous reports of VE against H3N2, which generally is associated with worse flu seasons and lower vaccine protection than are the other two common flu varieties, H1N1 and influenza B.

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News Scan for Feb 09, 2017

Lassa fever, MERS, Zika make the WHO's top-priority disease list

Coronaviruses, such as MERS-CoV (Middle East respiratory syndrome coronavirus) and SARS (severe acute respiratory syndrome), and hemorrhagic fevers such as Lassa and Crimean Congo hemorrhagic fever (CCHF) top the list of the World Health Organization's (WHO's) priority disease list for 2017.

The list was crafted earlier this week after an informal meeting held with consultants for the WHO's blueprint for research and development arm in Geneva.

In addition to the diseases mentioned, the WHO singled out filoviral diseases (Ebola and Marburg), Nipah, Rift Valley fever, severe fever with thrombocytopenia syndrome, and Zika as being the top threats in 2017.

The list adds to the previous list, compiled in 2015, which included CCHF, Ebola and Marburg, MERS, SARS, Lassa, Nipah, and Rift Valley fever.

Michael Osterholm, director of the Center for Infectious Disease Research and Policy (CIDRAP) at the University of Minnesota, which publishes CIDRAP News, said leaving out influenza was a major mistake on the WHO's part.

"It perpetuates the myth that we're ready for a worldwide flu outbreak," said Osterholm. "We're not."

Jan 26 WHO list of pathogens
Jan 26 WHO R&D summary
Dec 11, 2015, CIDRAP News Scan on WHO priority list

1. **Influenza**
   - Avian
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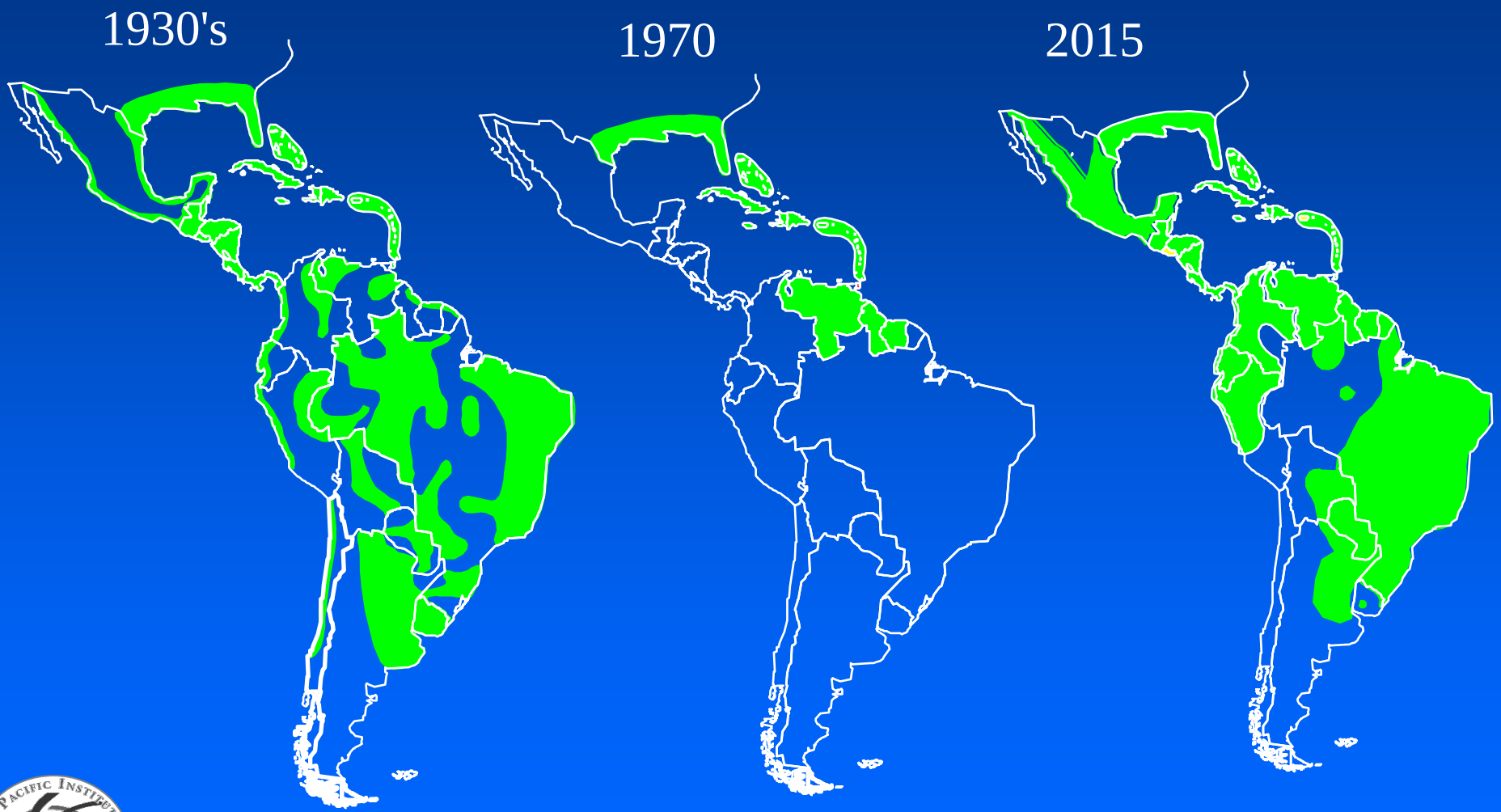
Aedes aegypti

Aedes aegypti Distribution in the Americas



Adapted from Gubler, 1998

The Washington Post

Africa

WHO declares end to yellow fever outbreak in Congo, Angola

By Carley Petesch | AP February 15 at 9:05 AM

DAKAR, Senegal — The World Health Organization has declared an end to the yellow fever outbreak that killed about 400 people in Congo and Angola, calling it "one of the largest and most challenging" in recent years.

The outbreak, first detected in Angola in late 2015, caused 965 confirmed cases and thousands of suspected cases in both countries, the WHO said in a statement Tuesday. Neither country has reported a new confirmed case in the past six months.

The global health agency said more than 30 million people were vaccinated in emergency campaigns to control the outbreak in the two neighboring countries, which have among the world's weakest health systems.

"This unprecedented response exhausted the global stockpile of yellow fever vaccines several times," the WHO statement said.

Regional Emergency Director Dr. Ibrahima Soce Fall warned such outbreaks could become more frequent unless coordinated responses are taken "to vaccinate the population at risk across the region."

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CIDRAP Center for Infectious Disease Research and Policy

News Scan for Jan 27, 2017

More than 100 new cases of yellow fever reported in Brazil

Yesterday Brazil's health ministry reported 129 new suspected cases of yellow fever this week, with two more states, Goias and Matto Grosso do Sul, reporting infections. The country now has 550 suspected or confirmed cases of the mosquito-borne disease.

The vast majority of cases, 502, have been in Minas Gerais state. Espirito Santo has 33 cases, while a smattering of illnesses have been documented in Bahia, San Paulo, Goias, and Matto Grosso do Sul.

As of yesterday, 72 cases have been confirmed as yellow fever, 23 were not confirmed, and 455 are under investigation. Since the first of the year, 105 people have died, 90 in Minas Gerais.

Earlier this week, Brazil's health ministry said that it would make 11.5 million yellow fever vaccines available this year. Usually, only 1 million doses are used in the country in a year. In 2016, Brazil helped respond to a vaccine shortage crisis by supplying yellow fever vaccines to Angola and the Democratic Republic of the Congo during a yellow fever epidemic.

Four nature reserves, Pedra Azul, Forno Grande, Mata das Flores, and Cachoeira da Fumaca, were also closed this week to limit the spread of the disease.

Jan 26 Brazilian health ministry statement

World Health Organization

Emergencies preparedness, response

Yellow fever – Brazil

Disease outbreak news
27 January 2017

On 24 January 2017, Brazil's International Health Regulations (IHR) National Focal Point (NFP) provided the Pan American Health Organization/World Health Organization (PAHO/WHO) with an update on the yellow fever situation. The geographical distribution of confirmed yellow fever human cases is expanding and includes, in addition to Minas Gerais State, the States of Espírito Santo and São Paulo. In addition, Bahia State reported 6 yellow fever human cases under investigation.

Espírito Santo State, an area that was previously not considered at risk for yellow fever, confirmed its first autochthonous human case of yellow fever since 1940. The case is a 44-year-old male from the municipality of Ibatiba. São Paulo State, reported three laboratory-confirmed cases of human yellow fever, all of whom died. In Minas Gerais State, as of 24 January, a total of 404 cases (66 confirmed, 337 suspected and 1 discarded), including 84 deaths (37 among confirmed cases and 47 among suspected with a case fatality rate of 56% and 14%, respectively) were reported. The total number of suspected and confirmed yellow fever cases reported is the highest reported nationwide since 2000.

Among the 66 confirmed cases from Minas Gerais State, 88% are male and 45% have not been vaccinated against yellow fever (the vaccination status of the remaining 55% is unknown or not available).

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Surge of yellow fever in Brazil raises alarms

Filed Under: Yellow Fever

Stephanie Soucheray | News Reporter | CIDRAP News | Feb 02, 2017

In the first month of 2017, Brazil has seen 712 suspected cases of sylvatic, or jungle, yellow fever, the vast majority in Minas Gerais, a rural state where 40 have already died from the mosquito-borne disease. According to *The Rio Times* today, Minas Gerais has 109 confirmed cases, a number that alarms mosquito experts.

bcorreabh / iStock

Belo Horizonte in Minas Gerais, Brazil's most-affected state.

"This is a fivefold increase in less than 1 month," said Duane Gubler, ScD, MS, former director of the US Centers for Disease Control and Prevention's (CDC's) Division of Vector-Borne Infectious Diseases. "That's an unusual number for sylvatic yellow fever."

While yellow fever is not a new threat to Brazil, this is the country's largest outbreak since 1980, according to *The Rio Times*. In 2000, Brazil had an outbreak with 85 confirmed cases and 40 deaths. In addition to Minas Gerias, there three other rural states, Espirito Santo, Bahia, and Sao Paulo, have reported a smattering of cases.

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News Scan for Feb 09, 2017

Brazil's yellow fever outbreak tops 1,000 cases

A worrisome spike of more than 300 yellow fever cases in the past week has boosted Brazil's outbreak to 1,060 cases and 166 deaths, the country's health ministry said in an update yesterday.

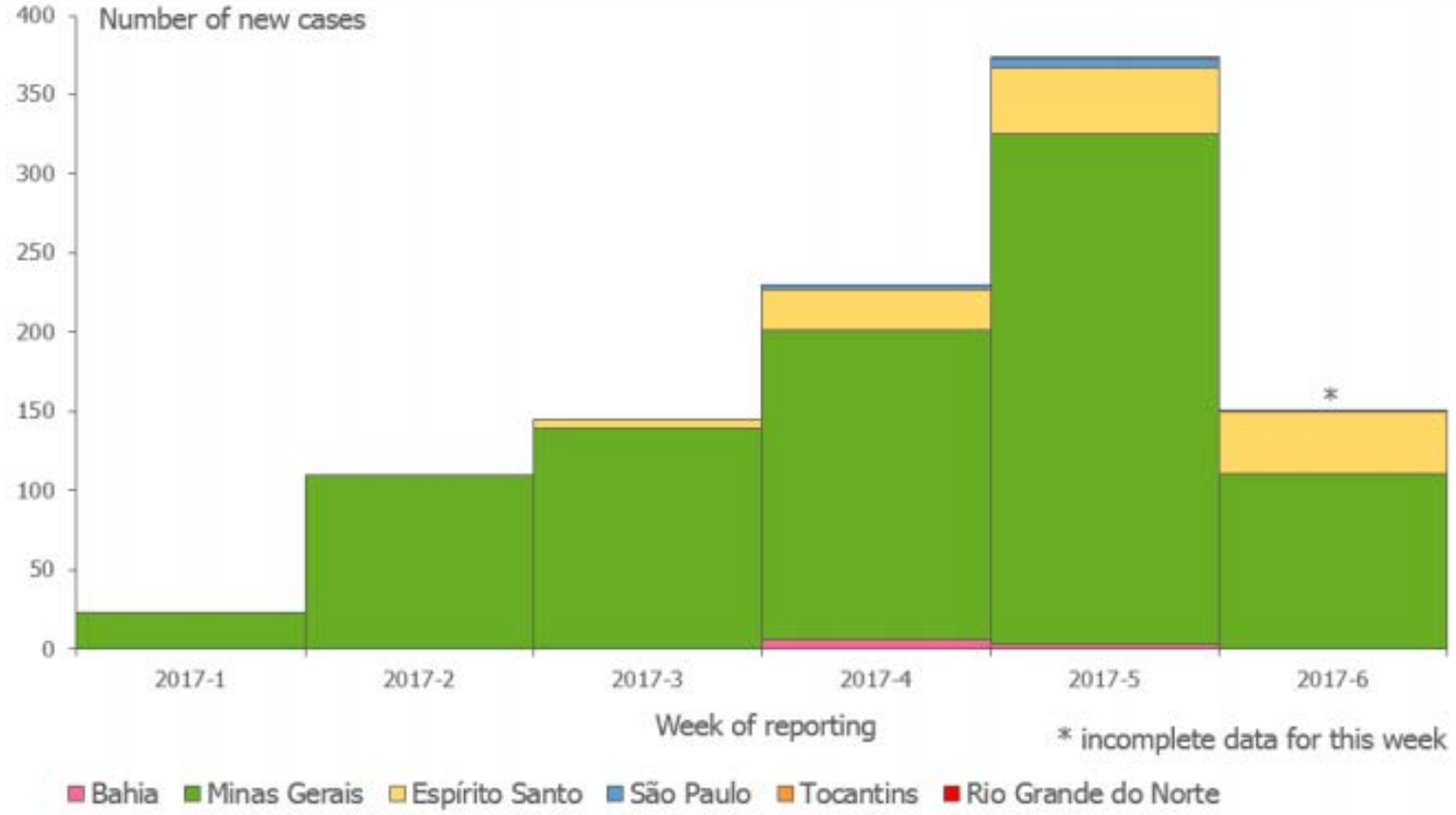
Of the 1,060 cases, 215 are confirmed and 765 remain under investigation, while 80 previously suspected infections have been ruled out. Of the 166 fatalities, 70 have been confirmed. Cases have occurred in Minas Gerais, Espirito Santo, Sao Paulo, Bahia, and Tocantins states. Minas Gerais has been hit the hardest, with 903 suspected and 191 confirmed cases.

Brazil's Ministry of Health has now sent 9.9 million supplemental vaccine doses to five states: Minas Gerais (4.5 million), Espirito Santo (2.5 million), Sao Paulo (1.2 million), Bahia (900,000), and Rio de Janiero (850,000).

Feb 8 Brazilian Ministry of Health update

European Centre for Disease Prevention and Control

Distribution of suspected and confirmed human cases of yellow fever by week, Brazil, as of 9 February 2017



European Centre for Disease Prevention and Control

Distribution of confirmed human cases of locally-acquired yellow fever, Brazil, as of 8 February 2017

World Health Organization

International travel and health

Yellow fever vaccination recommendations for International Travellers related to current situation in Brazil

14 February 2017

This is an update to the WHO advice posted on 31 January 2017.

As of 13 February 2017, yellow fever virus transmission continues to expand towards the Atlantic coast of Brazil in areas not deemed to be at risk for yellow fever transmission prior to the revised risk assessment published by WHO in the Disease Outbreak News of 27 January 2017, and supported by the scientific and technical advisory group on geographical yellow fever risk mapping (GRYF).

The revised risk assessment was based on epidemiological evidence and ecological factors. The expanded areas at risk of yellow fever transmission remain the same as in the Disease Outbreak News of 27 January 2017 and the WHO travel advice of 31 January 2017, and include:

• **Bahia State:** extension of the areas at risk for yellow fever transmission with the inclusion of the following municipalities in the south and south-west of the state: Alcobasa; Belmonte; Canavieiras; Caravelas; Ilheus; Itacare; Mucuri; Nova Visosa; Porto Seguro; Prado; Santa Cruz Cabralia; Una; Urusuca; Almadina; Anage; Arataca; Barra do Chosa; Barro Preto; Belo Campo; Buerarema; Caatiba; Camacan; Candido Sales; Coaraci; CondeUba; Cordeiros; Encruzilhada; Eunapolis; Firmino Alves; Floresta Azul; Guaratinga; Ibicarai; Ibicui; Ibirapua; Itabela; Itabuna; Itagimirim; Itaju do Colonia; Itajuipe; Itamaraju; Itambe; Itanhem; Itape; Itapebi; Itapetinga; Itapitanga; Itarantim; Itororo; Jucurusu; Jussari; Lajedao; Macarani; Maiquinique; Mascote; Medeiros Neto; Nova Canaa; Pau Brasil; Piripa; Planalto; Posoes; Potiragua; Ribeirao do Largo; Santa Cruz da Vitoria; Santa Luzia; São Jose da Vitoria; Teixeira de Freitas; Tremedal; Vereda; Vitoria da Conquista.

REUTERS

HEALTH NEWS | Fri Feb 10, 2017 | 5:31pm EST

Bolivia reports first yellow fever case in a decade

Bolivia's government on Friday said a Danish tourist had tested positive for yellow fever, its first case in a decade, after he visited a jungle area in the far west of the landlocked Andean country.

After an initial stay at a Bolivian hospital, National Health Director Rodolfo Rocabado said the stricken tourist traveled on to Chile for treatment. He also urged Bolivians not to fear an outbreak.

"This person came from another place and was not vaccinated," he told Reuters. "Our population is covered because massive vaccination campaigns have been done."

Yellow fever is a viral disease found in tropical regions of Africa and the Americas that mainly affects humans and monkeys and is transmitted by the same type of mosquito that spreads dengue and the Zika virus.

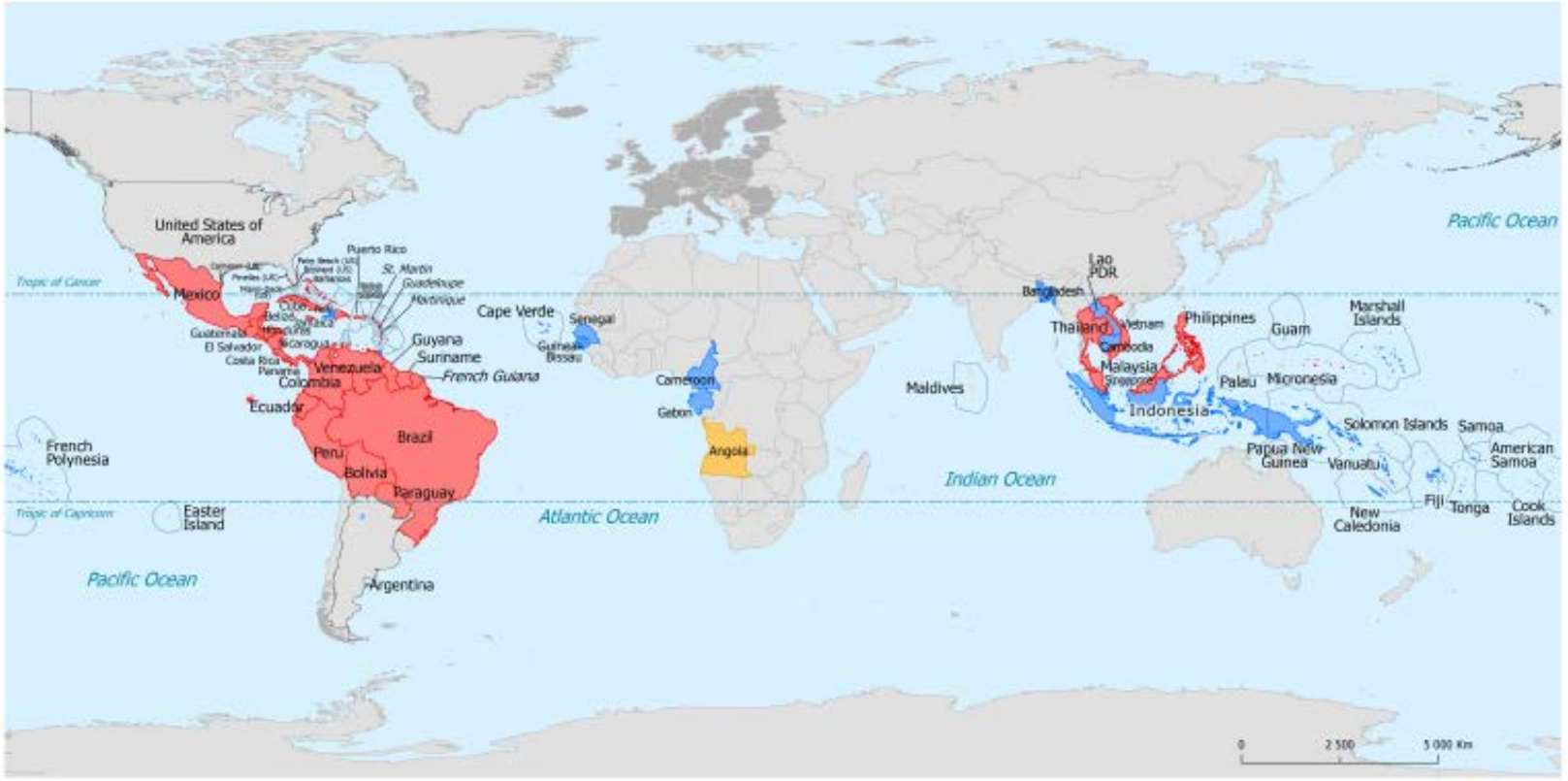
Brazil experienced an outbreak in a rural area earlier this year, leading to 40 confirmed deaths. Brazil has not had an urban outbreak of yellow fever since 1942.

Most people recover from yellow fever after the first phase of infection, which usually involves fever, muscle and back pain, headache, shivers, loss of appetite and nausea or vomiting, according to the World Health Organization.

European Centre for Disease Prevention and Control

Countries or territories with reported confirmed autochthonous cases of Zika virus infection in the past three months, as of 27 January 2017

ECDC



- Widespread transmission in the past three months
- Sporadic transmission in the past three months
- Past transmission (2007 – three months ago)
- *EU/EEA Member States, including outermost regions*
- Other countries and territories
- Maritime Exclusive Economic Zones for non-visible areas

ECDC. Map produced on 27 Jan 2017
Map your data at: https://emma.ecdc.europa.eu

The New York Times

How the Response to Zika Failed Millions

Global Health

By DONALD G. McNEIL Jr. JAN. 16, 2017

Almost a year ago, the World Health Organization declared the Zika epidemic a global health emergency, calling for an epic campaign against a virus that few had ever heard of. As it spread to almost every country in the Western Hemisphere, scientists and health officials at every level of government swung into action, trying to understand how the infection caused birth defects and how it could be stopped.

The W.H.O. ended the emergency status in November, but the consequences of the outbreak will be with us for years to come. So maybe now is a good time to ask: How'd we do?

Not so great, according to more than a dozen public health experts who were asked to reflect on the response. The battle was a series of missed opportunities, they said, that damaged still-uncounted numbers of babies across a whole hemisphere.

"Latin America was pretty much left to its own devices," said Lawrence O. Gostin, director of the O'Neill Institute for National and Global Health Law at Georgetown University. "I didn't see the kind of interactive response like the one that brought Ebola under control."

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CIDRAP Center for Infectious Disease Research and Policy

Studies highlight microcephaly data, Zika spread by breast milk, saliva

Filed Under: Zika

Lisa Schnirring | News Editor | CIDRAP News | Feb 09, 2017

Though Zika outbreak developments have tailed off in recent months, research activity to better understand the risk and spread continues at a brisk pace, with a research team from New York today reporting on baseline microcephaly findings and other groups reporting on the virus in breast milk and in oropharyngeal secretions.

GDragan / iStock

Microcephaly baseline findings

One of the challenges in assessing the link between Zika and microcephaly has been a lack of good information on background estimates for the birth defect. Researchers from New York and the US Centers for Disease Control and Prevention (CDC) recently calculated the background level for that state, using data from 2013 to 2015 before imported cases began to appear in the United States. They reported their findings in the latest issue of *Morbidity and Mortality Weekly Report (MMWR)*.

Two surveillance sources identified a total of 529 suspected microcephaly cases in New York from 2013 to 2015, of which 499 met the case definition. The state's overall prevalence was 7.4 per 10,000 live births, similar to national estimates for 2009 to 2013. For severe microcephaly, the prevalence was 4.2 per 10,000 live births.

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News Scan for Jan 20, 2017

US reports slowdown of new Zika cases

In its weekly Zika update, the Centers for Disease Control and Prevention (CDC) yesterday reported only 34 new cases of the mosquito-borne disease in the United States this week, bringing the total to 4,900.

Of those cases, 4,682 are travel-related and 217 were locally acquired. There are 1,347 pregnant women with confirmed Zika in the United States, and 2,885 such women in US territories.

US territories report a total of 35,527 cases of Zika, 112 more than last week. The vast majority of those cases are in Puerto Rico, where some experts suggest 20% of the population has been exposed to Zika.

Jan 19 CDC Zika update

In other Zika news, a case report published yesterday in *Eurosurveillance* describes Zika virus in the genital tract of a French woman who had traveled to Martinique and Guadeloupe in the summer of 2016. The woman has HIV that is well-controlled; she presented with a rash, pain, and fever 2 days after returning to France. Tests on swab samples revealed Zika virus RNA in vaginal and cervical secretions up to 10 days after symptom onset.

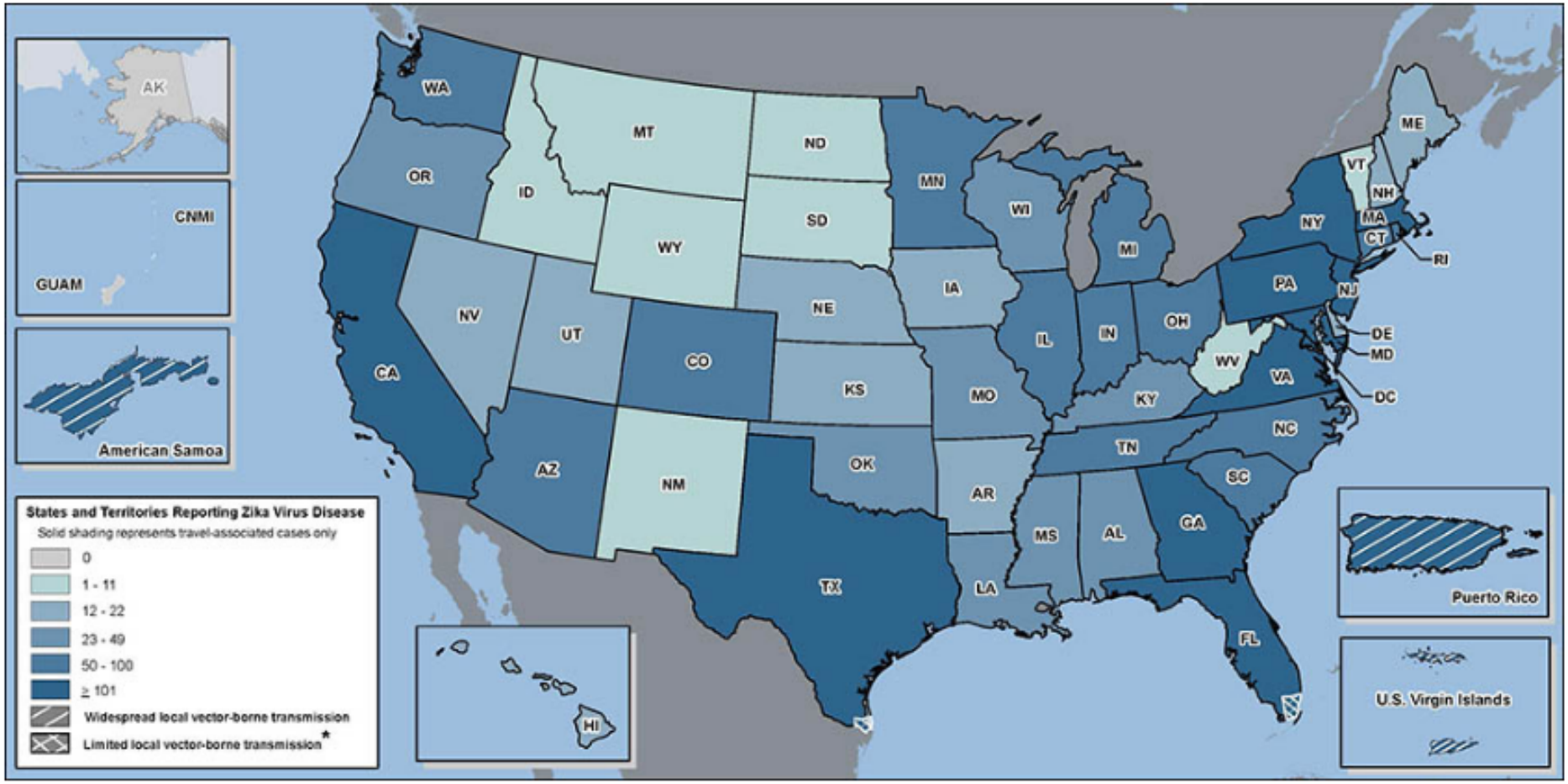
The case provides further evidence of the potential for Zika to be sexually transmitted from females to males via intercourse, though Zika RNA has been detected for much longer periods in semen (up to 6 months).

"Our findings suggest a short period of infectivity of women with acute Zika virus infection through their genital secretions," the authors write. "This short duration of virus shedding in genital secretion may explain why to date only one case of female to male transmission has been reported."

Jan 19 *Eurosurveillance* study

Zika Cases Reported in the United States

Laboratory-confirmed Zika virus disease cases reported to ArboNET by state or territory (as of February 8, 2017)



University of Minnesota

CIDRAP Center for Infectious Disease Research and Policy

Animal trial shows promise for Zika mRNA vaccine

Filed Under: Zika

Lisa Schnirring | News Editor | CIDRAP News | Feb 02, 2017

Scientists today reported that a messenger RNA (mRNA)-based Zika vaccine induced strong and durable protection in animals with a single dose, the first to show that level of protection without using a live virus.

vkovalcik / iStock

Post-vaccine antibodies stay high

The vaccine contains mRNA coding two key proteins from a Zika virus isolated in a 2013 outbreak. A team from the University of Pennsylvania, Duke University, and the National Institutes of Health reported its findings today in *Nature*.

Mice and monkeys injected with a single dose of the vaccine developed rapid and strong protection: mice 2 weeks later and macaques 5 weeks later. Mice still showed protection 5 months after vaccination. For both sets of animals, antibody levels peaked after several weeks and remained high, which researchers said is the result of strong stimulation of CD4 helper T cells.

The group said the mRNA approach may have advantages over other candidate Zika vaccines. For example, those containing live or attenuated viruses would likely be contraindicated in those with weakened immune systems, and modified adenovirus-based approaches might prompt an immune response that neutralizes the viruses before they deliver their protective Zika proteins.

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News Scan for Feb 06, 2017

PAHO reports only 123 new chikungunya case

Continuing a slow start to 2017, the Pan American Health Organization (PAHO) on Feb 3 reported only 123 new chikungunya cases, bringing the yearly total so far to 582 cases.

Most of the new cases were in Peru and Colombia. Peru reported 47 new infections, to reach 98 cases for the year, while Colombia notched 39 new cases to bring its 2017 total to 106. Costa Rica had 21 new infections and 48 total. In addition, Ecuador (9 cases), Nicaragua (6), and Mexico (1) all reported their first cases, bringing to eight the number of chikungunya-affected nations that have reported case numbers to PAHO.

The outbreak began in late 2013 on the Caribbean island of St. Martin and has now sickened at least 2,387,300 people.

Feb 3 PAHO update

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News Scan for Feb 14, 2017

PAHO reports 126 new chikungunya case

Reports of new chikungunya cases continue to trickle in, as the Pan American Health Organization (PAHO) on Feb 10 reported only 126 new cases, bringing the yearly total so far to 708 cases.

Most of the new cases were in the Andean region, with Colombia, Peru, and Venezuela all reporting new cases. Columbia reported 31 new cases, bringing the country's total to 137. Peru added 50 more cases to reach 148 for 2017, and Venezuela had 12 new cases. Venezuela now has 23 suspected or confirmed chikungunya cases.

Last week, Mexico reported its first case of chikungunya for the year, and this week added two more to the case count this week. Puerto Rico also reported its first case this week. There are now nine countries reporting chikungunya activity to the PAHO in 2017.

The outbreak began in late 2013 on the Caribbean island of St. Martin and has now sickened at least 2,387,426 people.

Feb 10 PAHO update

PLOS | NEGLECTED TROPICAL DISEASES

Unrecognized Emergence of Chikungunya Virus during a Zika Virus Outbreak in Salvador, Brazil

Cristiane W. Cardoso, Mariana Kikuti, Ana Paula P. B. Prates, Igor A. D. Paploski, Laura B. Tauro, Monaise M. O. Silva, Perla Santana, Marta F. S. Rego, Mitermayer G. Reis, Uriel Kitron, Guilherme S. Ribeiro

Version 2 ▾ Published: January 23, 2017 • http://dx.doi.org/10.1371/journal.pntd.0005334

Abstract

Background

Chikungunya virus (CHIKV) entered Brazil in 2014, causing a large outbreak in Feira de Santana, state of Bahia. Although cases have been recorded in Salvador, the capital of Bahia, located ~100 km of Feira de Santana, CHIKV transmission has not been perceived to occur epidemically, largely contrasting with the Zika virus (ZIKV) outbreak and ensuing complications reaching the city in 2015.

Methodology/Principal Findings

This study aimed to determine the intensity of CHIKV transmission in Salvador between November 2014 and April 2016. Results of all the CHIKV laboratory tests performed in the public sector were obtained and the frequency of positivity was analyzed by epidemiological week. Of the 2,736 tests analyzed, 456 (16.7%) were positive. An increasing in the positivity rate was observed, starting in January/2015, and peaking at 68% in August, shortly after the exanthematous illness outbreak attributed to ZIKV.

1. **Influenza**
   - Avian
   - Human
2. **Vectorborne diseases**
   - Yellow Fever, Zika, Chikungunya
3. **MERS-CoV**
4. **Antimicrobial resistance**
5. **CEPI**
6. **Ebola**
7. **Global Health leaders**
8. **Other**
   - Trump Administration
   - Other topics

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News Scan for Feb 01, 2017

MERS in Pakistani camels expands range to Asia

Dromedary camels are known reservoirs for MERS-CoV, or Middle East respiratory syndrome coronavirus. In *Emerging Infectious Diseases*, researchers report that 39% of all camels tested in Pakistan had neutralizing antibodies against MERS-CoV, which means there is a risk of human exposure and transmission.

One-humped camels are widely found in Africa, the Middle East, and parts of Asia. In Saudi Arabia, they've been linked to several hundreds of cases of MERS-CoV in humans, but evidence the virus has not been previously found in Asian dromedary camels. In this study, researchers analyzed serum samples from 565 camels (median age 5 years) from nine regions in Pakistan. According to researchers, the rate of neutralizing antibody–positive camel samples ranged from 82.9% in Rahim Yar Khan to 24.1% in the Jhang district. The samples were collected from 2012 to 2015.

Pakistan is home to more than 1 million dromedary camels and neighbors India's Rajasthan state, also home to a large population of camels.

Jan 31 *Emerg Infect Dis* study

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News Scan for Feb 06, 2017

Officials confirm 2 MERS cases in Saudi Arabia, 1 death

The Saudi Arabian Ministry of Health (MOH) reported two new MERS cases and one death in the past few days.

On Feb 3 the MOH reported that a 54-year-old male expatriate in Najran was in stable condition after presenting with symptoms of MERS-CoV (Middle East respiratory syndrome coronavirus) infection. The source of his infection is listed as primary, meaning he did not contract the disease from another person. The same day, the MOH said a 68-year-old man in Taif had died from the respiratory infection. He had preexisting illness.

Today the MOH said a 45-year-old male expatriate in Medina was also in stable condition after being diagnosed as having MERS. His infection is also listed as "primary."

The new cases raise Saudi Arabia's MERS-CoV total to 1,552 infections, including 644 deaths. Nine people are still in treatment or monitoring.

Feb 3 MOH report
Feb 6 MOH report

University of Minnesota

CIDRAP Center for Infectious Disease Research and Policy

Saudi Arabia reports more MERS cases; WHO announces Buraydah outbreak over

Filed Under: MERS-CoV

Stephanie Soucheray | News Reporter | CIDRAP News | Feb 13, 2017

M&R Glasgow/ Flickr cc

The Saudi Arabian Ministry of Health (MOH) reported three new MERS-CoV cases over the weekend and two deaths, while the World Health Organization (WHO) released details on 17 cases of MERS, noting that a small healthcare-associated outbreak in Buraydah was officially over.

New cases connected to camels

On Saturday, the MOH said an 80-year-old Saudi man from Al Asyah was diagnosed as having MERS-CoV (Middle East respiratory syndrome coronavirus) illness. He is in stable condition after presenting with symptoms of the virus. The MOH said that the man had direct contact with camels.

Today another patient, a 71-year-old Saudi man from Al Makhwah, was also diagnosed with MERS-CoV after having direct contact with camels. He is currently in critical condition. Also today, a 53-year-old Saudi man from Khaybar was listed in critical condition. The source of his infection is listed as primary, meaning he did not contract the disease from another person.

On Friday, the MOH reported the passing of two previously reported MERS-CoV patients: A 59-year-old Saudi man from Turubah and a 60-year-old expatriate man from Mecca.

World Health Organization

Emergencies preparedness, response

Middle East respiratory syndrome coronavirus (MERS-CoV) – Saudi Arabia

Disease outbreak news
10 February 2017

Between 10 January and 3 February 2017 the National International Health Regulations Focal Point of Saudi Arabia reported seventeen (17) additional cases of Middle East Respiratory Syndrome (MERS) including four (4) fatal cases. Three (3) deaths among previously reported MERS cases (case no. 1 and 2 in DON published on 26 January 2017 and case no. 6 in DON published on 17 January 2017) were also reported.

Detailed information concerning these cases can be found in a separate document (see link below). One of the cases reported is a health care worker (case no. 5). The limited outbreak in Buridah, Saudi Arabia reported in the previous DON (published on 26 January 2017) is now over. A total of 6 cases were linked to this hospital outbreak. All contacts have been followed for the 14 day period and no further cases have been identified.

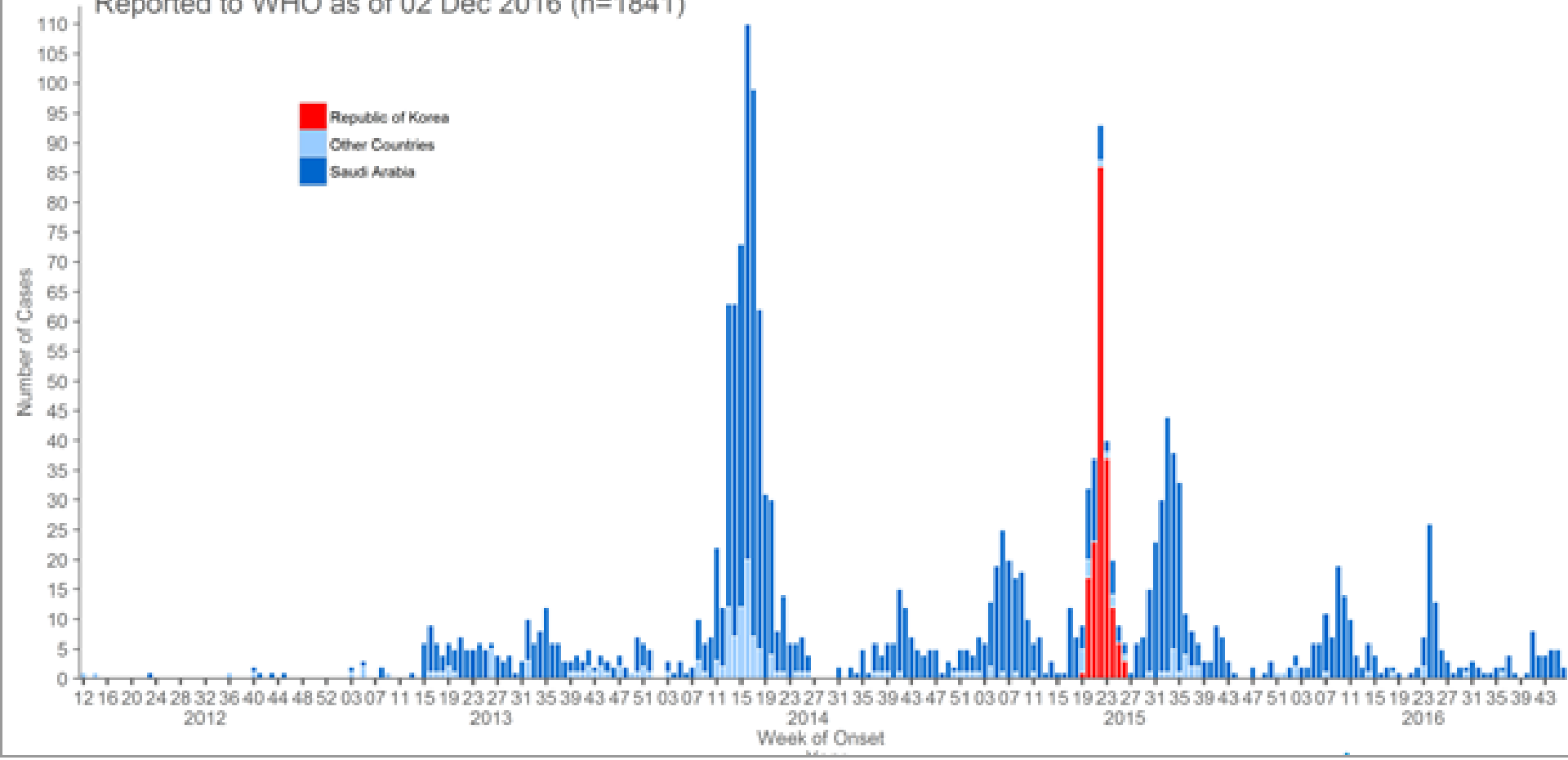
Globally, since September 2012, 1905 laboratory-confirmed cases of infection with MERS-CoV including at least 677 related deaths have been reported to WHO.

MERS-CoV cases reported between 10 January and 3 February 2017
xlsx, 17kb

World Health Organization

Confirmed global cases of MERS-CoV

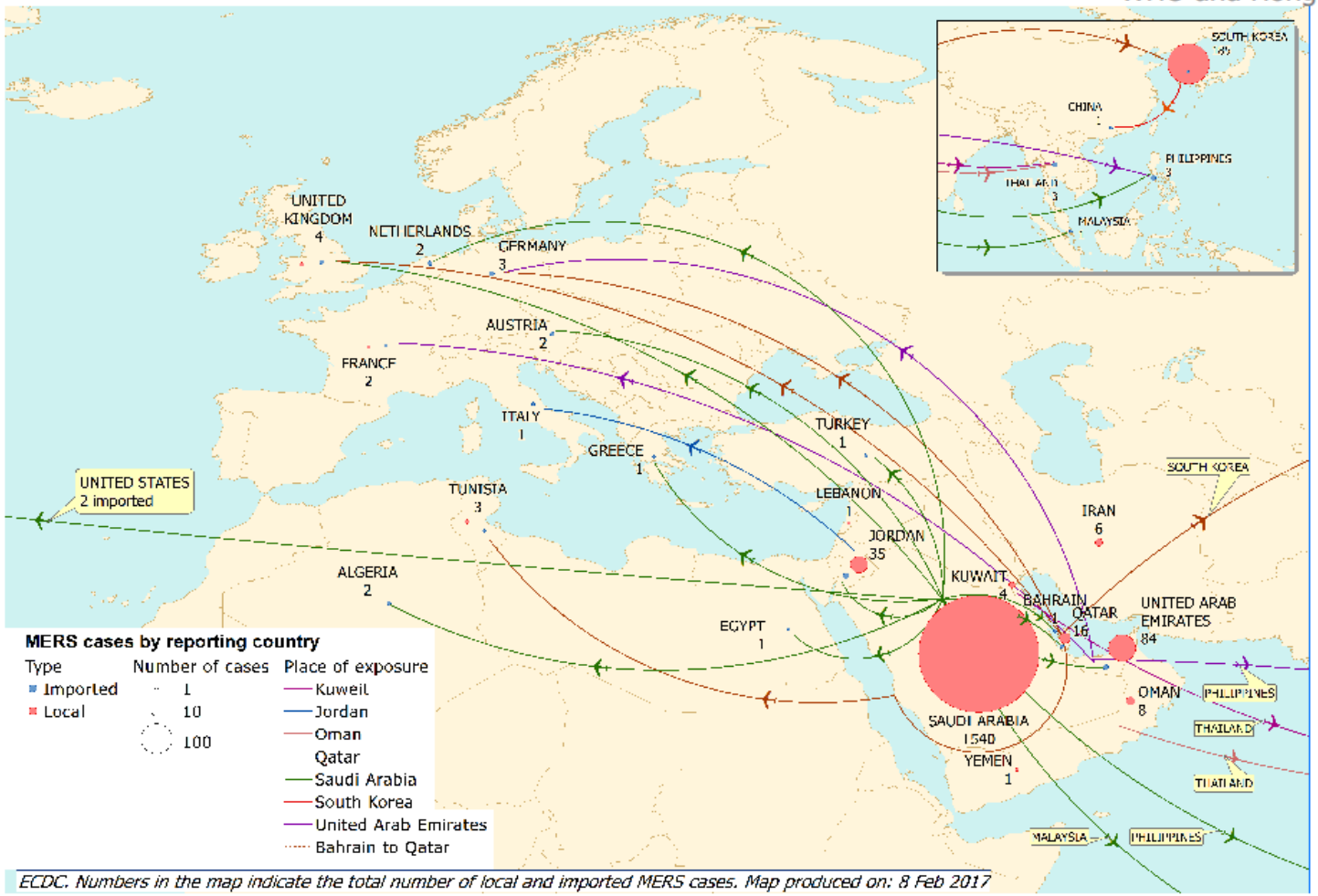
Reported to WHO as of 02 Dec 2016 (n=1841)



European Centre for Disease Prevention and Control

Distribution of confirmed cases of MERS-CoV by probable place of infection and country of reporting, March 2012 – 8 February 2017 (n=1 913)

WHO and Hong Kong



ECDC. Numbers in the map indicate the total number of local and imported MERS cases. Map produced on: 8 Feb 2017

1. **Influenza**
   - Avian
   - Human
2. **Vectorborne diseases**
   - Yellow Fever, Zika, Chikungunya
3. **MERS-CoV**
4. **Antimicrobial resistance**
5. **CEPI**
6. **Ebola**
7. **Global Health leaders**
8. **Other**
   - Trump Administration
   - Other topics

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Shigella in gay men growing more antibiotic resistant

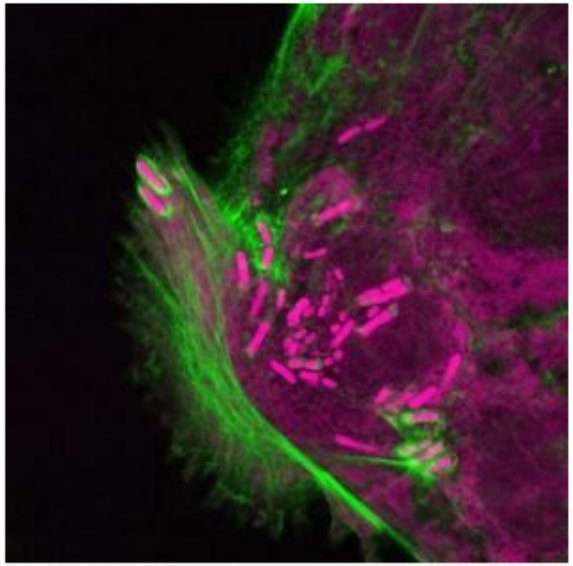
Filed Under: Shigella; Antimicrobial Stewardship

Chris Dall | News Reporter | CIDRAP News | Jan 10, 2017

Nearly a quarter of *Shigella* isolates tested in New York City showed decreased susceptibility or resistance to recommended antibiotics, and most of those infections were among gay men, researchers reported today in *Emerging Infectious Diseases*.

For the study, investigators from the Centers for Disease Control and Prevention (CDC) and the New York City Department of Health and Mental Hygiene performed susceptibility testing on 978 *Shigella* isolates submitted to New York public health laboratories from March 2013 through May 2015; 295 of those isolates were linked to an outbreak and analyzed separately, and 683 were defined as sporadic.

Among the patients with sporadic infections, 129 (19%) were infected with isolates showing decreased susceptibility to azithromycin (DSA), while 29 (4%) were infected with ciprofloxacin-resistant isolates and 5 isolates displayed both characteristics.



S. Schuller, Wellcome Images / Flickr cc

Micrograph shows intestinal cells infected with Shigella, in bright pink.

University of Minnesota

CIDRAP Center for Infectious Disease Research and Policy

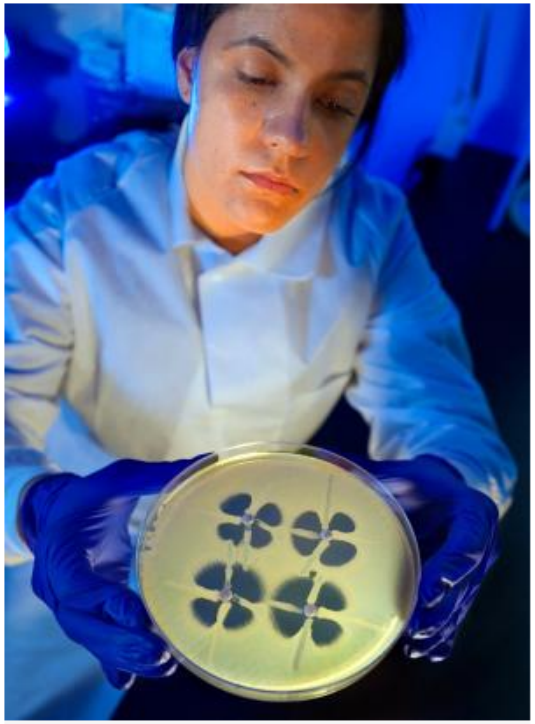
Study: CRE could be spreading more widely than we think

Filed Under: Antimicrobial Stewardship

Chris Dall | News Reporter | CIDRAP News | Jan 17, 2017

One of the most urgent antibiotic resistance threats may be even more crafty and capable of spreading than suspected, according to a new study.

The research, published yesterday in the *Proceedings of the National Academy of Sciences*, indicates that carbapenem-resistant Enterobacteriaceae (CRE), a family of bacteria that are resistant to several classes of antibiotics and can cause severe and sometimes deadly infections, are more diverse, have more resistance mechanisms, and are more capable of increasing the spread of resistance than previously thought. And while CRE are known for causing outbreaks in hospitals, the study suggests they may be able to fly under the radar in both community and healthcare settings.



CDC

A CDC microbiologist holds a plate demonstrating the modified Hodge test, which is used to identify resistant Enterobacteriaceae.

Greater diversity of species, resistance mechanisms

For the study, researchers collected and genetically sequenced more than 250 CRE isolates that caused disease in three hospitals in the Boston area and one hospital in Irvine, California, over a 16-month period in 2012 and 2013. The isolates came from patient blood, wound, respiratory tract, and urine samples.

University of Minnesota

CIDRAP Center for Infectious Disease Research and Policy

Studies show spread of MCR-1 gene in China

Filed Under: MCR-1; Antimicrobial Stewardship

Chris Dall | News Reporter | CIDRAP News | Jan 27, 2017

Two studies today in *The Lancet Infectious Diseases* indicate that a gene that can confer resistance to the last-resort antibiotic colistin has spread widely in clinical settings in China.

Walter Reed Army Institute of Research

Culture of E coli with MCR-1 gene.

The gene, known as MCR-1, was first identified in China in November 2015 in *Escherichia coli* samples from pigs, pork products, and a handful of human cases. It has since been detected in more than 30 countries, including the United States. The emergence of the resistance gene was believed to be connected to widespread use of colistin in Chinese agriculture. China banned use of the drug in animal feed in 2016, based in part on the findings of that study.

Though there have been few cases so far of human infections involving the gene—which has mostly been found in animals—MCR-1 has become a significant public health concern because colistin is one of the few antibiotics left that can be used to treat multidrug-resistant infections. And because the gene is carried on mobile pieces of DNA called plasmids, it can be passed not only to different strains within a single family of bacteria—such as *E coli*—but also to different types of bacteria.

UNIVERSITY OF MINNESOTA

CIDRAP Center for Infectious Disease Research and Policy

Report: Antibiotic resistance rising in Europe

Filed Under: Klebsiella; Antimicrobial Stewardship; E coli
Chris Dall | News Reporter | CIDRAP News | Feb 01, 2017

grThirteen / iStock

A new report on antimicrobial resistance from the European Centre for Disease Prevention and Control (ECDC) shows rising resistance to broad-spectrum antibiotics and multiple classes of antibiotics across Europe.

The annual report, based on data from 30 countries that report to the European Antimicrobial Resistance Surveillance Network (EARS-Net), is highlighted by an upward trend in resistance seen in gram-negative bacteria, particularly *Escherichia coli* and *Klebsiella pneumoniae*. The trends are seen in both individual member states and at the European Union/European Economic Area (EU/EEA) level.

K pneumoniae is a common cause of urinary tract, respiratory tract, and bloodstream infections in healthcare settings. *E coli* is the most frequent cause of urinary tract and bloodstream infections in Europe, and is commonly found both in healthcare and community settings.

The authors of the report call the findings on gram-negative bacteria "an especially worrying situation." A 2009 ECDC analysis estimated that drug-resistant bacteria were responsible for 25,000 deaths in Europe annually. With resistance levels rising, the authors write, that number is now likely to be considerably higher.

University of Minnesota

CIDRAP Center for Infectious Disease Research and Policy

Malaria resistance: Cases in UK, mosquitoes in Africa

Filed Under: Antimicrobial Stewardship; Malaria

Chris Dall | News Reporter | CIDRAP News | Feb 02, 2017

Researchers in the United Kingdom report that a frontline drug combination for the treatment of uncomplicated malaria failed in four patients, a finding they say raises concerns about reduced susceptibility to recommended therapy for the disease.

Meanwhile, a separate study suggests that a gene that enables malaria-carrying mosquitoes to resist insecticides has spread throughout southern Africa.

The case studies, reported this week in *Antimicrobial Agents and Chemotherapy*, describe the treatment of four patients (two male, two female) diagnosed as having malaria caused by the *Plasmodium falciparum* parasite after returning from trips to Angola, Liberia, and Uganda in late 2015 and early 2016. Most malaria cases in the UK involve people who've traveled to Africa, where the disease is endemic.

Jhpiego / D. Burke, President's Malaria Initiative

A second study suggests that a gene that enables malaria-carrying mosquitoes to resist insecticides has spread throughout southern Africa.

The patients were all treated with artemether-lufemantrine, an artemisinin-based combination therapy (ACT) that the World Health Organization (WHO) recommends as the first-line treatment for uncomplicated malaria. All the patients recovered within a few days, and were discharged once their blood showed no remaining signs of the parasite.

OPEN ACCESS Freely available online

PLoS one

Antibiotic Resistance Is Prevalent in an Isolated Cave Microbiome

Kirandeep Bhullar[1], Nicholas Waglechner[1], Andrew Pawlowski[1], Kalinka Koteva[1], Eric D. Banks[2], Michael D. Johnston[2], Hazel A. Barton[2], Gerard D. Wright[1]*

1 M.G. DeGroote Institute for Infectious Disease Research, Department of Biochemistry and Biomedical Sciences, McMaster University, Hamilton, Ontario, Canada, **2** Department of Biology, University of Akron, Akron, Ohio, United States of America

Abstract

Antibiotic resistance is a global challenge that impacts all pharmaceutically used antibiotics. The origin of the genes associated with this resistance is of significant importance to our understanding of the evolution and dissemination of antibiotic resistance in pathogens. A growing body of evidence implicates environmental organisms as reservoirs of these resistance genes; however, the role of anthropogenic use of antibiotics in the emergence of these genes is controversial. We report a screen of a sample of the culturable microbiome of Lechuguilla Cave, New Mexico, in a region of the cave that has been isolated for over 4 million years. We report that, like surface microbes, these bacteria were highly resistant to antibiotics; some strains were resistant to 14 different commercially available antibiotics. Resistance was detected to a wide range of structurally different antibiotics including daptomycin, an antibiotic of last resort in the treatment of drug resistant Gram-positive pathogens. Enzyme-mediated mechanisms of resistance were also discovered for natural and semi-synthetic macrolide antibiotics via glycosylation and through a kinase-mediated phosphorylation mechanism. Sequencing of the genome of one of the resistant bacteria identified a macrolide kinase encoding gene and characterization of its product revealed it to be related to a known family of kinases circulating in modern drug resistant pathogens. The implications of this study are significant to our understanding of the prevalence of resistance, even in microbiomes isolated from human use of antibiotics. This supports a growing understanding that antibiotic resistance is natural, ancient, and hard wired in the microbial pangenome.

Citation: Bhullar K, Waglechner N, Pawlowski A, Koteva K, Banks ED, et al. (2012) Antibiotic Resistance Is Prevalent in an Isolated Cave Microbiome. PLoS ONE 7(4): e34953. doi:10.1371/journal.pone.0034953

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Urgent Threats

- *Clostridium difficile*
- Carbapenem-resistant Enterobacteriaceae (CRE)
- Drug-resistant *Neisseria gonorrhoeae*

Serious Threats

- Multidrug-resistant *Acinetobacter*
- Drug-resistant *Campylobacter*
- Fluconazole-resistant *Candida* (a fungus)
- Extended spectrum β-lactamase producing Enterobacteriaceae (ESBLs)
- Vancomycin-resistant *Enterococcus* (VRE)
- Multidrug-resistant *Pseudomonas aeruginosa*
- Drug-resistant Non-typhoidal *Salmonella*
- Drug-resistant *Salmonella* Typhi
- Drug-resistant *Shigella*
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Drug-resistant *Streptococcus pneumoniae*
- Drug-resistant tuberculosis

Concerning Threats

- Vancomycin-resistant *Staphylococcus aureus* (VRSA)
- Erythromycin-resistant Group A *Streptococcus*
- Clindamycin-resistant Group B *Streptococcus*

Review on Antimicrobial Resistance

Tackling drug-resistant infections globally

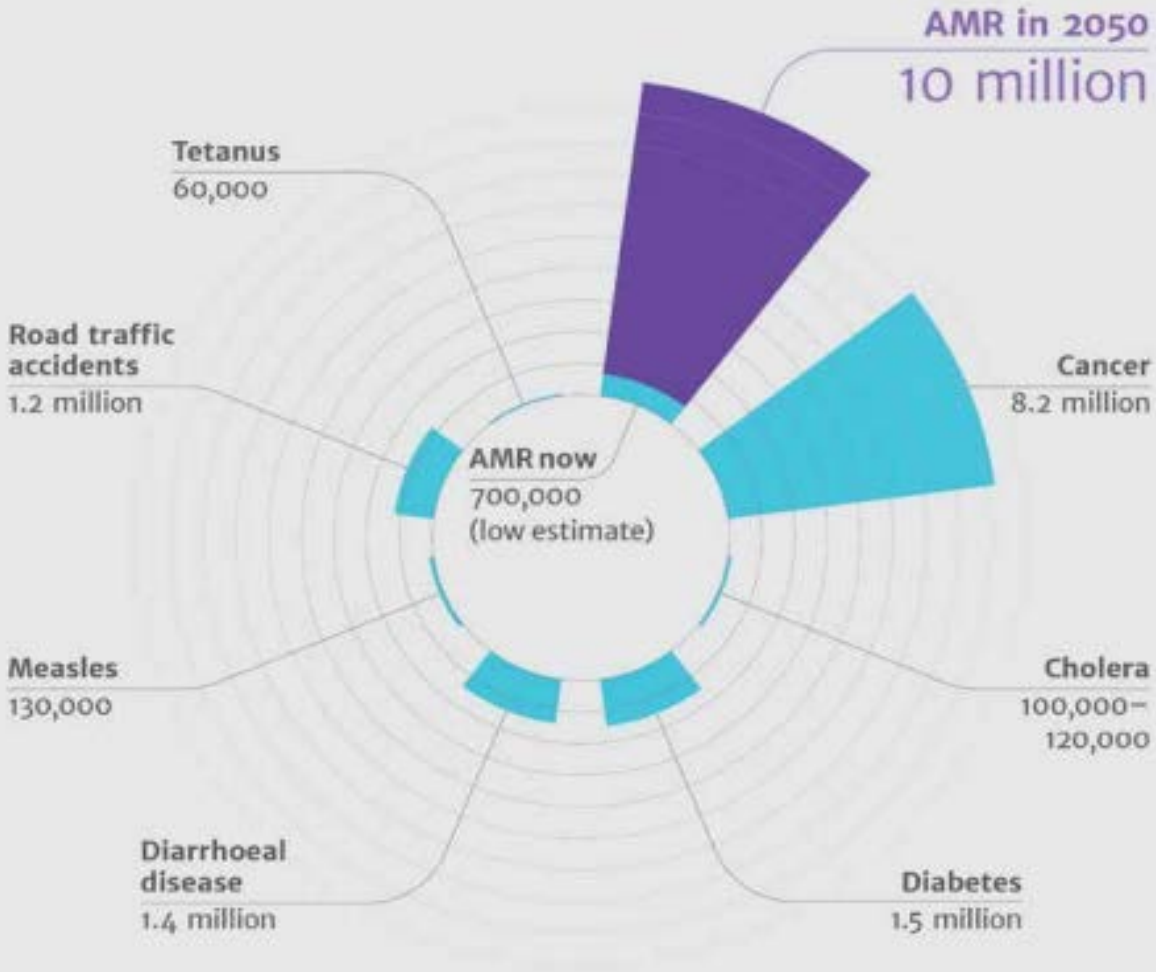
TACKLING DRUG-RESISTANT INFECTIONS GLOBALLY:
AN OVERVIEW OF OUR WORK

THE REVIEW ON ANTIMICROBIAL RESISTANCE

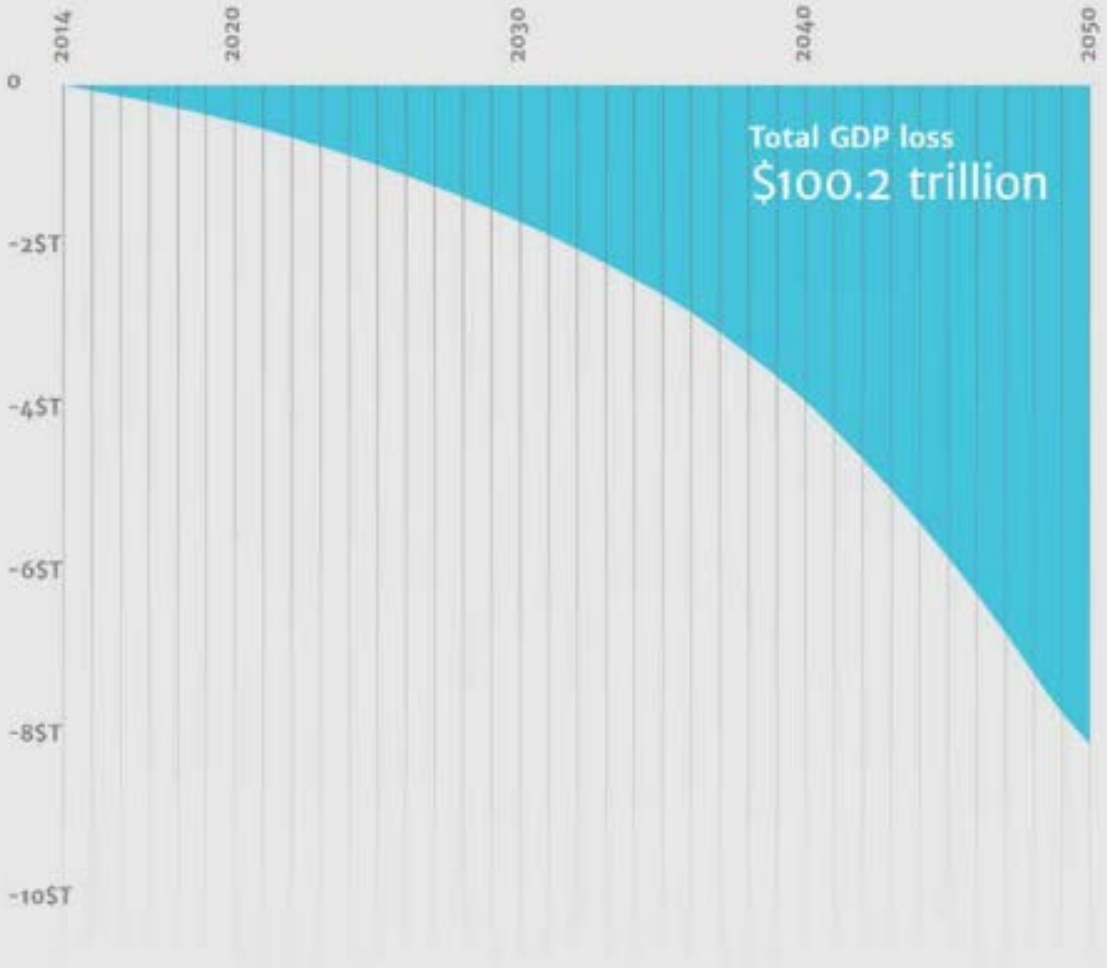
CHAIRED BY JIM O'NEILL

FEBRUARY 2016

Deaths attributable to AMR every year compared to other major causes of death



AMR's impact on World GDP
in trillions of USD



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4. **Antimicrobial resistance**
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6. **Ebola**
7. **Global Health leaders**
8. **Other**
   - Trump Administration
   - Other topics

BBC

Vaccines for three deadly viruses fast-tracked

By Tulip Mazumdar

18 January 2017 | Health

A coalition of governments and charities has committed $460m to speed up vaccine development for Mers, Lassa fever and Nipah virus.

They are asking funders at the World Economic Forum Davos for another $500m.

The Coalition for Epidemic Preparedness Innovations (Cepi) aims to have two new experimental vaccines ready for each disease within five years.

New vaccines usually take about a decade to develop and cost hundreds of millions of dollars.

The Ebola outbreak in West Africa, closely followed by the Zika epidemic in Latin America, exposed just how "tragically unprepared" the world is for new outbreaks.

Jeremy Farrar, director of the Wellcome Trust, one of the founding members of Cepi, said: "Before the 2014 outbreak we only had very small Ebola epidemics that were in isolated communities that we were able to control.

"But in the modern world with urbanisation and travel, 21st Century epidemics could start in a big city and then take off the way Ebola did in West Africa.

TIME

PUBLIC HEALTH

This New Group Wants to Stop Pandemics Before They Start

Alexandra Sifferlin
Jan 19, 2017

Global epidemics tend to follow an unfortunate pattern: An emerging disease—like Zika or Ebola—infects thousands of people, but vaccines and drugs are not developed fast enough to be of any real benefit. This week, a global group called the Coalition for Epidemic Preparedness Innovations (CEPI) launched with significant funding and the aim to develop vaccines for known infectious disease threats. The goal is to have vaccines ready before an epidemic starts.

CEPI was announced Wednesday at the World Economic Forum in Davos, Switzerland, with initial funding of $460 million from the governments of Germany, Japan and Norway, as well as the Bill & Melinda Gates Foundation and the Wellcome Trust. The group hopes to shorten the amount of time it takes to develop new vaccines for emerging diseases by embracing innovative vaccine technology and funding labs that are able to respond quickly to outbreaks.

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News Scan for Feb 13, 2017

New study describes role of Ebola super-spreaders

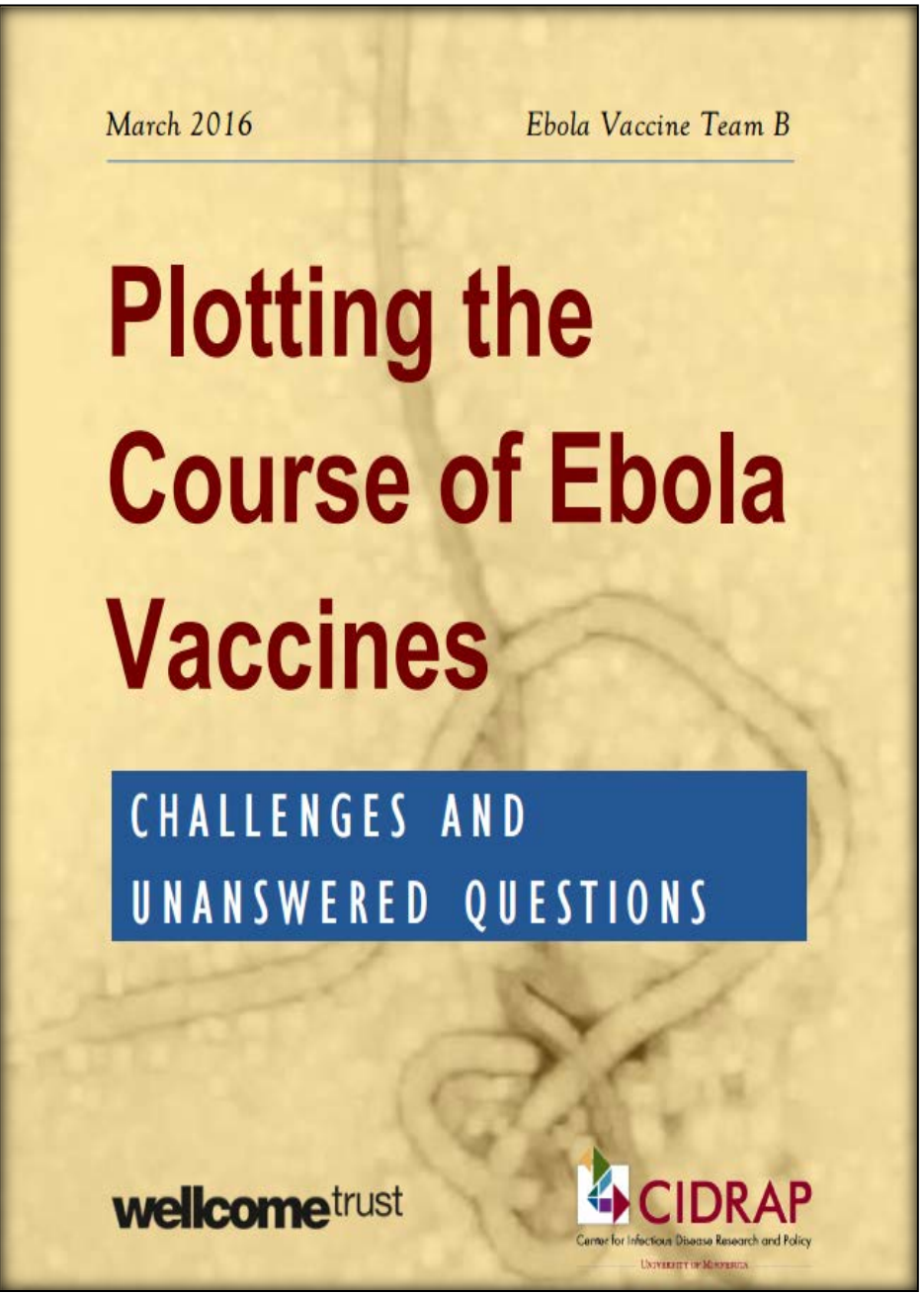
A new study in the *Proceedings of the National Academy of Sciences (PNAS)* says that super-spreaders likely transmit up to 61% of Ebola virus cases.

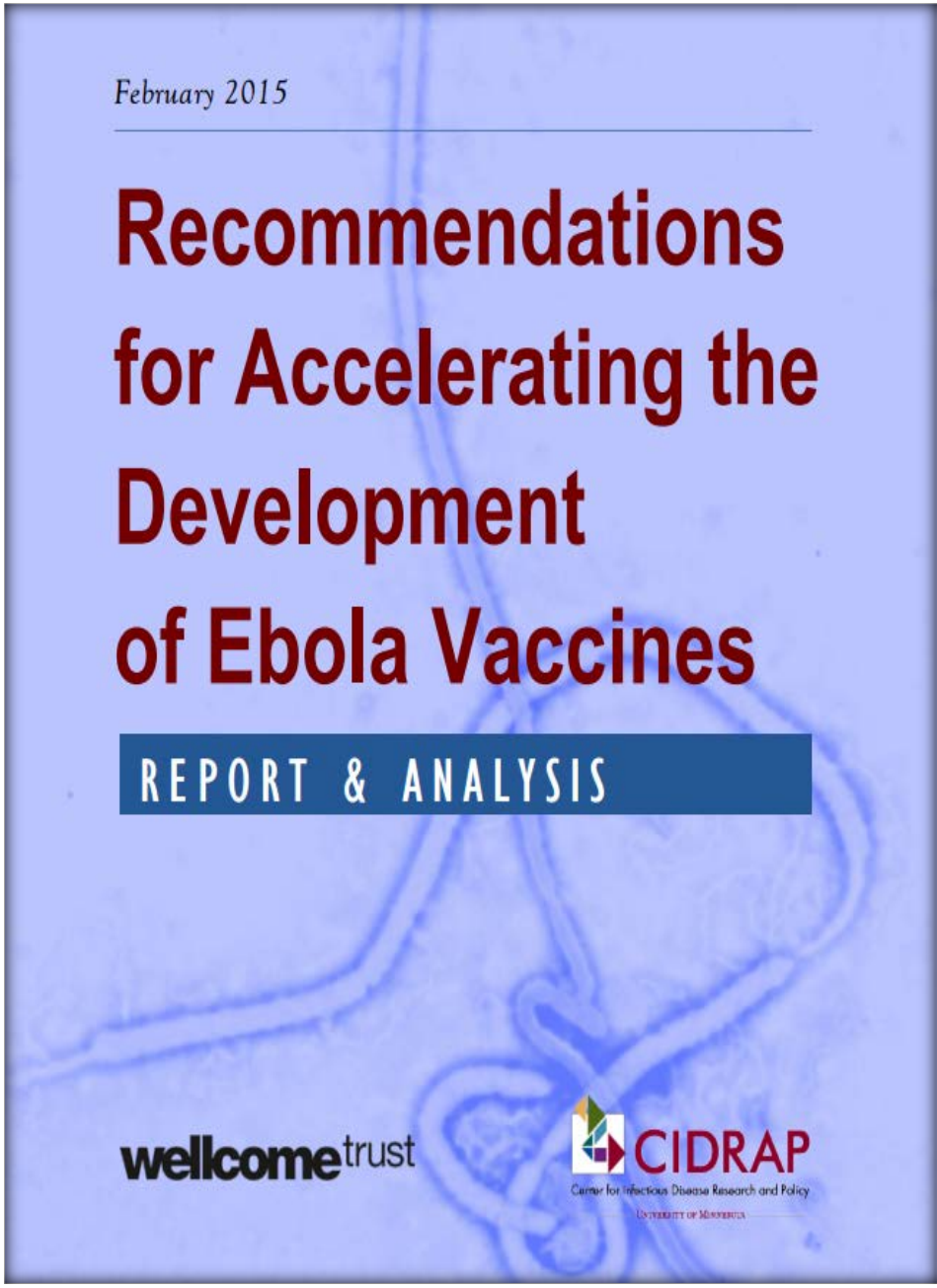
Though the "super-spreader" phenomenon, where certain patients disproportionately transmit the disease to others, is well-known in viruses such as SARS or MERS-CoV, it has not been studied in Ebola virus. To do so, researchers used outbreak data from Sierra Leone to build a model that showed the effect super-spreaders had on Ebola transmission.

The authors looked at data collected from Ebola treatment centers from October of 2014 through March of 2015. They found the basic reproductive number, or the number of cases one patient infected in a naive population, was 2.39. The average incubation period was 6.74 days.

A key driver in super-spreading was age. Patients younger than 15 and older than 45 years were more likely to spread the disease. The authors suggested that these patients were more likely to have increased contact in households and with caregivers, and were particularly dangerous in the early days of incubation.

"A substantial proportion of secondary cases were either direct or indirect descendants of a small number of super-spreaders, underscoring the importance of super-spreading in driving the epidemic – that is, had the super-spreaders been identified and quarantined promptly," the authors write.
Feb 13 *PNAS* study


March 2016
Ebola Vaccine Team B
Plotting the Course of Ebola Vaccines
CHALLENGES AND UNANSWERED QUESTIONS
wellcome trust
CIDRAP
Center for Infectious Disease Research and Policy


February 2015
Recommendations for Accelerating the Development of Ebola Vaccines
REPORT & ANALYSIS
wellcome trust
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January 2017

Ebola Vaccine Team B

Completing the Development of Ebola Vaccines

CURRENT STATUS, REMAINING CHALLENGES, AND RECOMMENDATIONS

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STAT

HEALTH

A guide to the selection of the new head of the World Health Organization

By HELEN BRANSWELL *@HelenBranswell*

JANUARY 23, 2017

The process of choosing the next director-general of the World Health Organization starts in earnest this week. While the final selection won't be made until May, the current field of six will shrink to five, then no more than three before the week is out.

If you haven't been paying much attention up until now, you're not alone. With Brexit and the US election, this campaign has been getting little attention.

So let's explore the three Ps — the people, the process, and the predictions.

Who wants to lead the WHO?

Four Europeans, one African, and one South Asian are vying to succeed Dr. Margaret Chan, whose second term as WHO director-general ends on June 30. (Directors-general can only serve two five-year terms. Chan, who was nominated by China, served a little longer because her predecessor, J.W. Lee of South Korea, died before his term ended.)

STAT

FIRST OPINION

Here's how the next director-general can rebuild the World Health Organization

By ED WHITING

JANUARY 23, 2017

Nearly nine months have passed since the last Ebola patient was declared free of the disease in West Africa. Yet one body — the World Health Organization — is still ailing, stung by criticism that it responded slowly to that local and global emergency.

Despite encouraging signs that it learned valuable lessons from the Ebola outbreak, faith in the WHO hasn't yet fully returned. The organization has been chronically underfunded for years, and its outdated structure has resisted reform over many decades. This has led to a vicious spiral of underachievement.

The WHO needs to lead on global health — and its member states must allow it to do so. But its problems are undermining its position as the global leader responsible for moving the world toward a better, healthier future.

STAT

HEALTH

Bill and Melinda Gates make the case for vaccines — and US engagement in global health

By HELEN BRANSWELL *@HelenBranswell*

FEBRUARY 14, 2017

Bill and Melinda Gates' annual letter about the work of their philanthropic foundation is styled as a report to Warren Buffett, the business tycoon who has donated billions to their endeavor.

But reading between the lines of the report, which was released Tuesday, leaves the impression these philanthropists — among the world's wealthiest people — are making a subtle effort to influence the Trump administration's thinking on the value of global development and international aid.

The letter stresses the importance of vaccines, calling them one of the best deals in global health spending. It also emphasizes how critical it is that women around the world have access to effective contraception, saying family planning lowers child mortality and enables countries to emerge from poverty.

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THE LANCET

Editorial

Free speech and facts in the Trump era

AP Image

See Perspectives page 497

For The Lancet's United States of Health hub see http://www.thelancet.com/us-health

For more on calls for scientists working with US Government to begin backing up data see https://www.scientificamerican.com/article/canadian-scientists-warn-u-s-colleagues-act-now-to-protect-science-under-trump/

Days into his presidency, Donald Trump's Administration has already said and done enough to warrant concern for the state of free speech, as when his Press Secretary, Sean Spicer, went out to make demonstrably false claims about the crowd size at his inauguration. Between Trump's election and the inauguration, there were calls for scientists working with the US Government to begin backing up their data so it could not be manipulated, misused, or deleted. What might have seemed like undue paranoia is proving to be prescient advice.

Unlike politics, science depends on facts not just for its legitimacy, but for it to function. Without a rigorous investigation into facts that everyone can access and dispute, we are left with what White House Counselor Kellyanne Conway called "alternative facts": truth not as a bedrock, but as one of many alternative perspectives to be held and abandoned as needs warrant, a mere debater's tool. In a Perspective in this issue, Michael Marmot explores science's role in accountability in a post-truth world. Noting that scientists are among the most trusted people in public life, Marmot writes, "We are trusted and are potentially a powerful antidote to the purveyors of falsehood and bullshit." Trump speaks with a loud voice, and seems willing to say anything necessary in the moment, but according to polls, he remains the least popular man to ascend to the presidency in the modern era.

Those who hold science and truth to be foundational aspects of civilisation need to stand firm in our efforts to hold Trump accountable to the truth he seems to so publically disdain with his actions. One such troubling act is the reinstatement of the so-called global gag rule, touted as an "anti-abortion" and "pro-life" policy that instead will likely increase the number of abortions done globally and leave more women dead. Seemingly impervious to facts, Trump's policy is clearly antithetical to the concept of free speech, with potentially devastating global implications. History has now wrapped Trump in the mantle of authority, but we must witness and hold him to account for the consequences of his actions. ▯ *The Lancet*

THE LANCET

The Trump global gag rule: an attack on US family planning and global health aid

On Jan 23, 2017, on his fourth day in office, President Donald Trump signed an executive order imposing the global gag rule,[1] an anti-abortion policy that under other conservative presidential administrations has caused serious disruptions to US overseas family planning efforts. Alarmingly, Trump's order goes even further than in the past, with potentially devastating effect.

The global gag rule, also known as the Mexico City policy, was devised in 1984 by the administration of Ronald Reagan to impose a draconian set of anti-abortion rules on US overseas family planning programmes.[2] This policy banned US family planning funds from going to foreign non-governmental organisations (NGOs) that provide abortion services, counselling, or referrals, or advocate for liberalisation of their country's abortion laws—even if they use non-US government funds for these activities. In 1984, and every time the global gag rule has been imposed since then, foreign governments were exempt for diplomatic reasons, as were US-based NGOs on constitutional grounds.

To be clear, legislation was already in place in 1984, and is still in place now, that bans the use of US funds under the Foreign Assistance Act from paying "for the performance of abortion as a method of family planning".[3] But for anti-abortion activists this Helms Amendment, passed in 1973, did not go far enough; they wanted to limit any activity that could possibly enable or promote abortion. Hence, the global gag rule.

Under Trump's order, the gag rule now applies not only to US bilateral family planning assistance (US$575 million for fiscal year 2016),[4] but also to all "global health assistance furnished by all departments or agencies"[1]—encompassing an estimated $9·5 billion in foreign aid.[5] Foreign NGOs that receive US funding to work on a broad range of health programmes in about 60 low-income and middle-income countries—including on HIV/AIDS, the Zika virus, malaria, tuberculosis, nutrition, and maternal and child health, among others—will potentially be subject to the same ideological restrictions that have hampered family planning aid at points in the past.[6] Thus, President Trump's version of the global gag rule represents a wider attack on global health aid writ large.

iStock

Adding to the widespread concern among US government agencies, global health NGOs, and advocates is the Trump administration's failure to provide any guidance on the interpretation or application of the new policy. Those details may emerge in the coming weeks and months. But we already know that, when last in effect, the gag rule crippled family planning programmes. Many foreign NGOs, as a matter of principle and out of dedication to the patients they serve, refused to let the US Government muzzle their abortion advocacy efforts or dictate what services or counselling they provided using their non-US funds. These health providers were forced to reduce staff and services, or even shut clinics.[2] As a result, many thousands of women no longer had access to family planning and reproductive health services from these clinics—sometimes the only provider of such services in the local community. Various actors, including the governments of Canada and the Netherlands, are mobilising to compensate for at least some of the damage that will be done by the gag rule. But the US is the largest funder of global health programmes worldwide,[7] and the disruption this aid effort will suffer is massive.

Moreover, there is no evidence that the global gag rule has ever resulted in its stated aim of reducing abortion. The first study to measure the effect of the gag rule showed that this policy could actually have resulted in an increase in abortions.[8] Another study assessed the gag rule in Ghana and found that because of declines in the availability of contraceptive services, both fertility and abortion rates were higher during the gag rule years than during non-gag rule years in rural and poor populations.[9] This is consistent with anecdotal data that the gag rule's main effect has been to reduce women's access to quality contraceptive services, thereby

REUTERS

POLITICS | Fri Feb 10, 2017 | 3:29pm EST

With eye on Obamacare, Price takes helm as U.S. health secretary

By **Susan Cornwell** | WASHINGTON

Tom Price was sworn in as U.S. secretary of health on Friday, putting in place a determined opponent of Obamacare to help President Donald Trump fulfill his pledge to dismantle his predecessor's law and reshape the country's healthcare system.

As head of the Department of Health and Human Services (HHS) Price has the authority to rewrite rules implementing the 2010 Affordable Care Act, also known as Obamacare. He could move quickly to rework the regulations while waiting for Republicans in Congress to keep their pledge to scrap the law entirely.

The Republican president signed an order on Jan. 20, his first day in office, to freeze regulations and take other steps to weaken the law enacted by former Democratic President Barack Obama, a directive that will fall largely on Price. But Trump said in a recent Fox News interview that a replacement for the law may not come until next year.

Trump said on Friday the effort was a "difficult process" but could now get going with Price in place.

STAT

PHARMA

Trump wants to blow up the FDA. The drug industry? Not so much

By DAMIAN GARDE *@damiangarde*

FEBRUARY 1, 2017

President Donald Trump wants to remake the Food and Drug Administration. And he happens to have a "fantastic person" in mind to do it, he said Tuesday — someone who will turn the agency into an industry-friendly shop that cranks out new cures on the double.

But does anyone really *want* a deregulated FDA? STAT canvassed biopharma insiders, physicians, Wall Street analysts, and FDA veterans. Their verdict: Trump's plan sounds like a solution in search of a problem.

Trump is weighing several candidates for FDA commissioner who would seek to radically change how the agency vets new drugs. One candidate has proposed scaling back the requirements for approval and letting doctors and patients sort out what's worth trying. Another once claimed a "Yelp for drugs," posting consumer reviews of medications, would better serve patients than the existing FDA. A third favors approving treatments once they've passed an initial safety test, regardless of whether they work.

STAT

HEALTH

WHO director issues thinly veiled rebuke of FDA critics

By HELEN BRANSWELL *@HelenBranswell*

FEBRUARY 9, 2017

The director of the World Health Organization issued a thinly veiled rebuke of critics suggesting that the Food and Drug Administration should be overhauled, including several candidates reported to be in consideration to head the agency.

Speaking at a conference in Seattle on Wednesday, Dr. Margaret Chan warned against loosening the rules governing the safety and effectiveness data that drug companies must supply to win marketing approval from the FDA.

"We must not let anything, including economic arguments or industry pressure, lower our scientific standards or compromise our integrity. This is an absolute duty," Chan said in a speech at the University of Washington. Her remarks were circulated by the WHO on Thursday.

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UNIVERSITY OF MINNESOTA

CIDRAP Center for Infectious Disease Research and Policy

News Scan for Feb 14, 2017

More than 900 new cases of cholera in Somalia

The World Health Organization (WHO) said yesterday that Somalia has reported 913 new suspected cholera cases, including 10 deaths, since their last update on Jan 25. Despite increasing cases, the fatality rate has dropped to 1.1% from last week's 1.7%, indicating improving patient care.

The WHO said it will continue to work with the Somali Ministry of Health to boost response activities across the country. In the last month, a new treatment center was opened in in Burhakaba, and chlorination of water sources was conducted in Baidoa, Burhakaba and surrounding areas. Thirty-eight districts in the country have reported cases.

"Most of the affected districts are along the Shebelle River where the waters have dried up. The ongoing drought, subsequent water shortage and malnutrition have led to the spread of the outbreak," the WHO said.

Since the beginning of the year, there have been 4,026 suspected cases of cholera including 57 deaths (case-fatality rate 1.5%). Because of the prolonged conflict in the country, insecurity and accessibility have hindered cholera response operations.

Feb 13 WHO update

DEADLIEST ENEMY

Michael T. Osterholm, PhD, MPH,
and Mark Olshaker

OUR WAR AGAINST KILLER GERMS

Questions, Comments and Discussion

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CIDRAP Leadership Forum
Infectious Disease BRIEFING

February 15th, 2017

Thank you for attending!