



CIDRAP

Center for Infectious Disease Research and Policy
University of Minnesota

**CIDRAP Leadership Forum
Infectious Disease BRIEFING**

August 16th, 2017

HOT TOPICS

1. MERS-CoV
2. Polio
3. Cholera

UPDATES

4. Avian influenza
5. Influenza vaccine
6. Influenza antivirals
7. Yellow fever
8. Lassa fever
9. Zika
10. Antimicrobial resistance
11. *Legionella*
12. Other

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WHO: Hospital outbreaks underscore MERS challenges

Filed Under: [MERS-CoV](#)

[Lisa Schnirring](#) | News Editor | [CIDRAP News](#) | Jul 25, 2017

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Though surveillance for MERS-CoV and response to suspected clusters have improved, especially in hard-hit Saudi Arabia, early identification in the community and in healthcare facilities and compliance with infection prevention and control protocols still pose major challenges, the World Health Organization (WHO) said in its latest risk assessment.

The WHO's report, issued Jul 21, is its first major risk assessment update since December and covers 199 cases in four countries reported since its last report, 190 of them in Saudi Arabia, which reported several healthcare clusters over the time span.

Illnesses linked to a spate of hospital outbreaks in Riyadh in June appear to have tapered off, and the country hasn't reported a new case in 14 days.

Overall, however, WHO experts said the epidemiology, transmission patterns, clinical presentation, and viral characteristics haven't changed since the agency's last risk assessment on Dec 5, 2016.



Wavebreakmedia / iStock



News Scan for Jul 26, 2017

New MERS case reported in Riyadh

Saudi Arabia's Ministry of Health (MOH) reported a new MERS case today, the first case since Jul 11.

The patient is a 57-year-old expatriate man from Riyadh. He presented with symptoms of MERS-CoV (Middle East respiratory syndrome coronavirus) infection and is in stable condition. The probable source of his infection is listed as primary, which means it's unlikely he contracted the virus from someone else. He is not a healthcare worker.

As of today, Saudi Arabia's MERS-CoV total cases since 2012 total 1,680, including 684 deaths. Three people are still being treated for infections.

Jul 26 MOH report

News Scan for Jul 31, 2017

Saudi Arabia confirms new MERS case

Over the weekend the Saudi Arabian Ministry of Health (MOH) confirmed a new MERS-CoV case in Khamis Mushait.

A 38-year-old male expatriate is in critical condition after being diagnosed as having MERS-CoV (Middle East respiratory syndrome coronavirus), according to a Jul 29 update. The MOH said the man had direct contact with camels, a known risk factor for contracting the virus.

The new case raises Saudi Arabia's MERS-CoV total since 2012 to 1,682 cases, which includes 684 deaths. Five people are still being treated for their illnesses.

Jul 29 MOH report



News Scan for Aug 02, 2017

Saudi Ministry of Health confirms 3 new MERS cases

The Saudi Arabian Ministry of Health (MOH) reported three new cases of MERS-CoV today.

All the patients are men. A 51-year-old Saudi from Dumah Al Jandal is in critical condition with MERS-CoV (Middle East respiratory syndrome coronavirus). The probable source of his infection is listed as primary, which means it's unlikely he contracted the virus from someone else. A 57-year-old male expatriate in Jeddah is also in critical condition, and his infection source is also listed as primary.

Finally, a 36-year-old Saudi man from Ad Dilam is in stable condition after being diagnosed with MERS-CoV. He had direct contact with camels, a known risk factor for contracting the virus.

The new cases raise Saudi Arabia's MERS-CoV total since 2012 to 1,685 cases, which includes 684 deaths. Seven people are still being treated for their illnesses.

Aug 2 MOH update



News Scan for Aug 04, 2017

New MERS case, death reported in Saudi Arabia

The Saudi Arabian Ministry of Health (MOH) identified a new case of MERS-CoV in Jeddah today and said a patient identified earlier this week has died from complications of the virus.

A 44-year-old female expatriate in Jeddah is in stable condition after being diagnosed as having MERS-CoV (Middle East respiratory syndrome coronavirus). The source of her infection is listed as a secondary household contact.

The MOH also said a 57-year-old Saudi man from Dumah Al Jandal has died from MERS. The MOH first reported his case 2 days ago.

As of today, Saudi Arabia's MERS-CoV cases since 2012 total 1,686, including 685 deaths. Seven people are still being treated for infections.


Aug 4 MOH update

Health worker among 5 new Saudi MERS cases

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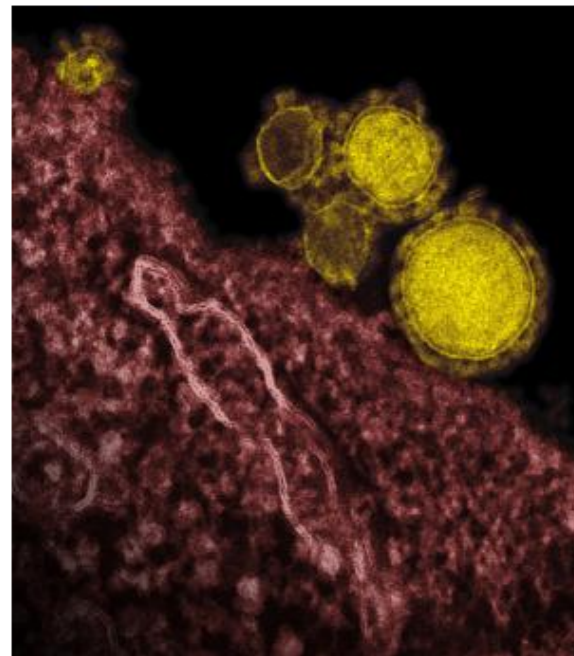
Saudi Arabia reported five new MERS-CoV cases over the past 2 days, one of them fatal, and three of the illnesses appear to be linked to a healthcare-related cluster in Dumah Al Jandal in the country's northwest.

One of the other two patients had indirect contact with camels and another had primary exposure to the virus, reflecting a mix of ways people contract Middle East respiratory coronavirus (MERS-CoV) in Saudi Arabia.

Health worker, household contacts among latest cases

In its regular update yesterday, Saudi Arabia's ministry of health (MOH) reported two new cases, one of which involves a 25-year-old female healthcare worker in Dumah Al Jandal who has an asymptomatic infection. The woman, who is an expat, acquired her infection in the healthcare setting, the MOH said.

So far it's unclear if her illness is related to another MERS-CoV case reported from the same city on Aug 2, that one in a 51-year-old man who was hospitalized in critical condition. An investigation revealed the man had primary exposure, meaning he probably didn't contract it from another patient.



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MERS infects 7 more in Saudi Arabia, some part of hospital cluster

Filed Under: [MERS-CoV](#)

[Stephanie Soucheray](#) | News Reporter | [CIDRAP News](#) | Aug 08, 2017



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The Saudi Arabian Ministry of Health (MOH) reported seven new cases of MERS-CoV today, including five connected to a cluster in Dumah Al Jandal, most apparently linked to a hospital setting.

Three of the new cases are healthcare workers, all expats who have asymptomatic infections and are in stable condition. They include a 49-year-old man and two women, ages 27 and 26.

The other two new cases connected to the Dumah Al Jandal cluster are Saudi men. A 21-year-old is in critical condition after being diagnosed with Middle East respiratory syndrome coronavirus (MERS-CoV). The MOH said he was a household contact of another MERS-CoV patient. A 70-year-old is also in critical condition, and the MOH said he acquired his infection as a patient in the hospital.



sudok1/iStock



News Scan for Aug 10, 2017

Saudi Arabia confirms 2 more healthcare workers infected with MERS-CoV

The Saudi Arabian Ministry of Health (MOH) today reported that two more healthcare workers have contracted MERS-CoV in Dumah Al Jandal, the site of a growing hospital-based outbreak.

The healthcare workers are both female expatriates, ages 38 and 42. Neither presented with symptoms of MERS-CoV (Middle East respiratory syndrome coronavirus), and both are in stable condition. The MOH said both infections are healthcare acquired. In the past 10 days, the MOH has reported at least 11 cases connected to a hospital in Dumah Al Jandal, which is located in northwestern Saudi Arabia.

The MOH also noted the death of two previously reported patients. The two men were from Khamis Mushait in southern Saudi Arabia and Hail in the north central part of the country. As of today, Saudi Arabia's MERS-CoV cases since 2012 total 1,694, including 688 deaths. Eleven people are still being treated for their infections.

In other Saudi Arabian news, the European Centre for Disease Prevention and Control (ECDC) today said the relative risk for illness during the annual Hajj in Mecca is low. Millions of Muslims will make a pilgrimage to the holy city from Aug 30 to Sep 4. Foodborne illnesses and respiratory viruses are the biggest public health concerns, according to the ECDC's assessment.

Aug 10 MOH report

Aug 10 ECDC assessment

News Scan for Aug 11, 2017

More Saudi MERS cases tied to hospital outbreak

The Saudi Arabian Ministry of Health (MOH) reported two new cases of MERS today in healthcare workers from Dumah Al Jandal, the site of a growing hospital-based outbreak.

The two male expatriates are in stable condition and had no symptoms of MERS-CoV (Middle East respiratory syndrome coronavirus). They are 55 and 52 years old. There are now more than a dozen healthcare workers and patients from Dumah Al Jandal who have been diagnosed as having MERS-CoV in the past 10 days.

The latest cases push Saudi Arabia's total number of MERS-CoV illnesses since the virus was detected for the first time in humans in 2012 to 1,694, which includes 689 deaths. Ten people are still being treated for their infections.

In other MERS news, a new modeling study on the pre-publications server bioRxiv described the human-animal interface of the virus, noting that the disease is unlikely to become endemic in humans. Instead, human outbreaks are triggered by camel transmissions, but the virus does not evolve in humans the same way it does in camels, the researchers said.

Aug 11 MOH report

Aug 10 bioRxiv study



News Scan for Aug 14, 2017

New MERS case reported in Saudi Arabia

The Saudi Arabian Ministry of Health (MOH) reported a new case of MERS-CoV over the weekend.

The 89-year-old Saudi man from Baljurashi in the southwestern part of the country is in stable condition after being diagnosed as having MERS-CoV (Middle East respiratory syndrome coronavirus). The source of his infection is listed as "primary," meaning it's unlikely he contracted the disease from another person.

The latest case raises Saudi Arabia's total number of MERS-CoV illnesses since the virus was detected for the first time in humans in 2012 to 1,695, with 689 deaths. Eleven people are still being treated for their infections.

Aug 12 MOH report



News Scan for Aug 15, 2017

Latest Saudi MERS case has camel connection

The Saudi Arabian Ministry of Health (MOH) reported a new case of MERS-CoV today in a man from Medina.

The 67-year-old expatriate is in stable condition after presenting with symptoms of MERS-CoV (Middle East respiratory syndrome coronavirus). The man had indirect contact with camels. Indirect contact with camels, including drinking camel milk, is a known risk factor for the disease.

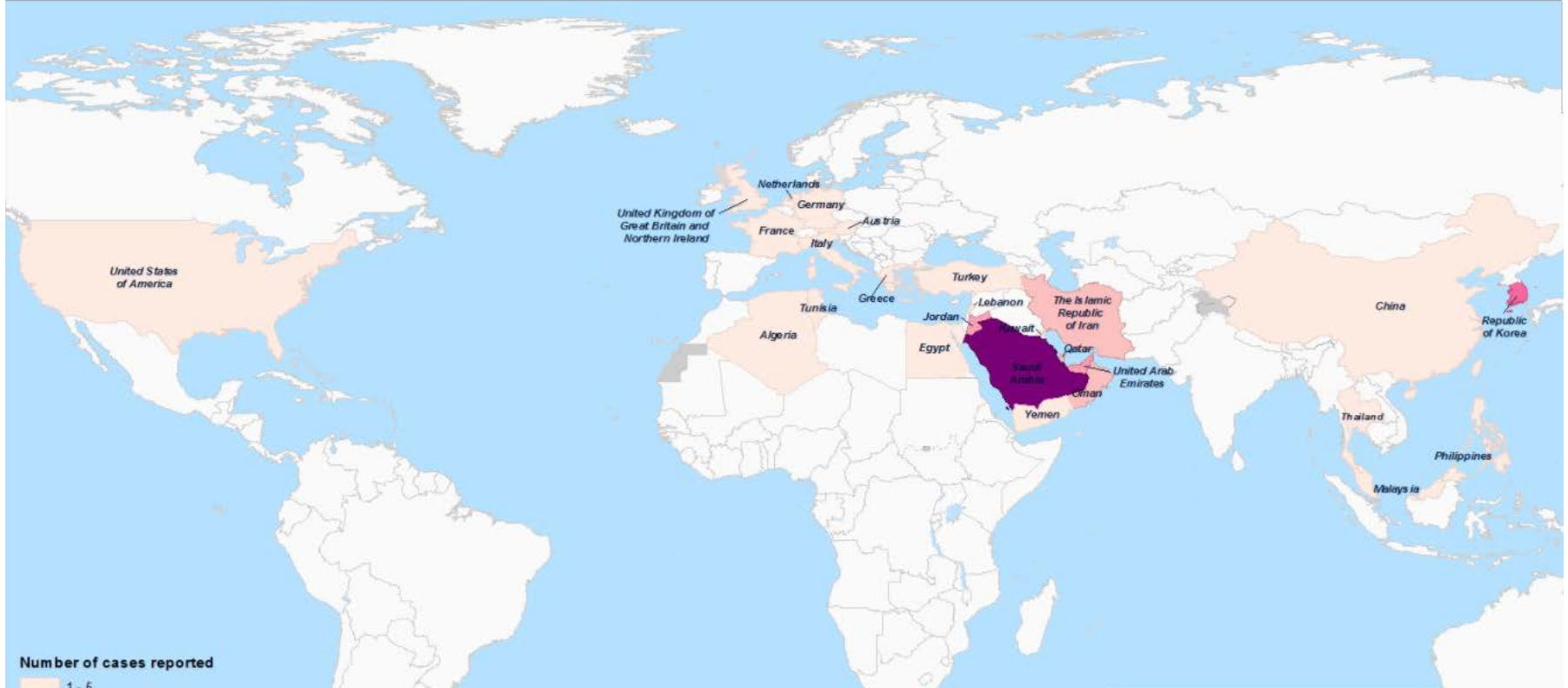
Also, the MOH reported a death in a previously announced patient, an 89-year-old Saudi man from Baljurashi who had an underlying health condition.

The latest developments push Saudi Arabia's total number of MERS-CoV illnesses since the virus was detected for the first time in humans in 2012 to 1,696, which includes 690 deaths. Ten people are still being treated for their infections.

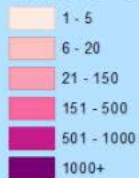
Aug 15 MOH [report](#)



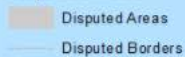
CONFIRMED GLOBAL CASES OF MERS-COV 2012 - 2017



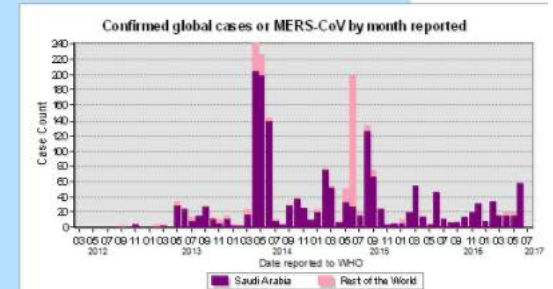
Number of cases reported



Disputed Areas



Total number of reported cases: 2040



Map Scale (A3): 1:1,109,175,763
1 cm = 11,092 km

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Meters

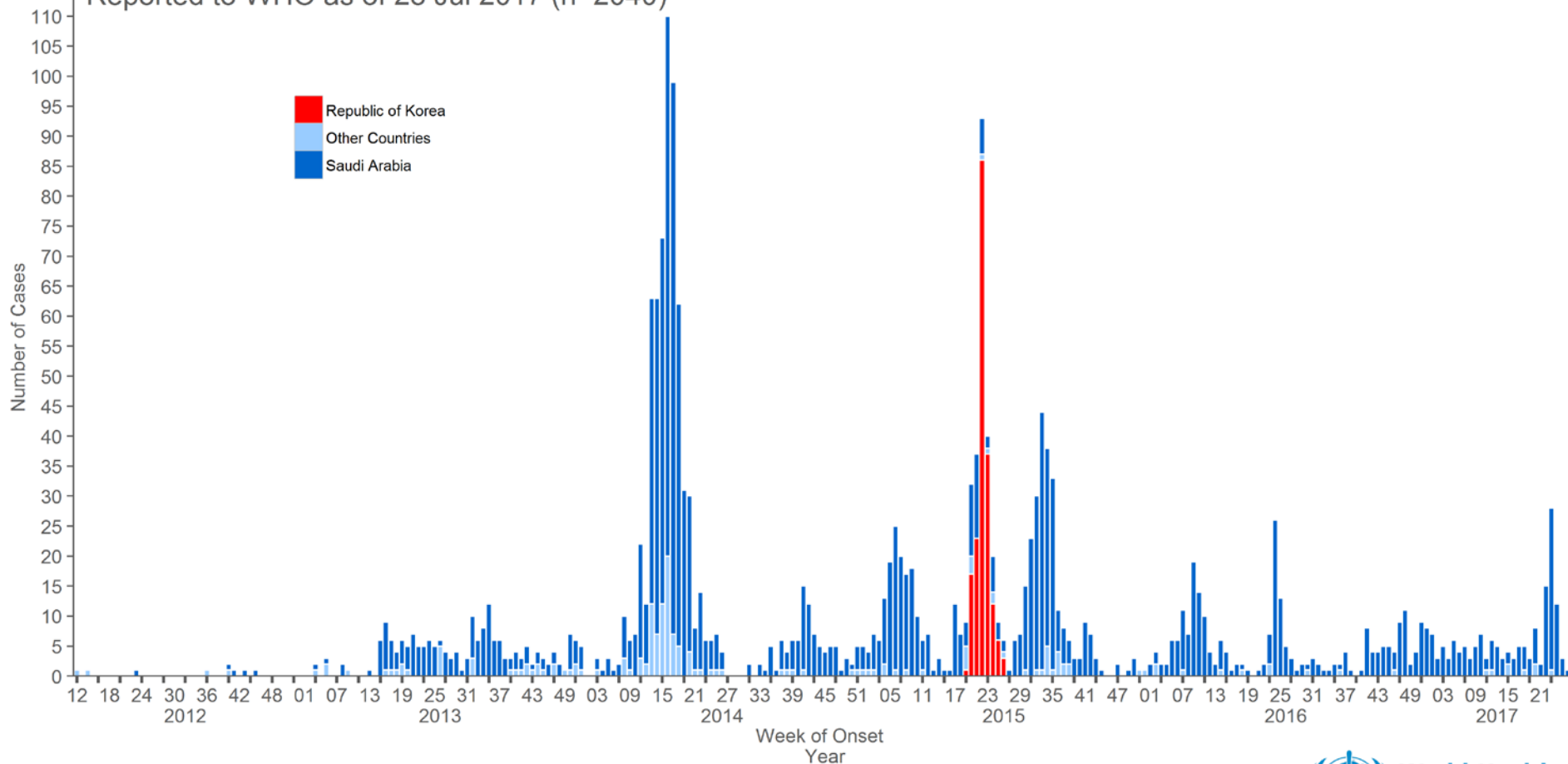
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
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Map date: 28/07/2017



Confirmed global cases of MERS-CoV

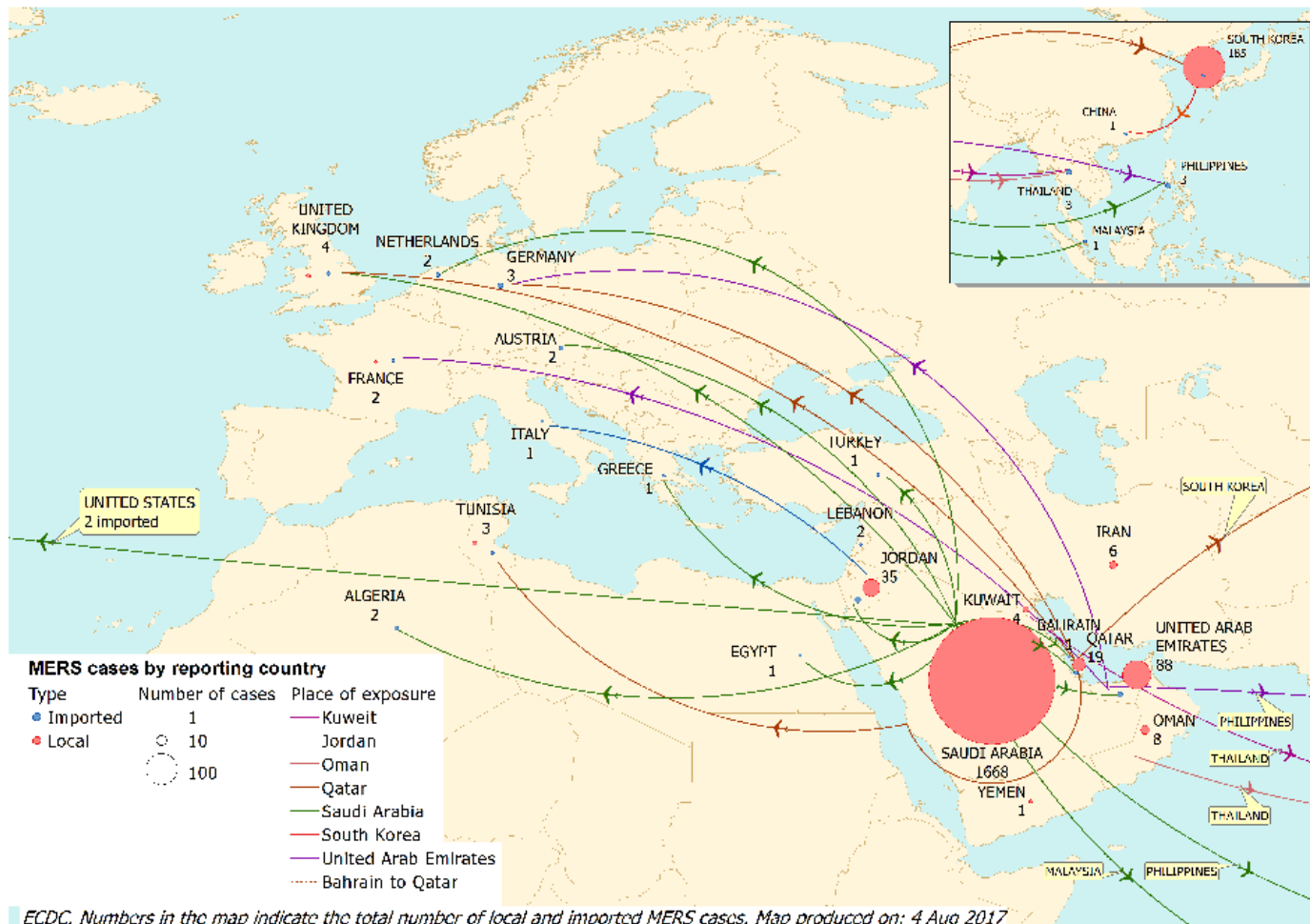
Reported to WHO as of 28 Jul 2017 (n=2040)



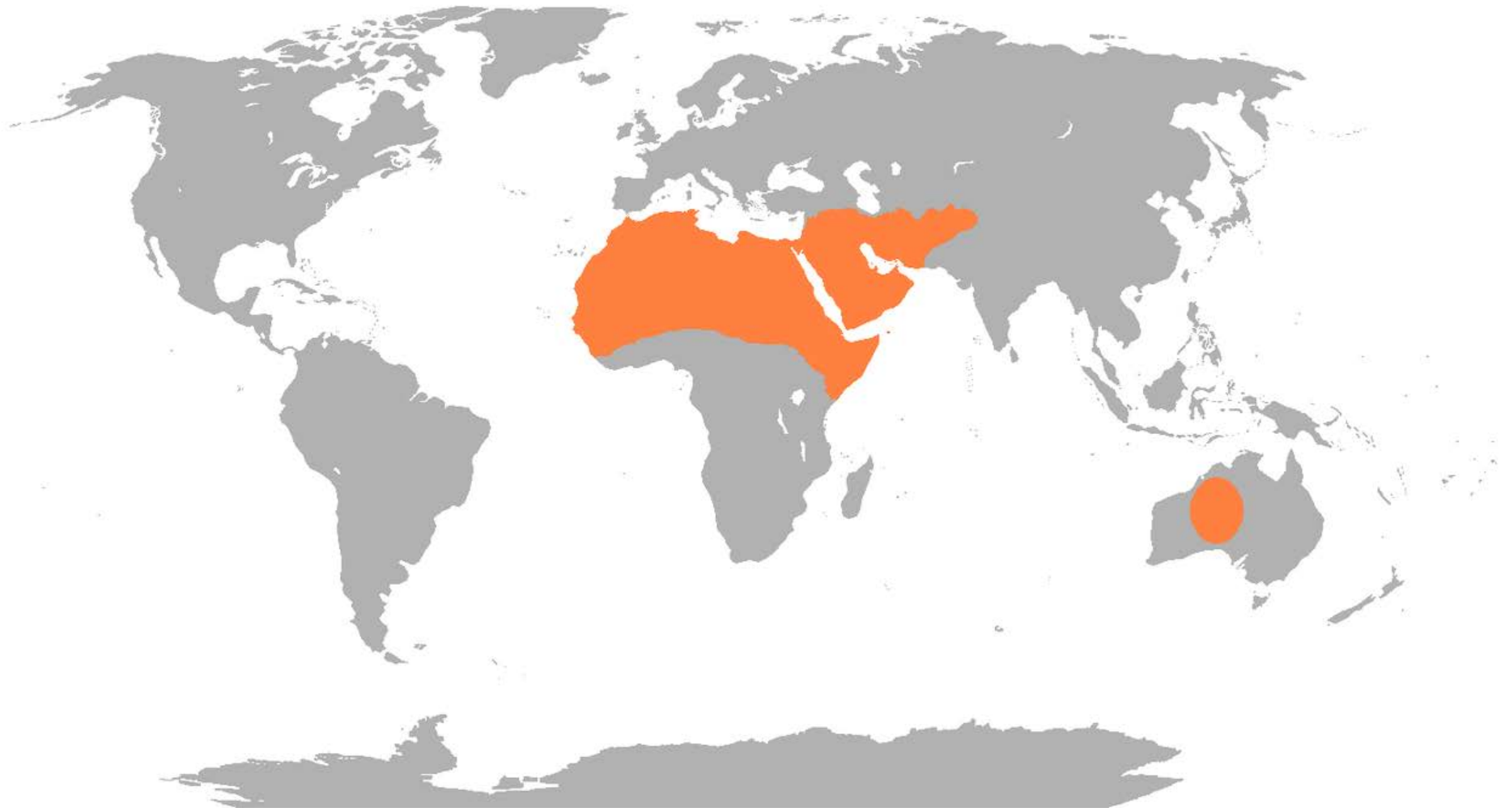
Other countries: Algeria, Austria, Bahrain, China, Egypt, France, Germany, Greece, Iran, Italy, Jordan, Kuwait, Lebanon, Malaysia, Netherlands, Oman, Philippines, Qatar, Thailand, Tunisia, Turkey, United Arab Emirates, United Kingdom, United States of America, Yemen

Please note that the underlying data is subject to change as the investigations around cases are ongoing. Onset date estimated if not available.

Distribution of confirmed cases of MERS-CoV by probable place of infection and place of reports, March 2012 – 3 August 2017







No Serological Evidence of Middle East Respiratory Syndrome Coronavirus Infection among Camel Farmers Exposed to Highly Seropositive Camel Herds: A Household Linked Study, Kenya, 2013

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Abstract. High seroprevalence of Middle East respiratory syndrome coronavirus (MERS-CoV) among camels has been reported in Kenya and other countries in Africa. To date, the only report of MERS-CoV seropositivity among humans in Kenya is of two livestock keepers with no known contact with camels. We assessed whether persons exposed to seropositive camels at household level had serological evidence of infection. In 2013, 760 human and 879 camel sera were collected from 275 and 85 households respectively in Marsabit County. Data on human and animal demographics and type of contact with camels were collected. Human and camel sera were tested for anti-MERS-CoV IgG using a commercial enzyme-linked immunosorbent assay (ELISA) test. Human samples were confirmed by plaque reduction neutralization test (PRNT). Logistic regression was used to identify factors associated with seropositivity. The median age of persons sampled was 30 years (range: 5–90) and 50% were males. A quarter (197/760) of the participants reported having had contact with camels defined as milking, feeding, watering, slaughtering, or herding. Of the human sera, 18 (2.4%) were positive on ELISA but negative by PRNT. Of the camel sera, 791 (90%) were positive on ELISA. On univariate analysis, higher prevalence was observed in female and older camels over 4 years of age ($P < 0.05$). On multivariate analysis, only age remained significantly associated with increased odds of seropositivity. Despite high seroprevalence among camels, there was no serological confirmation of MERS-CoV infection among camel pastoralists in Marsabit County. The high seropositivity suggests that MERS-CoV or other closely related virus continues to circulate in camels and highlights ongoing potential for animal-to-human transmission.

INTRODUCTION

In September 2012, Middle East respiratory syndrome coronavirus (MERS-CoV) was first detected in humans, and as of June 2016, 1,733 laboratory-confirmed human cases and 628 deaths had been reported to the World Health Organization (WHO) from 27 countries.¹ The majority of the cases have been reported from Arabian Peninsula, but cases imported to other countries have caused large hospital-linked outbreaks, such as in South Korea, in 2015.¹ Severe respiratory disease and death rate is higher in infections among older patients and those with preexisting conditions.^{2–4} Dromedary camels have been identified as a potential reservoir for the virus after detection of virus in camels in Saudi Arabia, Oman, and Qatar,^{5–7} and of a high level of seroprevalence of MERS-CoV antibodies in camel populations from a wider range of countries including countries in the Middle East and Africa.^{8–14} Notably, however, Australia has documented absence of MERS-CoV antibodies among camels.^{15,16} Most MERS-CoV infections in humans are not linked to camel exposure and are thought to be due to human-to-human transmission particularly in health-care settings. The low frequency of camel-to-human infections is supported by the finding that MERS-CoV seroprevalence among the general human population in Saudi Arabia is less

than 0.5%, though significantly higher in camel shepherds (2.3%) and slaughterhouse workers (3.6%).¹⁷

According to the Food and Agriculture Organization, the world population of camels in 2001 was 19 million camels, of which, 17 million were dromedary camels and approximately 65% of these were found in the eastern African countries of Sudan, Somalia, Ethiopia, and Kenya.¹⁸ Despite the fact that the majority of dromedary camels are in Africa, no case of MERS-CoV in humans has been reported in Africa, except for a cluster of three family members in Tunisia, in 2013, associated with an imported index case and no history of exposure to camels.¹⁹ A retrospective study carried out in Kenya detected MERS-CoV antibodies in more than 90% of camels from various parts of the country.⁸ A recent study that analyzed > 1,000 human sera from among pastoralists who did not keep camels reported two likely asymptomatic humans (< 0.2%) positive for MERS-CoV neutralizing antibodies.²⁰

To understand the risk of transmission between camels and humans living in close contact, we conducted a serosurvey in camels and humans in same households to determine the prevalence of MERS-CoV antibodies among pastoral communities in northern Kenya that live in close association with camels and investigated risk factors associated with seropositivity in camels and humans.

METHODS

Study site and design. In 2013, we conducted a cross-sectional serosurvey of humans and camels in Marsabit County,²¹ using a two-stage random sampling methodology.

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12.Other



Syria, Pakistan report new polio cases

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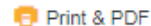
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Another child in Raqqa, the ISIS-held city in Syria, is paralyzed after being infected with vaccine-derived polio virus, according to the World Health Organization (WHO). This is the second case in Raqqa reported in recent weeks. To date, there have been 24 cases of type 2 vaccine-derived polio in Syria this year.

In response to the latest case, the Syrian Ministry of Health is reported to be working with the WHO and UNICEF to consider adding Raqqa to the outbreak response, which would increase the targeted vaccine population by almost 120,000 children under 5 years of age. Syria officials said they have enough doses of monovalent type 2 vaccine (mOPV2) to meet this target.

According to the WHO, two immunization rounds are planned for Jul 8 and later in August targeting children under 5 years in Deir ez-Zor governorate and in the southern part of Shadadi district in Hasaka governorate.

A campaign in Raqqa, however, is not yet planned because of ongoing conflict between ISIS fighters and the Syrian government.



Sanofi Pasteur / Flickr cc



News Scan for Jul 19, 2017

Syria reports 4 more polio cases

The World Health Organization (WHO) yesterday reported 4 more polio cases in Syria since its previous update on Jul 12, bringing to 27 the number of cases of circulating vaccine-derived poliovirus type 2 confirmed in the war-torn country.

The most recent case involved an 8-month-old, with paralysis reported on Jun 6. The child had received one dose of oral polio virus vaccine. Twenty-six cases, including the most recent, are from the Mayadeen district, Deir Ez-Zor governorate, and 1 case was in the Tell Abyad district, Raqqa governorate.

Vaccination campaigns with monovalent type-2 oral polio vaccine are planned for Jul 22. The WHO said there are enough supplies to vaccinate 448,000 children under the age of 5 in the two governorates.

Jul 18 WHO situation report

News Scan for Jul 24, 2017

New polio case confirmed in Afghanistan

The Global Polio Eradication Initiative (GPEI) last week confirmed another case of wild polio virus type 1 in Afghanistan. The nation, along with Pakistan and Nigeria, is one of three in the world in which wild polio is still transmitted.

Afghanistan now has 5 confirmed polio cases in 2017. The most recent case reported an onset of paralysis on Jun 19 in Kandahar.

On Jun 21, officials reported an environmental sample collected in Nangarhar tested positive for wild polio virus type 1. This is the seventh positive environmental sample collected in the country this year.

GPEI also noted the four cases of vaccine-derived poliovirus type 2 detected last week in Syria. That country has seen 27 vaccine-derived polio cases this year. On Saturday, a vaccination campaign targeting 448,000 children younger than 5 years began in Syria.

Jul 19 GPEI update



News Scan for Aug 14, 2017

WHO extends polio global emergency

The World Health Organization (WHO) emergency committee on polio met for the 14th time on Aug 3 by teleconference and unanimously agreed that recent developments warrant keeping in place a public health emergency of international concern (PHEIC) for spread of the virus.

A PHEIC, as defined by the International Health Regulations, has been in place for polio since May 2014. The WHO's emergency committee on the disease typically meets every 3 months, or sooner as needed. The group's last meeting was on Apr 24.

Regarding the spread of wild poliovirus type 1 (WPV1), the group said it was encouraged by steady progress in all three countries still affected—Pakistan, Afghanistan, and Nigeria. Globally, the number of new cases continues to decline, and no international spread has been detected in the past 3 months. The group commended both Pakistan's and Afghanistan's improvements with vaccination but raised concerns about the widespread nature of positive environmental samples in Pakistan and pockets of missed children in vaccination campaigns in southern Afghanistan.

The group noted that no new WPV1 cases have been detected in Nigeria in about a year, but it said about 250,000 children in Borno state are partially or totally inaccessible to vaccine campaigns. They worried about all the countries experiencing conflict in the Lake Chad basin region, posing a threat of international spread from Nigeria.

New outbreaks of circulating vaccine-derived poliovirus type 2 (cVDPV2) in the Democratic Republic of Congo (DRC) and Syria are very concerning, because they highlight underimmunization due to conflict or remote geographic conditions. The committee urged any country receiving Syrian refugees, especially from Deir ez-Zor and Raqqa, the two governorates that have reported cVDPV cases, to ensure polio vaccination with inactivated polio vaccine.

Given the latest recommendations, the experts recommended keeping temporary recommendations in place for another 3 months.

Aug 3 WHO statement

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Thousands more cholera cases reported in Yemen, Somalia

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In a pair of outbreak updates yesterday, Yemen confirmed another 35,000 cholera cases, while Somalia reported a slight slowdown, with only 1,121 cases reported in the past few weeks.

The outbreaks are part of ongoing outbreaks in several countries in the Horn of Africa and Gulf of Aden regions.

Yemen grapples with case backlog

According to a weekly report from the World Health Organization (WHO), Yemen had 35,052 suspected cholera cases and 53 associated deaths between Jul 9 and 15. This brings the cumulative number of suspected cases to 351,045, with 1,790 deaths, in what is shaping up to be the biggest cholera outbreak in the world. The current case-fatality rate is 0.5%.

The WHO warned that new suspected cases were not slowing down, and in fact, there was a backlog of case information currently under review.




Krishna Kumar / Thinkstock

Yemen's cholera epidemic called 'worst ever' by Oxfam

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Stephanie Soucheray | News Reporter | CIDRAP News | Jul 21, 2017

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In just over 3 months, Yemen has reported more than 368,000 cholera cases, the most recorded in a single year, according to the nongovernmental organization Oxfam.

"It is quite frankly staggering that in just 3 months, more people in Yemen have contracted cholera than any country has suffered in a single year since modern records began," Nigel Timmins, Oxfam's humanitarian director, said in a statement.

The crisis, which began in October of 2016, picked up speed in April. Since then, there have been approximately 5,000 new cases suspected every day. The World Health Organization (WHO) said there were 368,207 suspected cases reported from Apr 27 to Jul 19, and 1,828 deaths, resulting in a case-fatality rate of 0.5%.



Simon Berry / Flickr cc

Oral rehydration solution used in cholera response.

Yemen cholera outbreak tops 400,000, draws high-level UN visit

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Lisa Schnirring | News Editor | [CIDRAP News](#) | Jul 26, 2017

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Suspected cholera illnesses in Yemen's outbreak have now topped 400,000 cases, the World Health Organization (WHO) said today, as leaders from three United Nations (UN) agencies wrapped up a visit to the country, which is torn by conflict and famine.

Since late April, the total has reached 402,484 suspected cases, 1,880 of them fatal, for a case-fatality rate of 0.5%. Illnesses have been reported in all but 2 of the country's 23 governorates. However, 5 governorates account for more than half of the cases: Amanat Al Asimah, Al Hudayday, Hajjah, Amran, and Ibb.

For comparison, the most cholera cases ever reported in a single year was 340,311, during Haiti's outbreak in 2011.

Worst outbreak, worst humanitarian crisis

In a statement, WHO Director-General Tedros



WFP / Abeer Etefa

From left, David Beasley, executive director of the World Food Program; Anthony Lake, executive director, UNICEF; and Tedros Adhanom Ghebreyesus, PhD (wearing cap), director-general, WHO, discuss the situation with local physicians.

News Scan for Jul 28, 2017

Somalia has 3 new cholera deaths, more than 1,000 new cases

The World Health Organization (WHO) yesterday confirmed 1,068 new cases of cholera in Somalia this week, and an additional 3 deaths from the disease, which causes severe, watery diarrhea. Despite the cases, however, the WHO said the country's outbreak is on the decline.

Since January, Somalia has reported 58,524 cases, including 812 deaths, in 15 regions across the nation. The overall case-fatality rate is 1.4%, which is above the emergency threshold of 1%.

"Cholera response and prevention efforts are being continued throughout the country," the WHO said. "With improvements to the surveillance systems in the country, a total of 265 sentinel health facilities are now able to report on health alerts, in addition to existing reporting mechanisms."

Somalia is suffering a severe drought, which has displaced millions of people and left them without easy access to food and water. The WHO estimates that about 5.5 million people in Somalia are at risk to contract cholera. The organization has been working to chlorinate water sources throughout the country.

Jul 27 WHO update



News Scan for Aug 01, 2017

WHO reports another 33,000 cases of cholera in Yemen

The World Health Organization (WHO) yesterday said there were almost 33,000 new cholera cases in Yemen last week, cementing the current outbreak as one of the world's worst.

From Jul 23 to 29, officials reported 32,978 suspected cholera cases and 24 deaths. Since the beginning of the second wave of the current outbreak, which began at the end of April, there have been a total of 430,401 suspected cases and 1,903 deaths. The case-fatality rate is 0.4%.

Though the cases have been declining slightly in the last 6 weeks, 21 of the country's 23 governorates are reporting cholera activity. And the portion of children under the age of 5 is increasing; that age-group now represents 21% of newly suspected cases.

Jul 31 WHO bulletin

Yemen's cholera outbreak passes 500,000 cases

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The World Health Organization (WHO) announced today that the cholera outbreak in Yemen has now pushed past 500,000 suspected cases, with nearly 2,000 dying from the disease since late April.

Though numbers have slowed down in recent weeks, some parts of the country still report up to 5,000 suspected cases each day. And the WHO estimates that 30,000 of Yemen's healthcare workers have not gotten paid in the last year.

In its daily epidemiologic update on the outbreak today, the WHO said the total stands at 504,484, with 1,975 deaths reported so far. It said the case-fatality rate is 0.4% and that all but one of the country's 23 governorates has been affected.

"Yemen's health workers are operating in impossible conditions. Thousands of people are sick, but there are not enough hospitals, not enough medicines, not enough clean water. These doctors and nurses are the backbone of the health response – without them we can do nothing in Yemen. They must be paid their wages so that they can continue to save lives," said Tedros Adhanom Ghebreyesus, PhD, WHO director-general, in a statement.



Trocaire/ Flickr cc

EXPLORE: How Yemen's cholera outbreak spread to a half-million people

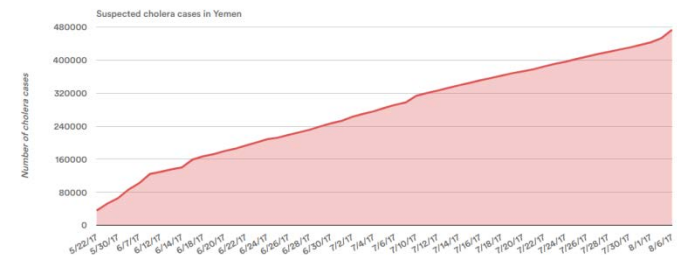
By HELEN BRANSWELL @HelenBranswell and NATALIA BRONSHTEIN @ininteraction / AUGUST 15, 2017

The numbers are mind-boggling: Over the past four months, half a million people are suspected of having contracted cholera in Yemen and 2,000 have died from the diarrheal disease.

The outbreak took off in earnest in late April, sweeping through this country of 27 million people on the Arabian Peninsula. Yemen has been engulfed in political strife for years, a factor that has greatly exacerbated the scale of this epidemic.

Cholera is caused by the bacterium *Vibrio cholerae*, which attacks the intestine. Most infections are mild, or even symptomless. But as many as 10 percent of infected people develop severe illness — vomiting and profuse, watery diarrhea that lead to a rapid loss of body fluids, which, in turn, can induce dehydration, shock and death.

This cholera outbreak is the largest currently underway in the world. Annually, [between 3 million and 5 million people](#) are infected with cholera and the infection claims an estimated 100,000 lives every year, according to the Centers for Disease Control and Prevention.



NATALIA BRONSHTEIN/STAT
SOURCE: WHO YEMEN SITUATION REPORTS 2017

HOT TOPICS

1. MERS-CoV
2. Polio
3. Cholera

UPDATES

4. Avian influenza
5. Influenza vaccine
6. Influenza antivirals
7. Yellow fever
8. Lassa fever
9. Zika
10. Antimicrobial resistance
11. *Legionella*
12. Other



H7N9 situation update

26 July 2017, 12:00 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: **1582** confirmed; **610** deaths (since February 2013).

Number of new findings in birds or the environment since last update (12 July 2017): 4

Number of new human cases since last update (12 July 2017): 2

Provinces/municipalities: Beijing, Chongqing, Shanghai and Tianjin Municipalities; Anhui, Fujian, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Qinghai, Shaanxi, Shanxi, Shandong, Sichuan, Taiwan, Yunnan and Zhejiang Provinces; Hong Kong SAR, Macao SAR; Guangxi, Inner Mongolia, Ningxia Hui, Tibet and Xinjiang Uyghur Autonomous Regions; Sabah (Malaysia); British Columbia (Canada).

Animal/environmental findings: around 2,500 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.

Highly pathogenic virus findings: The H7N9 highly pathogenic avian influenza virus was detected in a total of 48 poultry or environmental samples (37 chickens, 1 duck and 10 environmental samples) from **23** live bird markets (LBMs) in: **Fujian** (Longyan City), **Guangdong** (Dongguan, Guangzhou, Huizhou, Lufeng, Meijiang, Meizhou, Zhongshan Cities and Haifeng County), **Hunan** (Chenzhou City) and **Guangxi** (Guilin City) Provinces; and from **8** farms in: **Guangxi** (Guilin City), **Hebei** (a chicken layer farm in Xingtai City [[reference](#)]), **Henan** (a chicken layer farm in Pingdingshan City [[reference](#)]), **Hunan** (backyard in Chenzhou City and a large chicken layer farm in Yongzhou City [[reference](#)]), **Shaanxi** (a chicken layer farm [[reference](#)]), **Tianjin** (a chicken layer farm [[reference](#)]), **Inner Mongolia** (two chicken layer farms in Hohhot and Baotou Cities [[reference 1](#), [reference 2](#)] and **Heilongjiang** (a chicken layer farm in Shuangyashan City [[reference](#)]) Provinces.

Out of the **1582** confirmed human cases, H7N9 virus isolates from 25 human cases (including one from Taiwan Province) were found to be highly pathogenic for chickens.

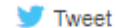
FAO actions: liaise with China and partners, monitor situation, monitor virus evolution, conduct market chain analysis, risk assessment, surveillance guidance and communication.



China's weekly H7N9 case totals stay in single digits

Filed Under: [Avian Influenza \(Bird Flu\)](#); [H7N9 Avian Influenza](#)

Lisa Schnirring | News Editor | CIDRAP News | Jul 14, 2017



For the second week in a row, China reported just one H7N9 avian influenza case for the week, a sign that the fifth wave of activity is probably drawing to a close.

In other H7N9 developments, China's agriculture ministry announced this week that it will expand poultry vaccination beyond just two provinces to the whole country.

Latest illness is from far southwestern China

In an update on cases reported from Jun 7 to Jun 13, Hong Kong's Center for Health Protection (CHP) said the only illness involves a 54-year-old man from the city of Wenshan, located in Yunnan province, in far southwestern China near the border with Vietnam, Laos, and Myanmar.

In late June Yunnan province reported its first local H7N9 cases, fitting with a fifth wave hallmark of a wide geographic distribution of cases, including some provinces that had previously reported no or few cases in earlier H7N9 waves.



frankjunior/iStock



News Scan for Aug 15, 2017

Fatal H7N9 case reported in China

A new H7N9 avian influenza infection has been reported in China, involving a man from the Xiangxi autonomous region of Hunan province, according to a Hunan Center for Disease Control statement translated and posted by FluTrackers, an infectious disease news message board.

Following an unprecedented number of cases in the fifth wave of H7N9 activity, China is now reporting sporadic cases, and the new illness is the first since Aug 4.

The 48-year-old man from the city of Jishou, Xiangxi's capital, got sick on Aug 9 and died from his illness. He worked in waste collection and has an underlying health condition. Xiangxi is in the western part of Hunan province.

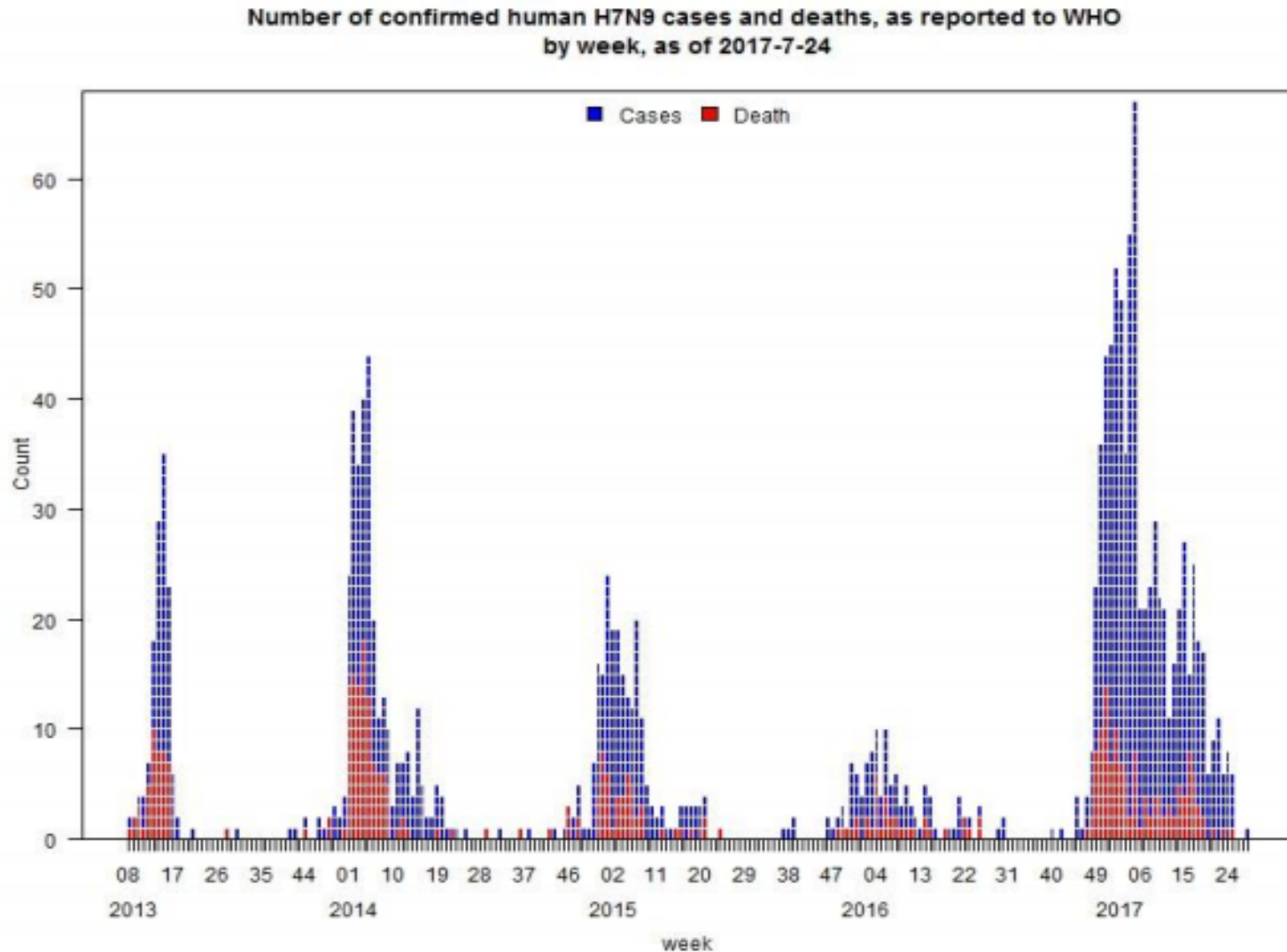
The latest case lifts China's fifth-wave total to 753 cases, when added to the total listed today in the Hong Kong Center for Health Protection's weekly avian influenza report. At least 246 deaths have been reported.

Aug 14 FluTrackers post

Aug 15 CHP avian influenza report



Figure 1: Epidemiological curve of avian influenza A(H7N9) cases in humans by week of onset, 2013-2017





H7N9 situation update

26 July 2017, 12:00 hours; Rome



Food and Agriculture
Organization of the
United Nations

October 2015 - 26 July 2017



Legend

- ◆ New Animal/Environment (since 12 July 2017)
- New Human case (since 12 July 2017)

Wave 5
(Since October 2016)

- ◆ Animal/Environment
- Human case

Wave 4
(October 2015 - September 2016)

- ◆ Animal/Environment
- Human case

● High pathogenicity for poultry confirmed

⊛ Likely exposure in a different province

Poultry density (heads / km²)

< 1	500 - 1,000
1 - 50	1,000 - 2,500
50 - 100	2,500 - 10,000
100 - 250	10,000 - 30,000
250 - 500	> 30,000

Poultry density (Wint and Robinson, 2007)
Boundaries (GAUL 2015)

HOT TOPICS

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12. Other

News Scan for Jul 25, 2017

H3N2 dominant strain as flu levels rise in Southern Hemisphere

Most countries in the Southern Hemisphere reported increasing or peak levels of flu in recent weeks, according to the latest global flu update from the World Health Organization (WHO).

Though influenza A (H3N2) is the dominant strain, influenza B is co-circulating in many countries reporting high flu activity. Oceania, Australia, and New Zealand reported flu activity following seasonal patterns, and increasing trends of influenza-like illnesses (ILI). In temperate South America, flu has peaked, and in Southern Africa, seasonal activity was increasing, with H1N1 circulating alongside H3N2.

H1N1 also predominated in Southern Asia and the Philippines. Flu activity in Southeast Asia was increasing this past week, with South China reporting increased ILI activity and respiratory illnesses. All influenza subtypes are circulating in Southeast Asia.

Jul 24 WHO update



News Scan for Jul 26, 2017

Study: flu vaccine effectiveness in seniors declines as frailty rises

Trivalent flu vaccine afforded good protection against influenza in healthy older adults, but the benefit diminished in those who were frailer, Canadian researchers reported today in the *Journal of Infectious Diseases*.

The prospective, test-negative case-control study included patients age 65 or older from 38 academic and community hospitals from six provinces, mainly from Ontario, during the 2011-12 flu season. The research team used a validated index to measure frailty. They enrolled 320 cases and 564 controls; 601 had been vaccinated. The mean age was 80.6 and 78.7 years, respectively. Cases had a higher frailty baseline than controls.

In their adjusted model, the investigators found that vaccine effectiveness (VE) against hospitalization was 58.0% (95% confidence interval [CI], 34.2% to 73.2%). Adjusting for just frailty yielded a VE estimate of 58.7% (95% CI, 36.2% to 73.2%). However, among healthy older people, VE was 77.6%, declining as frailty increased.

The researchers concluded that the findings challenge commonly held views that VE is poor in older adults and that it helps prevent hospitalization, but with an effect that declines as seniors become frailer. They suggested that frailty is the most important confounder when estimating VE for older adults, and future studies on the impact of flu vaccine in older age-groups should account for frailty.

Jul 26 *J Infect Dis* abstract

ORIGINAL ARTICLE

Influenza Vaccine Effectiveness in the United States during the 2015–2016 Season

Michael L. Jackson, Ph.D., Jessie R. Chung, M.P.H., Lisa A. Jackson, M.D., C. Hallie Phillips, M.Ed., Joyce Benoit, B.S.N., Arnold S. Monto, M.D., Emily T. Martin, Ph.D., Edward A. Belongia, M.D., Huong Q. McLean, Ph.D., Manjusha Gaglani, M.D., Kempapura Murthy, M.P.H., Richard Zimmerman, M.D., Mary P. Nowalk, Ph.D., Alicia M. Fry, M.D., and Brendan Flannery, Ph.D.

ABSTRACT

BACKGROUND

The A(H1N1)pdm09 virus strain used in the live attenuated influenza vaccine was changed for the 2015–2016 influenza season because of its lack of effectiveness in young children in 2013–2014. The Influenza Vaccine Effectiveness Network evaluated the effect of this change as part of its estimates of influenza vaccine effectiveness in 2015–2016.

METHODS

We enrolled patients 6 months of age or older who presented with acute respiratory illness at ambulatory care clinics in geographically diverse U.S. sites. Using a test-negative design, we estimated vaccine effectiveness as $(1 - OR) \times 100$, in which OR is the odds ratio for testing positive for influenza virus among vaccinated versus unvaccinated participants. Separate estimates were calculated for the inactivated vaccines and the live attenuated vaccine.

RESULTS

Among 6879 eligible participants, 1309 (19%) tested positive for influenza virus, predominantly for A(H1N1)pdm09 (11%) and influenza B (7%). The effectiveness of the influenza vaccine against any influenza illness was 48% (95% confidence interval [CI], 41 to 55; $P < 0.001$). Among children 2 to 17 years of age, the inactivated influenza vaccine was 60% effective (95% CI, 47 to 70; $P < 0.001$), and the live attenuated vaccine was not observed to be effective (vaccine effectiveness, 5%; 95% CI, -47 to 39; $P = 0.80$). Vaccine effectiveness against A(H1N1)pdm09 among children was 63% (95% CI, 45 to 75; $P < 0.001$) for the inactivated vaccine, as compared with -19% (95% CI, -113 to 33; $P = 0.55$) for the live attenuated vaccine.

CONCLUSIONS

Influenza vaccines reduced the risk of influenza illness in 2015–2016. However, the live attenuated vaccine was found to be ineffective among children in a year with substantial inactivated vaccine effectiveness. Because the 2016–2017 A(H1N1)pdm09 strain used in the live attenuated vaccine was unchanged from 2015–2016, the Advisory Committee on Immunization Practices made an interim recommendation not to use the live attenuated influenza vaccine for the 2016–2017 influenza season. (Funded by the Centers for Disease Control and Prevention and the National Institutes of Health.)

From the Group Health Research Institute (now Kaiser Permanente Washington Health Research Institute), Seattle (M.L.J., L.A.J., C.H.P., J.B.); Centers for Disease Control and Prevention, Atlanta (J.R.C., A.M.F., B.F.); University of Michigan, Ann Arbor (A.S.M., E.T.M.); Marshfield Clinic Research Foundation, Marshfield WI (E.A.B., H.Q.M.); Baylor Scott and White Health, Texas A&M College of Medicine, Temple (M.G., K.M.); and University of Pittsburgh, Pittsburgh (R.Z., M.P.N.). Address reprint requests to Dr. M.L. Jackson at the Kaiser Permanente Washington Health Research Institute, 1730 Minor Ave., Suite 1600, Seattle WA, 98101-1448, or at jackson.ml@ghc.org.

N Engl J Med 2017;377:534–43.

DOI: 10.1056/NEJMoa1700153

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Study: Change in inhaled flu vaccine did not help in 2015-16

Filed Under: [Influenza Vaccines](#)

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

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A new study on flu vaccine effectiveness for the 2015-16 season in the United States found that the vaccine in general helped cut the risk of flu modestly, but a change in the 2009 H1N1 vaccine strain didn't fix the problem with the inhaled vaccine's effectiveness in children.

Scientists who are part of the Influenza Vaccine Effectiveness Network (IVEN) reported their findings today in the *New England Journal of Medicine*. Their preliminary findings were among the data that the Advisory Committee on Immunization Practices (ACIP) considered last summer when—amid growing evidence of a lack of effectiveness in children—it pulled its recommendation for the live attenuated influenza vaccine (LAIV), or nasal spray vaccine, for the 2016-17 flu season.

In late 2016, researchers from Medimmune, which produces FluMist, the only US-approved LAIV, reported that their initial investigation into the decreased effectiveness of the vaccine, seen in the United States but not necessarily in other countries, found that reduced fitness of the H1N1 vaccine virus strains were the likely culprit, but that they were looking into other possibilities.



Wavebreak Media / Thinkstock



News Scan for Jul 27, 2017

Global flu vaccine coverage has plateaued, despite recommendations

Despite recommendations by every major international health organization, influenza vaccination coverage has plateaued in recent years, according to a study yesterday in *Vaccine*.

The study looked at vaccine coverage over 12 years 2004 through 2015. Despite the World Health Assembly making the recommendation that member countries achieve 75% vaccine coverage in 2003 and despite the 2009 H1N1 flu pandemic, flu vaccine uptake has stalled in most countries, and has gone down in Europe.

The survey found that, of the 89 countries that recommended influenza vaccination in 2016, only 23 countries (26%) achieved the "hurdle" rate, defined as the number of doses required to reach about 15.9% of the population. In 2008, the hurdle rate was established as 159 doses per 1,000 population.

"The lack of progress has a sizeable potential economic cost. The annual direct medical costs alone are estimated at between \$14 billion and \$24 billion in the US, and between about €6 billion and €28 billion in the EU, based on direct costs from France, Germany, and the USA," the authors concluded. They added that no World Health Organization member countries are prepared for an influenza pandemic.

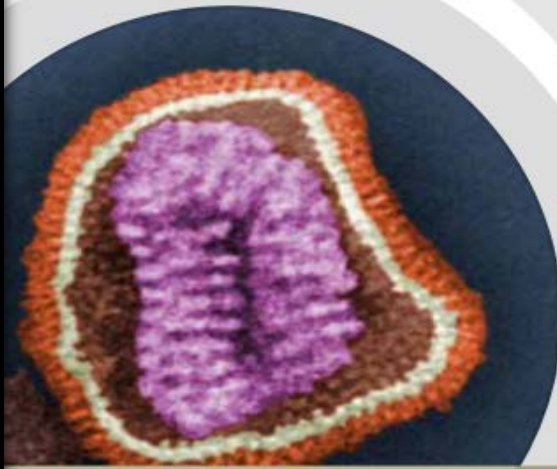
Jul 26 Vaccine study

HOT TOPICS

1. MERS-CoV
2. Polio
3. Cholera

UPDATES

4. Avian influenza
5. Influenza vaccine
6. Influenza antivirals
7. Yellow fever
8. Lassa fever
9. Zika
10. Antimicrobial resistance
11. *Legionella*
12. Other



SCIENTIFIC ADVICE

Expert opinion on neuraminidase inhibitors for the prevention and treatment of influenza

Review of recent systematic reviews and meta-analyses

Executive summary

The neuraminidase inhibitors oseltamivir and zanamivir, currently authorised in the European Union/European Economic Area (EU/EEA) for treatment and prophylaxis of influenza disease (including seasonal, pandemic and zoonotic influenza), have been the subject of debate concerning their effectiveness and safety, and as a consequence, also the appropriateness of stockpiling these drugs for use in future influenza pandemics.

In 2013, the ECDC Advisory Forum requested an assessment of the evidence for use of antivirals in influenza outbreak settings, specifically during institutional outbreaks and new and emerging influenza virus outbreaks. In August 2014, the EU Health Security Committee requested a review of the evidence, and on 10–11 February 2015, an expert consultation with international public health experts was convened in Stockholm to review data presented in newly conducted systematic reviews/meta-analyses of clinical studies on influenza antivirals, and in order to develop an ECDC expert opinion.

Three large systematic reviews and meta-analyses assessing efficacy, effectiveness and safety of two licensed neuraminidase inhibitors, oral oseltamivir and inhaled zanamivir, were reviewed: The 2014 Cochrane Collaboration report (Jefferson et al.), the 2015 MUGAS study (Dobson et al.) and the 2014 PRIDE study (Muthuri et al.). Additional reviews and studies were considered where appropriate.

The 2014 Jefferson et al. report describes a systematic review with meta-analyses of clinical study reports from published and unpublished randomised, placebo-controlled trials (RCTs) assessing treatment or prophylaxis with oseltamivir (20 trials) and zanamivir (26 trials) up to July 2013, most of which were conducted among otherwise healthy persons in the community with influenza-like illness during seasonal epidemics.

The Dobson et al. review reported a meta-analysis of individual patient data of 12 RCTs assessing treatment of adults with oseltamivir. Eleven of these trials were also included in the Cochrane report.

In the observational study by Muthuri et al. investigators assembled data directly from study sites, assessing the association between use of neuraminidase inhibitors and mortality in a meta-analysis of individual participant data from 29 234 patients (all ages). The data were collected in 78 study sites located in 38 countries with laboratory-confirmed or clinically diagnosed pandemic influenza A(H1N1)pdm09 infection admitted to hospital.

The reviews by Jefferson et al. and Dobson et al. conclude that, for adults, oseltamivir decreases the time to first alleviation of symptoms of influenza-like illness (ILI) by 16.8 hours (95% CI 8.4–25.1) and 17.8 hours (95% CI 27.1 to 9.3), respectively. The time to alleviation of all symptoms among the sub-population with laboratory confirmed influenza infection was decreased by 25.2 hours (95% CI 16.0–36.2) in the Dobson et al. analysis.

Additional analyses within the Jefferson et al. and Dobson et al. reviews documented a statistically significant reduction in patient-reported pneumonia, a reduction in lower respiratory tract infections and a decrease in hospital admissions following influenza diagnosis among oseltamivir-treated groups. The individual RCTs included in these meta-analyses were not, however, designed or powered to assess these severe clinical outcomes, thus limiting the quality of evidence on such outcomes.

Observational studies have also indicated reductions in severe outcomes (patients receiving intensive care or cases of death). In the pooled individual data from the observational studies from the three pandemic waves of the influenza A(H1N1)pdm09 in 2009–2011, analysed by Muthuri et al. decreased mortality was shown to be associated with the use of neuraminidase inhibitors among hospitalised patients (OR 0.81; 95% CI 0.70–0.93). However, in this analysis, the researchers were able to access data from only 20% of the global sites that were identified to have done clinical research among hospitalised influenza patients during the pandemic, thereby limiting the power of the analysis but also raising questions about generalisability and selection bias.

All three reviews point to the importance of initiating treatment early, ideally within 48 hours (within 36 hours in the case of zanamivir in children) of onset of symptoms. However, observational studies, including the analysis by Muthuri et al. indicate some mortality benefit for neuraminidase inhibitors (NAI) therapy started up to 4–5 days after symptom onset in hospitalised patients.

With regard to prophylaxis, the review by Jefferson et al. assessing pre- or post-exposure prophylactic oseltamivir observed a 3.05% reduction in absolute risk for laboratory-confirmed influenza A among groups receiving oseltamivir in four RCTs (RR 0.45; 95% CI 0.30–0.67). The trials were conducted in ambulatory community members and nursing home residents. Assessing efficacy in a household setting Jefferson et al. report an absolute risk reduction of symptomatic influenza of 13.6% (RR 0.20; 95% CI 0.09–0.44). Similarly, Okoli et al. reported an association in an RCT between reduction in laboratory-confirmed influenza A(H1N1) infection and prophylactic treatment with oseltamivir (OR 0.11; 95% CI 0.06–0.20), and in four observational studies of zanamivir (0.23; 95% CI 0.16–0.35) [1]. No studies focusing on prophylaxis offered to healthcare workers or animal industry workers during seasonal or avian influenza exposure were identified.

HOT TOPICS

1. MERS-CoV
2. Polio
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UPDATES

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8. Lassa fever
9. Zika
10. Antimicrobial resistance
11. *Legionella*
12. Other

The New York Times

HEALTH

Yellow Fever Outbreak That Threatened Brazil's Megacities Ends

By DONALD G. McNEIL Jr. AUG. 4, 2017

An alarming outbreak of yellow fever that threatened Brazil early this year appears to be over, according to data released this week by the Pan American Health Organization.

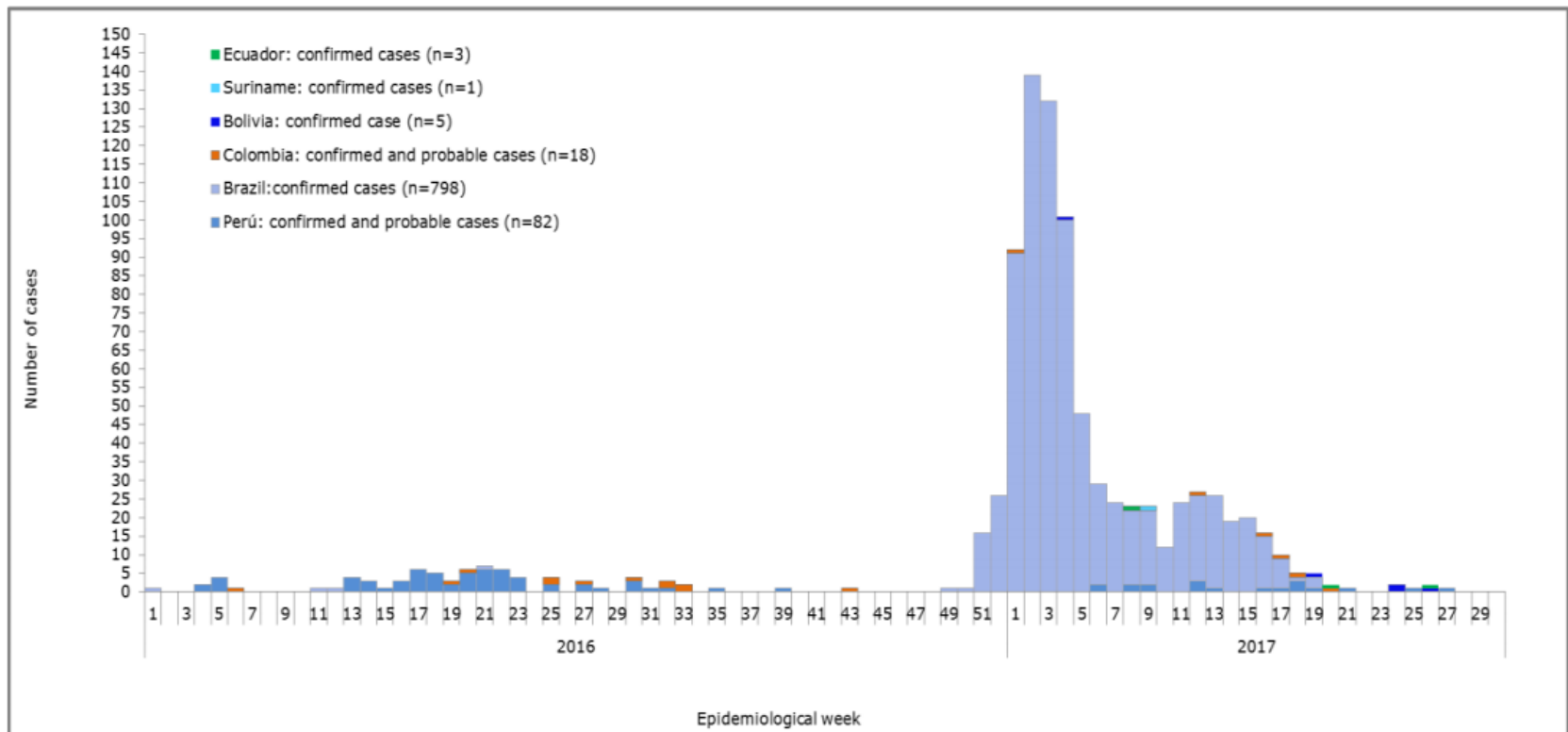
There were [no new cases](#) reported in Brazil in the last month, said officials of the agency, a regional branch of the World Health Organization. Of the neighboring countries to which the outbreak had spread, only Bolivia reported a case.

Concerns were first raised in January, when Brazil reported 712 suspected cases — a fivefold increase over normal levels. Most were in Minas Gerais, a rural state. About 40 of the state's residents died, and the governor declared a [state of emergency](#).

Over the next few months, the outbreak spread, even reaching the states that are home to the megacities Rio de Janeiro and São Paulo. Some panicked residents reacted by [killing monkeys](#), mistakenly blaming them for the spread.

The government distributed 20 million doses of yellow fever vaccine, including more than 3 million from the W.H.O. emergency stockpile.

Figure 1. Distribution of confirmed and probable yellow fever cases. The Americas, EW 1 of 2016 to EW 30 2017



Source: Data provided by the Ministries of Health of Brazil,¹ Bolivia, Colombia,² Ecuador, Peru, and Suriname and reproduced by PAHO/WHO.



News Scan for Jul 25, 2017

Sanofi: Yellow fever vaccine depleted until middle of 2018

The supply of Sanofi Pasteur's yellow fever vaccine YF-Vax is depleted in the United States until the middle of next year, the company said in a press release yesterday. Sanofi said the vaccine would be available again once Sanofi moves production to new "state of the art" facilities.

In the meantime, Sanofi said that Stamaril, the company's yellow fever vaccine manufactured in France, will be made available to Americans through the Food & Drug Administration's Expanded Access Investigational New Drug Application. Stamaril is considered investigational in the United States and not licensed for use.

According to the Centers for Disease Control and Prevention's (CDC's) travelers' health Web site, Americans may still be able to find YF-Vax at their local clinic. The CDC provides a map of YF-Vax and Stamaril supplies across the United States.

Jul 24 Sanofi [press release](#)

CDC Travelers' Health [update](#)

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12. Other

Nigeria: Lassa fever transmission reported in five states

by NEWS DESK

🕒 August 7, 2017

📁 Africa, Headlines

💬 No Comments

In the past three weeks, active transmission of Lassa fever has been reported in five states (Bauchi, Edo, Ogun, Ondo, and Plateau) of Nigeria.



Nigeria map/CIA

13 new suspected cases were reported from four states during the last week of July, namely: Plateau (5), Ondo (5) Bauchi (2), and Ogun (1), including two deaths.

Since the resurgence of the current Lassa fever outbreak in December 2016, 681 suspected cases including 112 deaths (overall case fatality rate 16.4%) have been reported.

Nigeria is one of several West African countries in which Lassa fever is endemic, with seasonal outbreaks occurring annually between December and June. In 2016, Nigeria reported 273 suspected cases and 149 deaths (case fatality rate 55%) from 23 states. In 2017, Benin, Burkina Faso, Sierra Leone, and Togo experienced outbreaks that have since been controlled.

The current outbreak of Lassa fever in Nigeria, however, is continuing beyond the normal season.

This persistent Lassa fever outbreak comes against the background of a protracted humanitarian crisis in the northern part of the country, as well as outbreaks of cholera and hepatitis E.

News Scan for Aug 10, 2017

Nigerian healthcare workers test positive for Lassa fever

Three Nigerian healthcare workers at the country's largest university hospital have tested positive for Lassa fever, according to a post on Avian Flu Diary, an infectious disease blog.

Though Lassa is endemic in Nigeria, the cases are concerning to health officials because the healthcare workers possibly contracted the virus at the Lagos University Teaching Hospital. Now, 150 potentially exposed staff are being monitored for signs of the hemorrhagic fever.

This year has seen about half as many Lassa fever infections as 2016, according to Nigeria's most recent epidemiologic update. Between the first of the year and Jul 23, officials noted 344 suspected cases of Lassa, compared with 746 cases during the same period in 2016.

Nigerian media reported several Lassa fever cases in Lagos in recent weeks.

Aug 10 Avian Flu Diary post

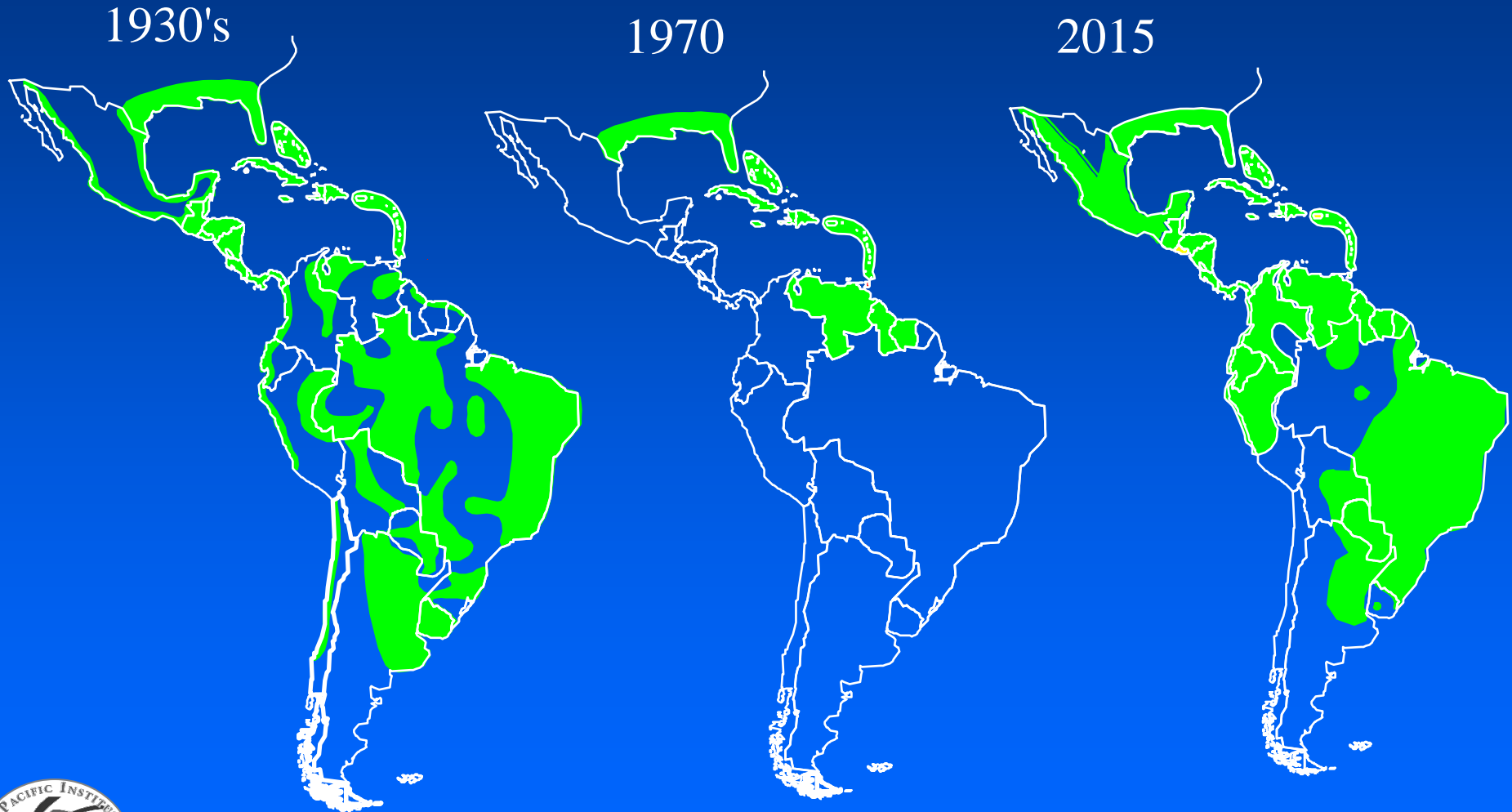
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12. Other

Aedes aegypti Distribution in the Americas



Adapted from Gubler, 1998

PLASTICS

Production, use, and fate of all plastics ever made

Roland Geyer,^{1*} Jenna R. Jambeck,² Kara Lavender Law³

Plastics have outgrown most man-made materials and have long been under environmental scrutiny. However, robust global information, particularly about their end-of-life fate, is lacking. By identifying and synthesizing dispersed data on production, use, and end-of-life management of polymer resins, synthetic fibers, and additives, we present the first global analysis of all mass-produced plastics ever manufactured. We estimate that 8300 million metric tons (Mt) as of virgin plastics have been produced to date. As of 2015, approximately 6300 Mt of plastic waste had been generated, around 9% of which had been recycled, 12% was incinerated, and 79% was accumulated in landfills or the natural environment. If current production and waste management trends continue, roughly 12,000 Mt of plastic waste will be in landfills or in the natural environment by 2050.

INTRODUCTION

A world without plastics, or synthetic organic polymers, seems unimaginable today, yet their large-scale production and use only dates back to ~1950. Although the first synthetic plastics, such as Bakelite, appeared in the early 20th century, widespread use of plastics outside of the military did not occur until after World War II. The ensuing rapid growth in plastics production is extraordinary, surpassing most other man-made materials. Notable exceptions are materials that are used extensively in the construction sector, such as steel and cement (1, 2).

Instead, plastics' largest market is packaging, an application whose growth was accelerated by a global shift from reusable to single-use containers. As a result, the share of plastics in municipal solid waste (by mass) increased from less than 1% in 1960 to more than 10% by 2005 in middle- and high-income countries (3). At the same time, global solid waste generation, which is strongly correlated with gross national income per capita, has grown steadily over the past five decades (4, 5).

The vast majority of monomers used to make plastics, such as ethylene and propylene, are derived from fossil hydrocarbons. None of the commonly used plastics are biodegradable. As a result, they accumulate, rather than decompose, in landfills or the natural environment (6). The only way to permanently eliminate plastic waste is by destructive thermal treatment, such as combustion or pyrolysis. Thus, near-permanent contamination of the natural environment with plastic waste is a growing concern. Plastic debris has been found in all major ocean basins (6), with an estimated 4 to 12 million metric tons (Mt) of plastic waste generated on land entering the marine environment in 2010 alone (3). Contamination of freshwater systems and terrestrial habitats is also increasingly reported (7–9), as is environmental contamination with synthetic fibers (9, 10). Plastic waste is now so ubiquitous in the environment that it has been suggested as a geological indicator of the proposed Anthropocene era (11).

We present the first global analysis of all mass-produced plastics ever made by developing and combining global data on production, use, and end-of-life fate of polymer resins, synthetic fibers, and additives into a comprehensive material flow model. The analysis includes thermoplastics, thermosets, polyurethanes (PURs), elastomers, coatings, and sealants but focuses on the most prevalent resins and fibers: high-

density polyethylene (PE), low-density and linear low-density PE, polypropylene (PP), polystyrene (PS), polyvinylchloride (PVC), polyethylene terephthalate (PET), and PUR resins; and polyester, polyamide, and acrylic (PP&A) fibers. The pure polymer is mixed with additives to enhance the properties of the material.

RESULTS AND DISCUSSION

Global production of resins and fibers increased from 2 Mt in 1950 to 380 Mt in 2015, a compound annual growth rate (CAGR) of 8.4% (table S1), roughly 2.5 times the CAGR of the global gross domestic product during that period (12, 13). The total amount of resins and fibers manufactured from 1950 through 2015 is 7800 Mt. Half of this—3900 Mt—was produced in just the past 13 years. Today, China alone accounts for 28% of global resin and 68% of global PP&A fiber production (13–15). Bio-based or biodegradable plastics currently have a global production capacity of only 4 Mt and are excluded from this analysis (16).

We compiled production statistics for resins, fibers, and additives from a variety of industry sources and synthesized them according to type and consuming sector (table S2 and figs. S1 and S2) (12–24). Data on fiber and additives production are not readily available and have typically been omitted until now. On average, we find that nonfiber plastics contain 93% polymer resin and 7% additives by mass. When including additives in the calculation, the amount of nonfiber plastics (henceforth defined as resins plus additives) manufactured since 1950 increases to 7300 Mt. PP&A fibers add another 1000 Mt. Plasticizers, fillers, and flame retardants account for about three quarters of all additives (table S3). The largest groups in total nonfiber plastics production are PE (36%), PP (21%), and PVC (12%), followed by PET, PUR, and PS (<10% each). Polyester, most of which is PET, accounts for 70% of all PP&A fiber production. Together, these seven groups account for 92% of all plastics ever made. Approximately 42% of all nonfiber plastics have been used for packaging, which is predominantly composed of PE, PP, and PET. The building and construction sector, which has used 69% of all PVC, is the next largest consuming sector, using 19% of all nonfiber plastics (table S2).

We combined plastic production data with product lifetime distributions for eight different industrial use sectors, or product categories, to model how long plastics are in use before they reach the end of their useful lifetimes and are discarded (22, 25–29). We assumed log-normal distributions with means ranging from less than 1 year, for packaging, to decades, for building and construction (Fig. 1). This is a commonly used modeling approach to estimating waste generation

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Brazilian study sheds new light on Zika neuro complications in adults

Filed Under: [West Nile](#); [Zika](#); [Dengue](#); [Chikungunya](#)

Lisa Schnirring | News Editor | CIDRAP News | Aug 14, 2017



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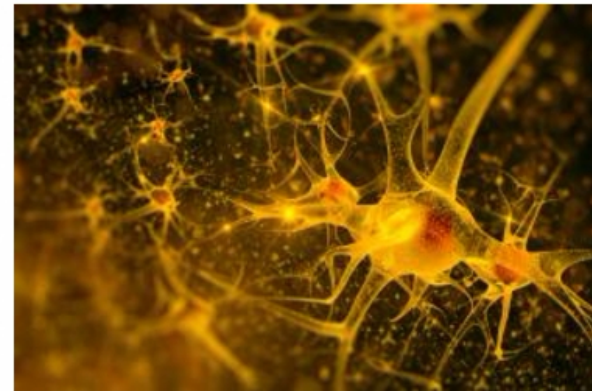
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In adults, Zika virus infection can cause a diverse array of serious neurologic complications, according to a case series of patients during Brazil's outbreak who were treated at a neurology referral hospital in Rio de Janeiro.

In other developments, another research group from Brazil reported a reduction in the birth rate in one of the country's biggest cities and the US Food and Drug Administration (FDA) recently issued an emergency use authorization (EUA) for the first test that can simultaneously assess for Zika, all dengue serotypes, chikungunya, and West Nile virus.



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Neurologic Complications Associated With the Zika Virus in Brazilian Adults

Ivan Rocha Ferreira da Silva, MD, PhD; Jennifer A. Frontera, MD; Ana Maria Bispo de Filippis, PhD; Osvaldo Jose Moreira do Nascimento, MD, PhD; for the RIO-GBS-ZIKV Research Group

◀ Editorial

⊕ Supplemental content

IMPORTANCE There are no prospective cohort studies assessing the incidence and spectrum of neurologic manifestations secondary to Zika virus (ZIKV) infection in adults.

OBJECTIVE To evaluate the rates of acute ZIKV infection among patients hospitalized with Guillain-Barré syndrome (GBS), meningoencephalitis, or transverse myelitis.

DESIGN, SETTING, AND PARTICIPANTS A prospective, observational cohort study was conducted at a tertiary referral center for neurological diseases in Rio de Janeiro, Brazil, between December 5, 2015, and May 10, 2016, among consecutive hospitalized adults (>18 years of age) with new-onset acute parainfectious or neuroinflammatory disease. All participants were tested for a series of arboviruses. Three-month functional outcome was assessed.

INTERVENTIONS Samples of serum and cerebrospinal fluid were tested for ZIKV using real-time reverse-transcriptase-polymerase chain reaction and an IgM antibody-capture enzyme-linked immunosorbent assay. Clinical, radiographic (magnetic resonance imaging), electrophysiological, and 3-month functional outcome data were collected.

MAIN OUTCOMES AND MEASURES The detection of neurologic complications secondary to ZIKV infection.

RESULTS Forty patients (15 women and 25 men; median age, 44 years [range, 22-72 years]) were enrolled, including 29 patients (73%) with GBS (90% Brighton level 1 certainty), 7 (18%) with encephalitis, 3 (8%) with transverse myelitis, and 1 (3%) with newly diagnosed chronic inflammatory demyelinating polyneuropathy. Of these, 35 patients (88%) had molecular and/or serologic evidence of recent ZIKV infection in the serum and/or cerebrospinal fluid. Of the patients positive for ZIKV infection, 27 had GBS (18 demyelinating, 8 axonal, and 1 Miller Fisher syndrome), 5 had encephalitis (3 with concomitant acute neuromuscular disease), 2 had transverse myelitis, and 1 had chronic inflammatory demyelinating polyneuropathy. Admission to the intensive care unit was required for 9 patients positive for ZIKV infection (26%), and 5 (14%) required mechanical ventilation. Compared with admission during the period from December 5, 2013, to May 10, 2014 (before the Brazilian outbreak of ZIKV), admissions for GBS increased from a mean of 1.0 per month to 5.6 per month, admissions for encephalitis increased from 0.4 per month to 1.4 per month, and admissions for transverse myelitis remained constant at 0.6 per month. At 3 months, 2 patients positive for ZIKV infection (6%) died (1 with GBS and 1 with encephalitis), 18 (51%) had chronic pain, and the median modified Rankin score among survivors was 2 (range, 0-5).

CONCLUSIONS AND RELEVANCE In this single-center Brazilian cohort, ZIKV infection was associated with an increase in the incidence of a diverse spectrum of serious neurologic syndromes. The data also suggest that serologic and molecular testing using blood and cerebrospinal fluid samples can serve as a less expensive, alternative diagnostic strategy in developing countries, where plaque reduction neutralization testing is impractical.

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Group Information: The RIO-GBS-ZIKV Research Group members are listed at the end of this article.

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The Expanding Spectrum of Zika Virus Infections of the Nervous System

Kenneth L. Tyler, MD; Karen L. Roos, MD

Zika virus was first isolated in 1947 from the blood of a captive rhesus macaque on an elevated platform in the tree canopy of the Zika Forest, presumably infected by mosquitoes.¹ Human infection with the Zika virus was not documented until the early 1950s, and most reports prior to the current outbreaks in the Americas in 2015 emphasized the relatively benign nature of infection. Reports from Micronesia in 2007 and French Polynesia in 2013 suggested that approximately 80% of infections were asymptomatic and that the remaining 20% of infected individuals developed a combination of rash, fever, arthralgia, conjunctivitis, myalgia, and headache (listed in descending order of frequency).²

The outbreaks in the Americas that began in 2015 were notable both for their size and for the recognition that Zika infection could be associated with severe neurologic complications. The first of the recognized neurologic syndromes was congenital microcephaly complicating Zika virus infection during pregnancy. Microcephaly is now recognized as only 1 possible outcome of “congenital Zika syndrome.” Central nervous system effects of congenital Zika syndrome include brain atrophy; intracranial calcifications; cortical, callosal, and cerebellar malformations; neural tube defects; arthrogryposis; retinal and optic nerve abnormalities; and hearing loss, among others.³ The overall risk of congenital neurologic abnormalities in fetuses and liveborn children of mothers enrolled in the Center for Disease Control and Prevention’s Zika Pregnancy Registry with definite laboratory evidence of Zika virus infection during pregnancy was approximately 17-fold higher than the expected baseline rate in uninfected mothers (50 per 1000 live births [95% CI, 35 to 75 per 1000 live births] vs 3 per 1000 live births), and 15% of mothers with evidence of definite infection occurring during the first trimester of pregnancy had infants born with congenital Zika syndromes.^{4,5} The pathogenesis and mechanism of neural injury in congenital Zika syndromes remain to be elucidated, although results of experimental studies suggest that the virus can directly infect neural progenitor cells and glial cells, inducing apoptotic and excitotoxic cell death, inhibiting cellular proliferation, triggering neuroinflammation, and reducing both the neural progenitor pool and their subsequent neuronal migration.^{6,7}

Guillain-Barré syndrome (GBS) was the first major non-pregnancy-related neurologic syndrome to be linked to Zika infection. During the Zika epidemics in French Polynesia and the Americas, there was a 10- to 40-fold increase in the incidence of GBS cases compared with the pre-Zika baseline and

a risk of approximately 1 case of GBS per 4000 individuals infected with the Zika virus. Risk of Zika virus-associated GBS may increase with increasing age. A retrospective study in French Polynesia suggested that the predominant subtype of Zika virus-associated GBS was acute motor axonal neuropathy.⁸ A subsequent study from Columbia, confirmed by reports from other countries in the Americas, indicated that acute inflammatory demyelinating polyneuropathy, rather than acute motor axonal neuropathy, was the predominant subtype (seen in approximately 78% of cases).⁹ In both French Polynesia and Columbia, cases of GBS occurred in close temporal proximity to symptomatic Zika infection (6-7 days).^{8,9} This short latent period raises the possibility that direct infection or parainfectious mechanisms rather than postinfectious immune-mediated processes may be critical to the pathogenesis of Zika virus-associated GBS⁹ and is consistent with reports that Zika virus-associated GBS can even occur simultaneously with acute infection.¹⁰ Antiganglioside and/or antiglycolipid antibodies, a frequent marker of immune-mediated processes in GBS, have been reported in 31% of cases at disease onset and in 48% at 3 months after infection, but without a consistent glycolipid target.⁸ Factors accounting for reported variations in Zika virus-associated GBS phenotypes remain unclear and could include viral strain, host factors (including the concomitant presence of antibodies against dengue or other flaviviruses) or technological issues such as electrophysiological techniques and criteria used to classify disease phenotypes. It remains to be determined if the prognosis in Zika virus-associated GBS parallels that of non-Zika-associated disease, and whether treatments proven efficacious in non-Zika virus-associated GBS (eg, intravenous immunoglobulin and plasmapheresis) are equally effective in Zika virus-associated GBS, and how the prognoses of Zika virus-associated GBS and non-Zika virus-associated GBS compare.

Recent reports have described isolated cases of a significantly broader spectrum of potential Zika virus-associated neurologic diseases, including cases of meningoencephalitis and transverse myelitis.^{11,12} It is critically important to understand both the spectrum and frequency of Zika virus-induced neurologic diseases. The article by da Silva and colleagues¹³ in this issue of *JAMA Neurology* represents an initial approach to this problem—a simple survey of the number and frequency of Zika virus-associated neurologic illnesses in broad categories including meningoencephalitis, transverse myelitis, and polyneuropathy. Considerably more sophisticated epidemiologic studies will be needed to establish the frequency of specific syndromes and their associated risk fac-



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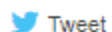
As US Zika cases slow, CDC expert urges vigilance

Filed Under: [Zika](#)

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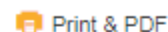
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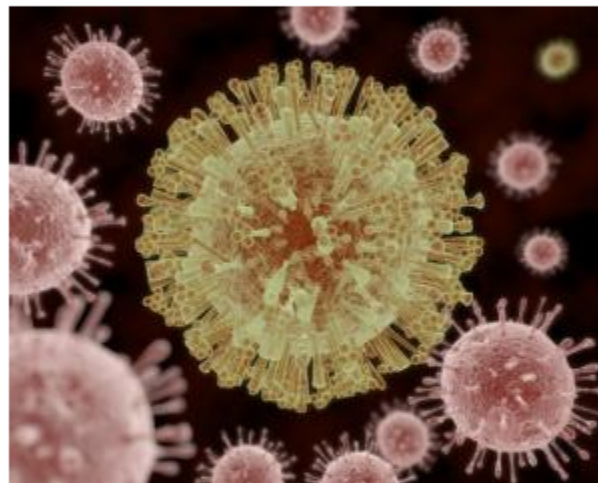
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In 2015, Puerto Rico reported at least 35,000 cases of Zika, the mosquito-borne disease that can cause devastating congenital birth defects, including microcephaly. This year, however, the territory has reported only 474 cases as of Jul 26, a mere drop in the proverbial bucket.

Researchers of flaviviruses, which cause vector-borne illnesses like dengue, chikungunya, and Zika, call this phenomenon "burn out." A virus tears through a novel population, infecting thousands, and then, after 1 to 2 years, newly diagnosed cases are a fraction of what was reported during the original outbreak.

Ben Beard, PhD, MS, with the Centers for Disease Control and Prevention's (CDC's) Division of Vector-borne Diseases, said that while Zika cases in the United States and its territories declined over the last year, the risk of the disease is far from over.

"We want people to know that the outbreak is going well from a numbers perspective, but fewer cases don't mean we are completely safe from Zika," Beard said.



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News Scan for Aug 02, 2017

Sexually transmitted Zika case reported in Florida

Florida health officials yesterday reported the first sexually transmitted case of Zika virus this year. There is still no evidence, however, of locally transmitted Zika virus by mosquitoes in the state.

The case was identified in Pinellas County. The individual reported that his or her partner had recently traveled to Cuba, and both patients tested positive for Zika infection. The Florida Department of Health (Florida Health) warned that sexual partners must take precautions if one partner travels to a Zika-endemic area.

As of yesterday, Florida officials have confirmed 118 Zika infections in the state, 90 of which are travel-related. Eighty-one pregnant women in the state have laboratory confirmed Zika.

Aug 1 Florida Health [statement](#)



Texas reports first local Zika case of 2017

Filed Under: [Zika](#)

Lisa Schnirring | News Editor | [CIDRAP News](#) | Jul 26, 2017

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Texas health officials today announced the state's first probable local Zika infection of the year, which also appears to be the first local case reported in the United States for 2017.

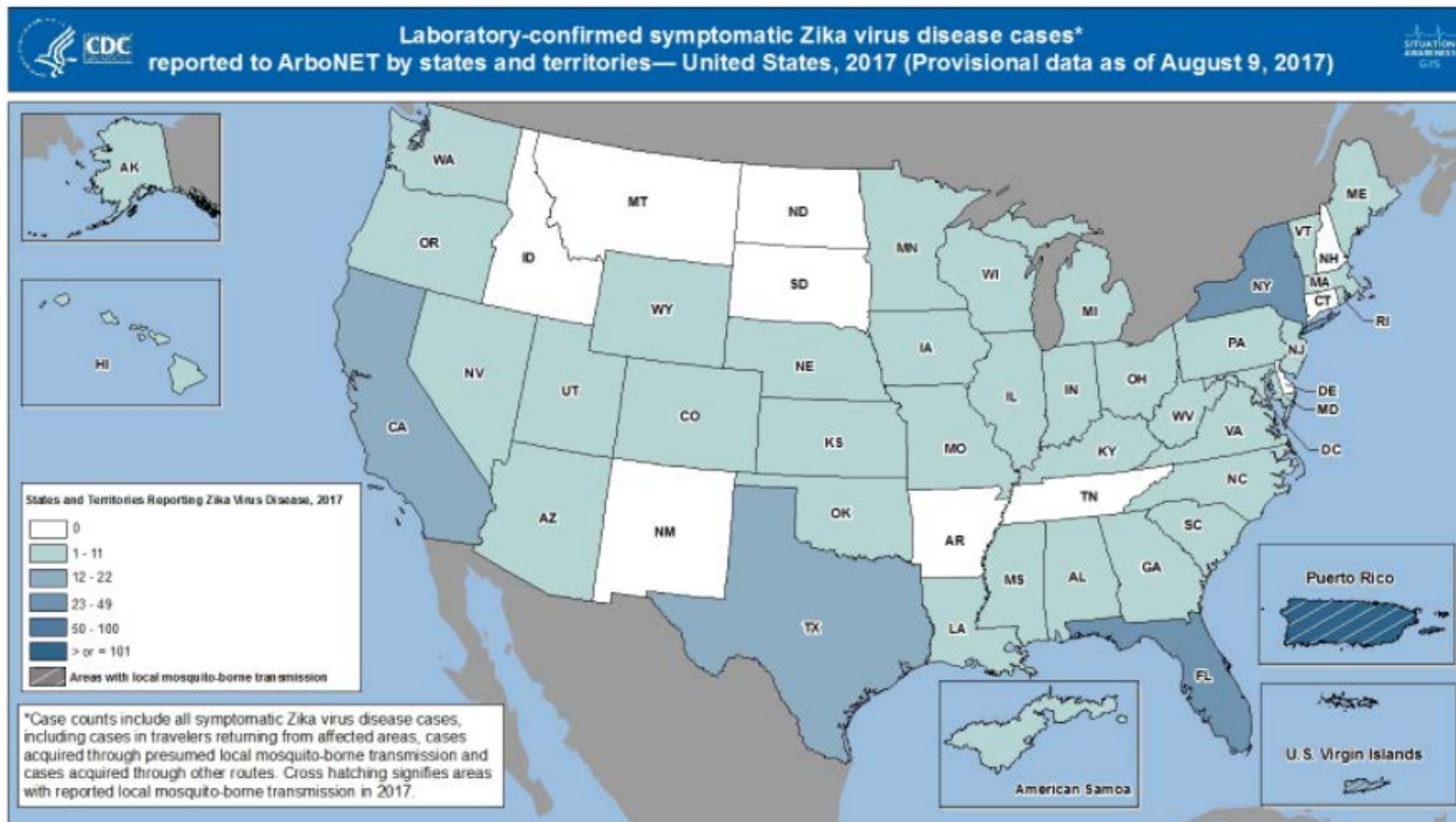
The patient is a Hildago County resident who had not traveled outside the area or had any other risk factors, the Texas Department of State Health Services (TSDHS) said in a press release. Hildago County, located in the Rio Grande Valley, is in far southern Texas on the border with Mexico.

The virus was probably transmitted by a mosquito bite in South Texas some time in the last few months, and lab tests show that the person is no longer at risk of spreading Zika to mosquitoes.

In April the TSDHS expanded its recommendations for testing pregnant women and people with Zika infections in six South Texas counties, which led to thousands of tests being conducted and to the identification of the newly identified case.



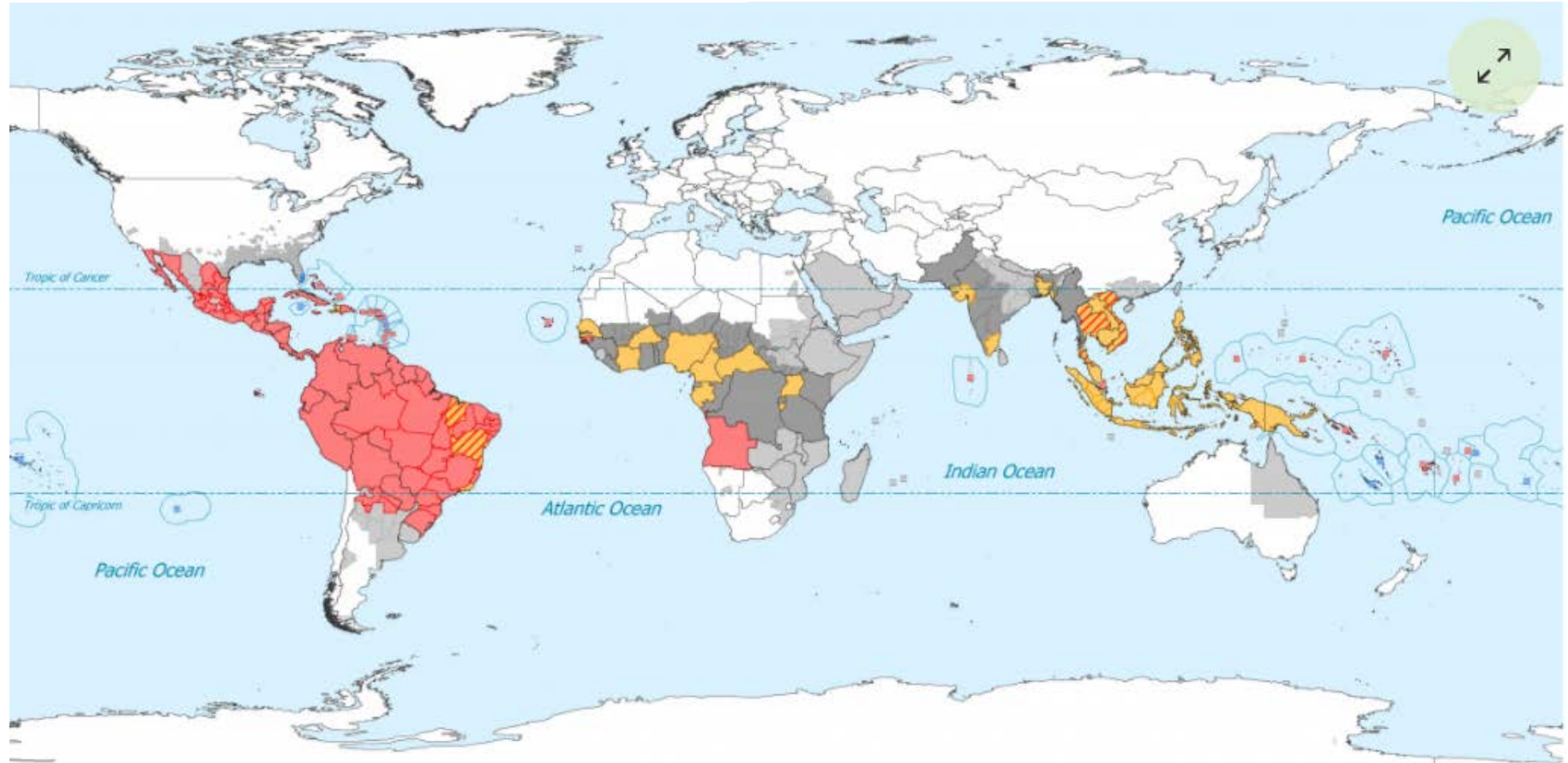
Cases by State and Territory



Current Zika transmission worldwide

map

27 Jul 2017



Country classification category (Cat.) for Zika virus transmission

■ Areas with virus transmission following virus new/re introduction (WHO Cat. 1)

■ Areas with virus transmission following previous virus circulation (WHO Cat. 2)

■ WHO Cat. 2 areas with new documented intense transmission

■ Areas with interrupted transmission (WHO Cat. 3)

■ Areas bordering a WHO Cat. 2 area (sub-category of WHO Cat. 4)

■ Areas with potential for transmission (sub-category of WHO Cat. 4)

□ Maritime Exclusive Economic Zones for non-visible areas

Aedes mosquitoes entered California years before detection

Filed Under: [Zika](#); [Yellow Fever](#); [Dengue](#)

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A new study used genetic analysis to further understand how and under what circumstances the *Aedes aegypti* mosquito was introduced to California. Researchers said that the vector, which can transmit yellow fever, dengue, and Zika, was introduced years before mosquito surveillance teams detected the species and handled cooler temperatures than previously thought possible.

The researchers presented their findings in the latest issue of *PLoS Neglected Tropical Diseases*. Evelyn Pless, a PhD candidate at Yale University and lead author of the study, said the genetic analysis showed that the bugs had been in California for years before their 2013 detection.

"We know that detection officially occurred in 2013, but our analysis shows the species was somewhat established by that year," said Pless. "Moreover, we see evidence of overwintering in Northern California, which means the bugs are able to stand freezing temperatures a few times per year."



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News Scan for Jul 28, 2017

Emergent, Valneva to co-develop Zika vaccine

Emergent BioSolutions announced this week that it has licensed Zika vaccine technology from Valneva, a biotechnology company based in France.

In a Jun 26 press release, Emergent said it will co-develop ZIKV-VLA1601, an inactivated vaccine from preclinical development through the end of a phase 1 clinical trial. The vaccine is based on Valneva's manufacturing platform for an inactivated whole-virus vaccine against Japanese encephalitis.

Adam Harvey, Emergent's executive vice president of business operations, said the company is focused on providing preparedness solutions to public health threats and emerging infectious diseases. "This commitment extend beyond acquiring revenue-generating products and advancing our own products to aligning with partners such as Valneva to develop innovative products that could potentially serve the needs of both government customers and the commercial market."

In addition to the product development agreement, the companies expect to sign a technology transfer agreement at a later time to allow Valneva's candidate vaccine to be made at Emergent's Bayview manufacturing facility in Baltimore, Md.

A phase 1 trial of the vaccine is planned for late 2017 or early 2018.

Jul 26 Emergent BioSolutions [press release](#)



News Scan for Jul 31, 2017

Brazil reports 51,000 new chikungunya cases

After several consecutive weeks reporting increases in the hundreds, the Pan American Health Organization (PAHO) reported a huge jump of 51,006 new chikungunya cases (a 57% increase), almost all of them in Brazil, according to an update published late last week.

PAHO has now reported 140,569 confirmed, suspected, and imported chikungunya cases in the Americas in 2017, according to the Jul 28 update.

Brazil, reporting on 6 weeks of cases, noted 50,800 new cases, bringing its 2017 total to 131,749 cases, or 94% of the total in the Americas. Brazil also reported 34 new chikungunya-related deaths, raising its fatality total to 51. No other country in the Americas has reported a chikungunya death.

Since the 2013 start of the outbreak in the Americas and the Caribbean region, the virus has sickened 2,527,280 people, according to PAHO data.

Jul 28 PAHO update

HOT TOPICS

1. MERS-CoV
2. Polio
3. Cholera

UPDATES


4. Avian influenza
5. Influenza vaccine
6. Influenza antivirals
7. Yellow fever
8. Lassa fever
9. Zika
10. Antimicrobial resistance
11. *Legionella*
12. Other


CDC reports uptick in *Candida auris* cases

Filed Under: [Antimicrobial Stewardship](#); [Fungal Infection](#)


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In its latest update on cases involving the multidrug-resistant fungus *Candida auris*, the US Centers for Disease Control and Prevention (CDC) said the number of illnesses detected in the United States has risen by 12 cases to 98.

One of the new clinical cases reported since the last update in June is in Connecticut, which raises the number of affected states to nine. According to the CDC update, the other new cases are in New York, which has the most reported *C. auris* cases with 68. Cases have also been reported in New Jersey (20), Illinois (4), Massachusetts, Maryland, Oklahoma, Florida, and Indiana (1 each).

The case counts do not include colonized patients. But the agency said *C. auris* has been isolated from an additional 110 patients from healthcare facilities in three states where clinical cases have been detected.



Shawn Lockhart/ CDC

Candida auris spreading in UK hospitals

Filed Under: **Candida auris**; **Fungal Infection**; **Antimicrobial Stewardship**

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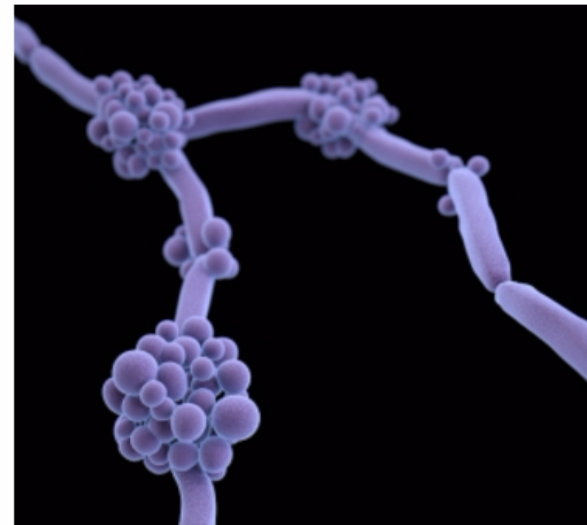
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Hospitals in the United Kingdom have detected more than 200 patients colonized or infected with the multidrug-resistant fungus *Candida auris*, according to a new report from Public Health England (PHE).

Approximately one quarter of the cases, which have been detected at more than 55 hospitals across the United Kingdom, are clinical infections, including 27 patients who developed bloodstream infections. The other patients have not shown any sign of infection, a PHE microbiologist told Reuters. No deaths have been attributed to infection.

The first *C. auris* infection in the United Kingdom was identified in 2013. Since then, there have been three large nosocomial outbreaks in intensive care units in English hospitals. As of yesterday, all three hospitals had declared their outbreaks over, the PHE report says.



CDC

European report ties drug resistance to use in humans, animals

Filed Under: [Antimicrobial Stewardship](#)

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A new joint report from European public health agencies suggests a positive association between antimicrobial consumption and resistance in both humans and food-producing animals—and it highlights the need for prudent antimicrobial use in human and veterinary medicine.

The report, an integrated analysis of the consumption of antimicrobial agents and the occurrence of antimicrobial resistance (AMR) in bacteria from humans and food-producing animals, is the second joint report issued by the European Food Safety Authority (EFSA), the European Medicines Agency (EMA), and the European Centre for Disease Prevention and Control (ECDC). Using data collected from the agencies' European Union (EU)-wide clinical and epidemiologic surveillance networks for 2013 through 2015, the report focuses on particular combinations of antimicrobials and bacterial species considered important to public health.

While noting that AMR is complex and that levels of resistance may be influenced by other factors, the authors write, "Many of the observed findings fit well with the current knowledge of the epidemiology of AMR and infections relating to the bacterial species studied."



Jupiter Images

HOT TOPICS

1. MERS-CoV
2. Polio
3. Cholera

UPDATES

4. Avian influenza
5. Influenza vaccine
6. Influenza antivirals
7. Yellow fever
8. Lassa fever
9. Zika
10. Antimicrobial resistance
11. *Legionella*
12. Other

Health department investigating legionella cases with possible ties to James Square

by CNYCentral | Wednesday, August 9th 2017

SYRACUSE, N.Y. — The New York State Department of Health is investigating two cases of legionellosis with possible ties to the James Square Health and Rehabilitation Centre.

The DOH says its investigation is being done in collaboration with James Square. Samples have been collected from the facility's potable water system, which recently tested positive for Legionella, according to the health department.

The DOH has recommended a water restriction on the nursing home until the water system can be remediated.

Legionella is not spread person to person. Regulations require all general hospitals and residential health care facilities to perform Legionella tests on drinking water systems. Each year, between 200 and 800 cases of legionellosis are diagnosed in the state.

James Square was the focus of a raid by the state Attorney General's office recently [amid allegations of poor resident care](#).

The new administrator of the facility [has promised a total turnaround](#).



Legionella bacteria confirmed at Whitehall nursing home

by Rob Wells | Wednesday, August 2nd 2017

Officials from Franklin County Public Health said two residents of the Manor at Whitehall tested positive in July for Legionella bacteria.

"Legionella is a class B reportable disease. So, once it's identified in the clinical setting, it's required to be reported to public health" said Franklin County public health commissioner Joe Mazzola.

Mazzola said the residents, believed to be in their 60's, were hospitalized.

A separate test will determine whether they had full-blown Legionnaires' Disease characterized by pneumonia-like symptoms. Results from that won't be known for at least a week.

An environmental assessment was conducted at the Langley Avenue facility, which included an inspection of all plumbing, heating and cooling systems and all pipes and waters systems to determine if the source of the bacteria came from inside the nursing home.

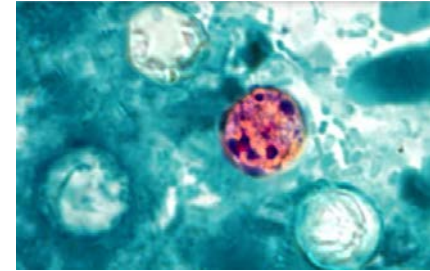
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7. Yellow fever
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10. Antimicrobial resistance
11. *Legionella*
12. Other

CDC reports spike in parasitic cyclospora infections this year



Health officials are investigating a sharp increase in reported cases of *cyclospora*, an intestinal infection caused by the parasite *Cyclospora cayetanensis*.

Since May 1, there have been 206 cases of cyclospora infections reported to the U.S. Centers for Disease Control and Prevention. That's up from 88 cases during the same time period last year.

The most common symptom of the infection is watery diarrhea, which can be profuse. Other symptoms include loss of appetite, fatigue, weight loss, nausea, flatulence, abdominal cramping, and muscle pain. People may also experience fever and vomiting.

Cyclospora infections typically occur when someone *consumes food or water contaminated* with the parasite. It is not spread from person to person.

Symptoms typically begin about a week after ingestion of the parasite. If left untreated, the illness may last anywhere from few days to a month or longer, and may have a remitting-relapsing course. The illness, known as cyclosporiasis, can be treated with *antibiotics*.

Officials are not yet sure what's behind the jump in cases this summer and are currently investigating the source. So far, cases have been reported from 27 states. No deaths have been reported but 18 people were hospitalized.

Cyclosporiasis occurs in many countries but is more common in tropical and sub-tropical areas. Past outbreaks in the United States have been linked to various types of imported fresh produce, including basil, *cilantro*, mesclun lettuce, raspberries, and snow peas.



August 11, 2017

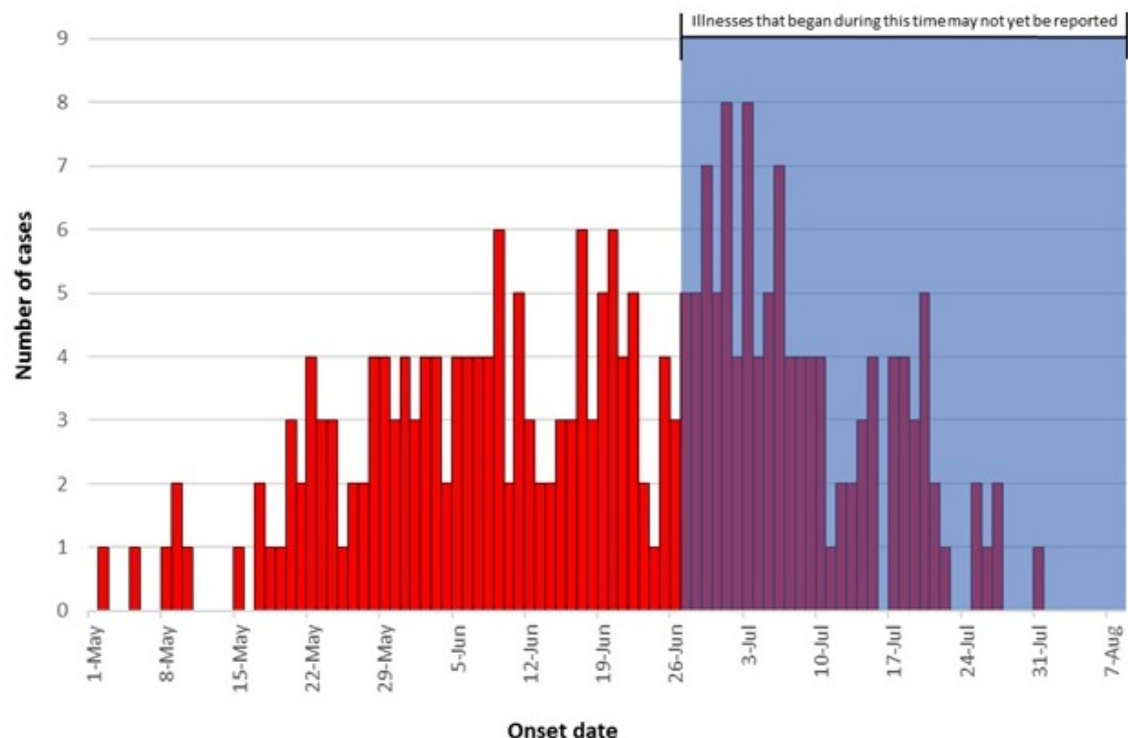
Highlights

- *Cyclospora cayentanensis* is a single-celled parasite that causes an intestinal infection called [cyclosporiasis](#).
- Advice for consumers about prevention and recognition of cyclosporiasis can be found [here](#).
- As of August 8, 2017 (2pm EDT), CDC has been notified of 570 laboratory-confirmed cases of cyclosporiasis in persons who became ill in 2017. This number includes persons who reported international travel as well as persons who did not report travel. The reports have come from 35 states.
 - At least 251 (44%) of these persons did not report international travel and were likely infected in the United States, and became ill on or after May 1, 2017 (a date after which cases tend to increase each year).
- At this time, no specific vehicle of interest has been identified, and investigations to identify a potential source (or sources) of infection are ongoing. It is too early to say whether cases of *Cyclospora* infection in different states are related to each other or to the same food item(s).
- [Previous U.S. outbreaks of cyclosporiasis](#) have been linked to various types of imported fresh produce (e.g., basil, cilantro, mesclun lettuce, raspberries, snow peas). Consumers should continue to enjoy the health benefits of eating fresh fruits and vegetables as part of a well-balanced diet.
- Consumers and retailers should always follow [safe produce handling recommendations](#) [↗](#).
- More information about *Cyclospora* can be found on [CDC's Cyclospora pages](#).



UPDATES WILL BE PROVIDED WHEN MORE INFORMATION IS AVAILABLE

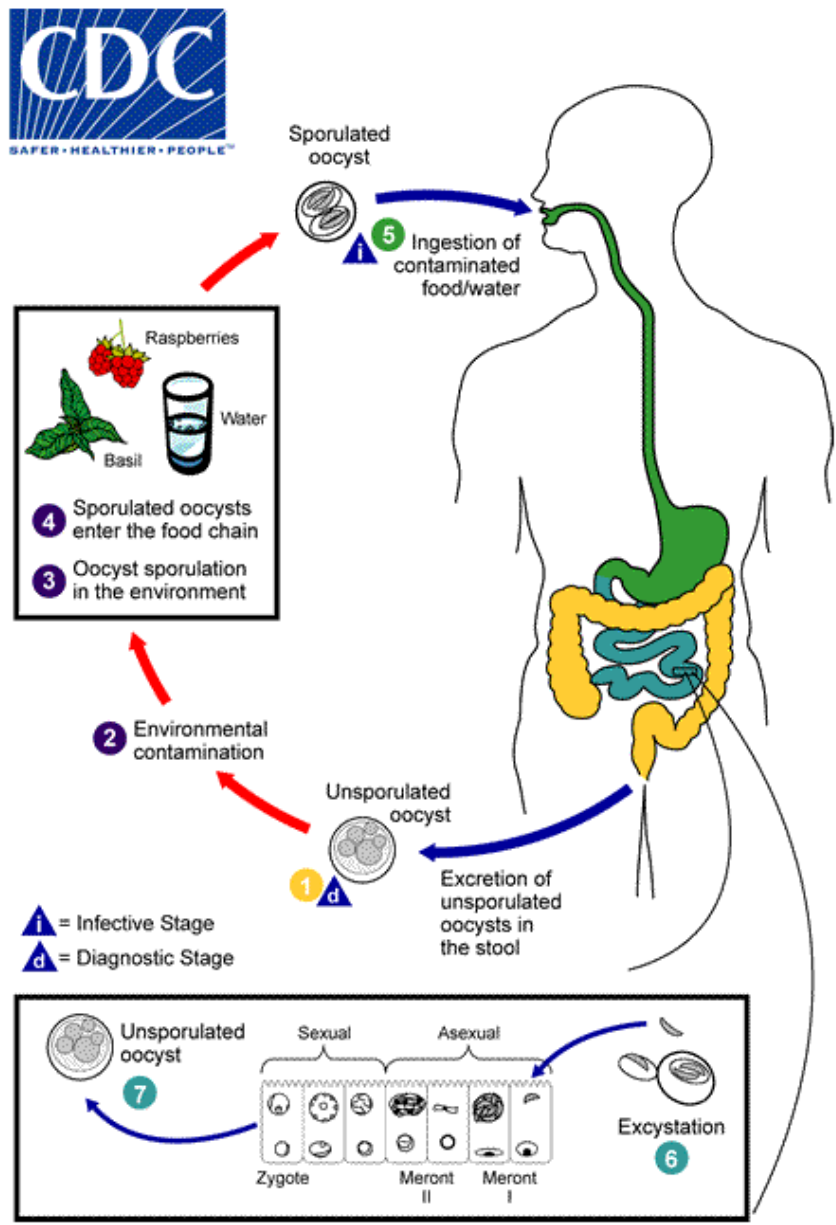
Reported U.S. cases of laboratory-confirmed, non-travel-associated cyclosporiasis in persons with onset of illness since May 1, 2017*



*N=251. Data are current as of 8/8/17 (2pm EDT). Data are preliminary and subject to change. These cases occurred in persons with no history of travel outside of the United States or Canada in the 14 days before onset of illness. Illnesses that began after 6/26/17 might not have been reported yet due to the time it takes between when a person becomes ill and when the illness is reported. It is not currently known whether reported cases are related to each other or represent one or more outbreaks.

Parasites - Cyclosporiasis (Cyclospora Infection)

Life Cycle:





EDITORIAL

Cyclosporiasis and Raspberries — Lessons for the Future

Michael T. Osterholm, Ph.D., M.P.H.

N Engl J Med 1997; 336:1597-1599 | May 29, 1997 | DOI: 10.1056/NEJM199705293362210

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One hundred years ago, Osler observed that to know syphilis was to know clinical medicine. Today, to know and appreciate the many clinical, microbiologic, and public health aspects of the outbreak of cyclosporiasis associated with raspberries that Herwaldt and colleagues describe in this issue of the *Journal*¹ is to know foodborne disease in the modern world. The investigation conducted by Herwaldt et al. illustrates the changing epidemiologic characteristics of foodborne disease in this country.

Two of the key factors that have contributed to these changes are the substantial alterations in the American diet over the past two decades and the globalization of the food supply.² Although the promotion of a "heart-healthy" diet (high consumption of fruits and vegetables and low consumption of fat) may be improving cardiovascular health, it has led to a new range of problems for the gastrointestinal tract. Infectious-disease specialists frequently remind persons traveling to developing countries to reduce the risk of traveler's diarrhea by eating only foods that can be boiled or peeled. Yet seasonally, up to 70 percent of selected fruits and vegetables consumed in this country come from developing countries. One does not need to leave home to contract traveler's diarrhea caused by an exotic agent. Although produce from U.S. growers is also a source of pathogens, fruits and vegetables from developing countries are cause for additional concern. Many developing countries are just entering the global produce market. The first raspberry vine was planted in Guatemala in 1987, yet approximately 20 percent of all fresh raspberries sold in May 1996 in the United States came from Guatemala.

Emerging or reemerging infectious agents are another factor associated with the changing epidemiologic characteristics of foodborne disease. *Cyclospora cayetanensis* is such an agent. When an emerging foodborne agent is first recognized, there are typically many unanswered questions about the epidemiologic characteristics of the infection and its prevention. Furthermore, clinicians need to be aware of the clinical presentations associated with new agents. For example, a patient presenting with a diarrheal illness of five or more days' duration, severe fatigue, and loss of appetite should be evaluated for cyclosporiasis regardless of whether the patient has traveled to a foreign country or consumed contaminated water. Clinical laboratories now need to be proficient at performing routine examinations for a wide variety of emerging agents. Moreover, public health officials need to be aware of the importance of initiating and maintaining population-based surveillance for these types of agents. Today, the resources for conducting surveillance are severely limited at the state and local levels.

Papaya-linked Salmonella outbreak sickens 47 in 12 states

Filed Under: [Foodborne Disease](#); [Salmonella](#)

Lisa Schnirring | News Editor | CIDRAP News | Jul 24, 2017

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A *Salmonella* Kiambu outbreak likely linked to eating contaminated Maradol papayas has sickened 47 people in 12 states, 1 of them fatally, the US Centers for Disease Control and Prevention (CDC) recently announced.

Maradol papayas are large, oval fruits that weigh 3 or more pounds, have green skin that turns yellow when ripe, and have salmon-colored flesh. Federal officials are still examining the distribution chain, but they say the source of the contaminated fruit appears to be Mexico.



utah778 / iStock

Patients tilt toward Hispanic females

Most of the cases were reported in five eastern states: New York (13), New Jersey (12), Virginia (6), Maryland (5), and Pennsylvania (4). Seven states across a wide swath of the country, however, have each reported 1 case: Iowa, Kentucky, Louisiana, Massachusetts, Minnesota, Texas, and Utah.



US *Salmonella* papaya outbreak more than doubles

Filed Under: [Salmonella](#); [Foodborne Disease](#)

Stephanie Soucheray | News Reporter | CIDRAP News | Aug 04, 2017



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The Centers for Disease Control and Prevention (CDC) today said the US outbreak of *Salmonella* illness linked to Mexican Maradol papayas has more than doubled, and another strain of *Salmonella* has been implicated.

The CDC said health officials in Maryland identified *Salmonella* Thompson on a Maradol papaya at a grocery store. Lab testing showed that the *Salmonella* Thompson strain was nearly identical to the bacterium making people ill in that state.

Salmonella Kiambu, the strain identified with the outbreak in the CDC's initial announcement on Jul 21, has also been found on Maradol papayas. Whole-genome sequencing also showed the Kiambu strain from the fruit to be closely linked to the strain isolated from outbreak patients.

Outbreak grows to 109 cases, 16 states

Officials confirmed 62 more cases since the initial update, bringing the total to 109, with 35 hospitalizations and 1 death reported. Hospitalizations increased by 23, but the number of deaths stayed the same. The 35 hospitalized is out of 76 people with available information, for a 46% hospitalization rate.



Vegan Feast Catering / Flickr cc

News Scan for Aug 08, 2017

Another distributor pulls papayas after *Salmonella* outbreak

A Texas company has recalled a brand of Maradol papayas, which are implicated in an ongoing *Salmonella* outbreak across the United States.

Freshtex Produce, distributors of the Valery brand of Maradol papayas, announced today they are voluntarily pulling the Valery fruit from shelves because it was grown in Carica de Campeche, the same Mexican region where other Maradol papayas contaminated with *Salmonella* have been grown.

According to an announcement published yesterday by the Food & Drug Administration (FDA), the Maradol papayas were distributed in Illinois from Jul 10 to Jul 13. Valery papayas are the only Freshtext produce subject to the recall.

The Valery papaya joins Caribena and Cavi brands of Maradol papayas, which were recalled in the last week after at least 109 cases of *Salmonella* poisoning linked to papayas were reported

Aug 7 FDA announcement

News Scan for Aug 11, 2017

Papaya-linked *Salmonella* outbreak grows to 141 cases in 19 states

The US Centers for Disease Control and Prevention (CDC) today reported that 32 more people have been sickened in a multistate *Salmonella* outbreak linked to certain brands of Maradol papayas imported from Mexico. The new illnesses, reported from 15 states, lift the outbreak total to 141 cases in 19 affected states. Newly affected states are Illinois, Ohio, and Texas.

Ten more people have been hospitalized for their infections, raising that total to 45. The number of deaths remained the same, at 1. The latest illness onset is Jul 27.

The outbreak involves two *Salmonella* strains, Thompson and Kiambu.

Based on the latest investigation findings, federal officials have warned consumers not to eat Maradol papayas from the Carica de Campeche farm in Mexico, and so far US companies have voluntarily recalled three different brands of Maradol papayas from the farm: Caribena, Cavi, and Valery. Efforts are under way to determine if other brands are tied to the outbreak.

The Food and Drug Administration (FDA) has tested other papayas imported from the farm and has isolated three additional *Salmonella* strains: Agona, Gaminara, and Seftenberg. It has also increased testing on papayas from other Mexican farms.

Maradol papayas are large, weighing about 3 pounds, and typically have fully yellow skin when ripe and salmon-colored flesh.

[Aug 11 CDC outbreak update](#)

[Aug 11 FDA outbreak update](#)



News Scan for Jul 25, 2017

Study places risk of contracting Lyme from tick bite at 2.6%

A modeling study yesterday from a team of Dutch scientists predicts that the overall risk of contracting Lyme disease from a deer tick bite is 2.6%, and the risk increases with tick engorgement, tick attachment time, and detection of *Borrelia burgdorferi* DNA in ticks.

To calculate the risk, the scientists compiled outcomes from three large prospective European studies on tick bites. The studies included 50 cases of Lyme borreliosis among 3,525 reports of tick bites. Substantially engorged ticks carried a 5.5% risk of transmitting harmful bacteria, contrasted with a 1.4% risk associated with low-engorgement ticks. If patients estimated that the tick was attached for less than 12 hours, there was a 2% risk of illness, as opposed to a 5.2% risk when the tick was attached for 4 days or longer.

According to the study, ticks that tested positive for *Borrelia* DNA posed a five times higher hazard than *Borrelia*-negative ticks.

"Further research is needed to explore how such risk assessment could be implemented for clinical decision making by physicians, since it would involve rapid testing of ticks for infection with *Borrelia* and estimation of tick attachment duration," the authors concluded.

Jul 24 PLoS One study

Lyme disease insurance claims show disease rise, rural-urban divide

Filed Under: [Tick-borne Disease](#)

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

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Lyme disease levels in the United States have been rising since 2007, and patterns show differences in rural and urban settings, according to new findings released today from a nonprofit health insurance group, which based its analysis on more than 23 billion privately billed insurance claims.

The study from FAIR Health, which studies healthcare costs and health insurance information, found that insurance claims involving Lyme disease diagnosis rose 185% in rural areas from 2007 to 2016, with a smaller 40% increase in urban areas. The group's findings appear on its Web site.

Lyme disease, caused by *Borrelia burgdorferi* bacteria, is spread through the bite of blacklegged ticks. Symptoms include fever, headache, fatigue, and a characteristic skin rash. When untreated, the disease can lead to joint, cardiac, and neurological complications.

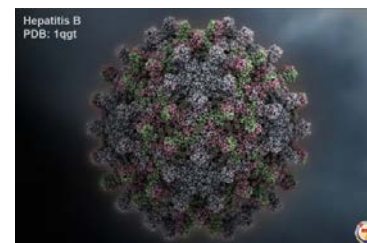
The US Centers for Disease Control and Prevention (CDC) says about 30,000 Lyme disease infections are reported from states each year, a number it says probably reflects only a fraction of the disease burden.



James Gathany / CDC

Merck and GlaxoSmithKline production issues lead to global shortage of hepatitis B vaccine

by Eric Palmer | Aug 9, 2017 9:51am



A global shortage of hepatitis B vaccine has developed as both Merck & Co. and GlaxoSmithKline deal with manufacturing issues, leading health agencies in England to ration use to those most at risk.

Both drugmakers have acknowledged issues. A Merck spokesperson said the company is has had manufacturing constraints in 2017 "related to the growing global demand for our vaccines and unexpected demand due to lack of competitive supply."

She said supply interruptions for the adult formulation of RecombivaxHB began in the first quarter of 2017 and that Merck "does not expect to be distributing the vaccine in the United States between now and the end of 2018."

A **notice** by the U.S. Centers for Disease Control posted last month said that GSK has sufficient supplies of adult and pediatric hepatitis B vaccines to address the anticipated gap in Merck's supply.

RELATED: Merck reports hep B vaccine shortage

While GSK has been able to cover for shortages in the past, a spokeswoman said the company is currently dealing with manufacturing issues of its own.

Questions, Comments and Discussion



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