Epidemiological Alerts and Updates

Annual Report 2014

Pan American Health Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

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Epidemiological Alerts and Updates. Annual Report 2014

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Introduction

The Annual Report on Epidemiological Alerts and Updates 2014 covers the most important public health events of international concern that occurred during said year in the Region of the Americas; they are events that compelled the Pan American Health Organization/World Health Organization (PAHO/WHO) to issue recommendations to Member States.

Under the International Health Regulations (IHR), PAHO/WHO has a role in both the alert and response to public health events; as part of that function, the Organization maintains an event-based surveillance system aimed at detecting, monitoring, and evaluating situations of potential risk that require a coordinated international response.

In 2014, PAHO/WHO tracked 132 events; of those, after conducting a risk assessment, 61 (46%) were considered international events of public health concern. Those events were reported in 24 Member States and 5 territories, and 67% dealt with infectious diseases; 13% were related to food safety; 8% were of anthropozoonotic origin; 5% were related to contaminated products; 3% were natural disasters; 2% were radionuclear in origin; and 2% were chemical risks.

Epidemiological Alerts and Updates are one of the mechanisms for dissemination of information to Member States. They supplement other information outlets, such as the WHO Event Information Site (EIS) for IHR National Focal Points. In 2014, a total of 18 Epidemiological Alerts and Updates were issued, in addition to information on 19 events shared through the EIS. Also, 214 communications and relevant reports were provided to Member States.

During 2014, alerts and updates linked to the public health emergency of international concern (PHEIC) arising from the Ebola virus disease (EVD) outbreak, as well as from the international spread of wild poliovirus disease stood out due to the potential impact of both events on the Region of the Americas. Important information on the spread of the Chikungunya virus in the Americas, and updates on the cholera outbreak in the Region were shared through these alerts.

In addition to information on the epidemiological situation, each Epidemiological Alert and Update includes guidelines, and lists technical documents useful in addressing the specific situation, which become the underlying value of these summary updates.

PAHO/WHO thanks all Member States for their contribution to regional and global surveillance, and reiterates the importance of maintaining timely notification of events that could pose an international public health risk, in order to further contribute to health improvements in the Region and the world.

Acronyms and Abbreviations

CDC	United States Centers for Disease Control and Prevention
CHIKV	Chikingunya virus
EGI	Integrated Management Strategy (Spanish acronym)
EVD	Ebola virus disease
EW	Epidemiological week
IHR	International Health Regulations
ILI	Influenza-like illness
IVM	Integrated vector management
NFP	National Focal Point
PHAC	Public Health Agency of Canada
PHEIC	Public health emergency of international concern
PPE	Personal protection equipment
SARI	Severe acute respiratory illness
WPV1	Wild Poliovirus Type 1

Seasonal Influenza

Seasonal influenza for 2013-2014 began in the Northern Hemisphere during epidemiological week (EW) 40 of 2013, with an increase in the number of cases of influenza-like illness (ILI). Reporting of hospital admissions began in EW 50 of 2013. The onset time was within the expected levels for this time of year.

Every year, an increase in the number of cases of influenza is reported primarily during the autumn and winter months in the Northern Hemisphere. As of early January 2014, influenza A(H1N1)pdm09 was predominant. This strain is considered a seasonal virus, i.e., it will continue to circulate like other influenza viruses. Clinical management and outbreak response are the same as for other seasonal influenza viruses.

North America

Situation Summary, 2 January 2014

In Canada, the Public Health Agency of Canada (PHAC) continued to report an increase in influenza activity in the country[1]. Up to EW 50 of 2013, eight (8) of the ten (10) Canadian regions had reported sporadic[a] or localized[b] influenza activity. The number of pediatric hospitalizations due to influenza also continued to increase, while the number of admissions among adult patients showed a slight decrease. In sentinel hospitals, 98% of adults, and 81% of pediatric influenza cases had been identified as influenza A infections, predominantly influenza A(H1N1) pdm09.

In Mexico, influenza activity reported also showed an increase during the season. The proportion of health care visits due to ILI and severe acute respiratory infection (SARI) remained below 1% of the total number of health related consultations. Of all samples tested in the laboratory for influenza virus, about 20% tested positive. The endemic channel shows that SARI activity remained below the 50th percentile. Influenza A(H1N1)pdm09 was predominant among influenza viruses circulating in Mexico.

In the United States of America, the proportion of ILI health care visits started to increase during EW 50 of 2013. As of EW 51 of that year, mortality from pneumonia and influenza was

[a] Sporadic activity, as defined by PHAC: Sporadic ILI occurrence and detection of cases of laboratory-confirmed influenza, with no occurrence of outbreaks.

[b] Localized activity, as defined by PHAC: (1) evidence of increased ILI incidence, (2) detection of laboratory-confirmed cases of influenza, (3) outbreaks in schools, hospitals, nursing homes, and/or other establishments, occurring in 50% or more of the influenza surveillance regions.

below the epidemic threshold. Although national influenza activity was low, some southern areas reported increased influenza activity, and further increases were expected in the following weeks.[2]

In its health alert of 24 December 2013, the United States Centers for Disease Control and Prevention (CDC) indicated that between November and December 2013 there had been several reports of serious respiratory disease among young and middle-aged adults, many of them with influenza A(H1N1)pdm.[3] As of that date, the disease´s spectrum had been moderate to severe and similar to previous seasons. The CDC alert indicated that no significant changes had been detected to suggest greater virulence or transmissibility of the virus. The CDC continued to monitor circulating viruses for antigenic and genetic changes, as well as any changes in morbidity and mortality that could have indicated a greater severity of infection.

Recommendations

The Pan American Health Organization / World Health Organization (PAHO / WHO) recommended that Member States continue their surveillance efforts to detect any unusual behavior of the influenza virus, as well as the emergence of any new virus subtype. The Organization also encouraged Ministries of Health to continue seasonal influenza vaccination to avert hospitalizations and deaths. In light of the onset of the influenza season in the Northern Hemisphere, PAHO/WHO reminded Member States to continue to follow the recommendations provided in the 31 May 2013 Epidemiological Update on Influenza, available at: http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=21763&Itemid=

Situation Summary, 28 March 2014

To prepare for the upcoming influenza season in the Caribbean and South America, it was important to look at the 2013-2014 influenza season in the Northern Hemisphere, which was characterized by a predominance of influenza A(H1N1)pdm09,[c] and affected mainly the adult population.[4]

In Canada, for example, of over 18,000 cases with data on age and influenza type/sub-type, 55% were individuals between the ages of 20 and 64 years.[5] Of 1,250 influenza-associated hospital admissions recorded between the season´s onset[d] and EW 11 of 2014, 88% were due to influenza A(H1N1)pdm09. Of those hospitalized, 73% had not received the influenza vaccine. More than 75% of hospitalizations, and approximately 80% of patients admitted to intensive care units (ICU) were 45 years of age or older.

In Mexico, influenza A(H1N1)pdm09 virus was predominant as well.[6] From the beginning of the season to EW 12 of 2014, there were 6,627 influenza cases recorded. Of those, 5,241 (79%) were confirmed A(H1N1)pdm09; they occurred mostly among those aged 30 to 44 years old. Of the 704 deaths recorded, 531 (75%) were in the age group of 40 to 59 years old, 68% had at least one additional morbid condition, and 90% had not been vaccinated against influenza.

In the United States, the influenza A(H1N1)pdm09 virus was also predominant.[7] Approximately 61% of influenza hospital admissions were individuals 18 to 64 years of age. This number was higher than that recorded in the previous influenza season, in which influenza A(H3N2) predominated. During the 2013-2014 influenza season, 25 to 64 year-olds accounted for almost 60% of all influenza deaths, exceeding the proportion seen in the three previous influenza seasons, where that age group accounted for 18% (2012-2013), 30% (2011-2012) and 47%

[c] Influenza A(H1N1)pdm09 is a seasonal virus, i.e., it will continue to circulate like other influenza viruses.

[d] EW 40 of 2013.

(2010-2011) of all deaths. During the 2009-2010 pandemic, 63% of deaths occurred among people aged 25 and 64 years.

In summary, the available data for the 2013-2014 influenza season in the Northern Hemisphere indicated that this was characterized by a predominant circulation of influenza A(H1N1)pdm09. The trend may not occur in the Southern hemisphere, however, it nonetheless provided an orientation for possible lines of action, as countries prepared for the next influenza season.

Recommendations

At the time, PAHO/WHO recommended that Member States of the Caribbean and the South America sub-regions, where the influenza season was just beginning, prepare for an influenza season potentially similar to that of the Northern Hemisphere. In order to prevent hospitalizations and deaths, seasonal influenza vaccination efforts should be accelerated (including adequate stocks of vaccine) to reach the most at risk populations. In addition, public awareness campaigns on influenza prevention methods should be implemented. PAHO/WHO also recommended strengthening health services to prepare for possible increases in the number of patients, ensuring appropriate clinical management, and an adequate supply of antiviral medication. Surveillance activities should be strengthened.[8]

Vaccination

PAHO/WHO recommended that, due to increased susceptibility of pregnant to complications of influenza, this population group should be given the highest priority in influenza vaccination programs. Additional at-risk groups included, in no particular order, children aged 6 to 59 months (especially those between 6 months to 2 years of age), the elderly, individuals with specific chronic medical conditions, and health care workers. Countries with ongoing influenza vaccination programs targeting any of those groups should continue to do so, making sure to include the immunization of pregnant women.

Public Information

PAHO/WHO recommended that Member States strengthen their public communications and outreach efforts from the onset of the influenza season. The public should be informed of what is entailed in seasonal influenza, its risks, and how it can be prevented and treated. The public should be reminded that the primary form of influenza transmission is through interpersonal contact, therefore it being important to:

- Remind the public that hand washing is the most effective way of reducing transmission.
- Disseminate information about “respiratory etiquette” to help prevent transmission of the virus.
- Recommend that persons with fever not leave their home to go to work or to other public places until the fever has subsided.

Epidemiological and Laboratory Surveillance

Routine epidemiological and laboratory influenza surveillance activities should continue. Epidemiological surveillance should include outpatient influenza-like illness and hospital admissions for SARI. For the latter, samples were to be taken and tested, as allowed by the national laboratory system capacities.

To understand, identify and characterize influenza virus circulation, PAHO/WHO recommended following SARI surveillance guidelines outlined in the PAHO/WHO SARI Surveillance Protocol.

All specimens that could not be subtyped, as well as those with inconclusive or unexpected subtyping results, should be forwarded, as soon as possible, to the WHO Collaborating Center for influenza (US CDC) for additional testing.

As in the past, before the onset of seasonal influenza in the Northern Hemisphere, PAHO/WHO reminded Member States to continue to apply the recommendations published in the Epidemiological Update on Influenza of 31 May 2013, available at: http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=21763&Ite mid=

Response and Organization of Health Services

Health services needed to prepare for possible increases in the number of patients with respiratory symptoms. Detailed guidelines to assist countries in their preparation were developed by PAHO/WHO in 2009 and are available at: http://www.paho.org/hq/index.php?option=com_content&view=article&id=3353&Itemid=2%20470&to=2256&lang=en

One crucial element of health services organization is the development of proper triage system aimed at the timely identification of suspected cases in order to reduce the risk of viral transmission in outpatient and clinical care services (patients and health care workers).

The objectives of general triage measures in primary care are: a) to identify adequate space for dealing with cases of respiratory infection; b) to make available personal protection equipment (PPE) to health care workers, according to the complexity of care; and c) to rigorously implement standard and droplet precautions in clinical care.

Clinical Management

Influenza should be suspected in any febrile patient hospitalized with respiratory symptoms. Some population groups are more susceptible to developing complications, and require special attention. Such groups include children younger than four years of age; adults over 65 years of age; pregnant women; and individuals with underlying clinical conditions. In these cases antiviral treatment (e.g., oseltamivir) should be considered at the onset of symptoms. Treatment should be initiated even in the absence of influenza laboratory confirmation.

Treatment success rates are highest when treatment is administered early. For additional information, refer to: http://www2.paho.org/hq/dmdocuments/2009/informe_consulta%20expertos_clinica_ENG.pdf

Infection Control

Adequate measures must always be implemented to prevent and control infections in all situations (standard and droplet precautions). In the case of aerosol generating procedures (such as bronchoscopy, or any other procedure that produces respiratory tract aspiration), it is necessary for health care workers to wear particulate-filtering face shield respirators (N95, FFP2, or equivalent), eye protection, gown, and gloves. The procedure should take place in a room with natural or mechanical ventilation, in accordance with the WHO Guidelines.[e]

Situation Summary, 5 December 2014

In Canada, for EW 47 of 2014, the PHAC reported an increase of influenza activity at the national level when compared to the number of cases reported in previous weeks.[9] Said increase began during EW 37. The predominant virus was influenza A(H3N2). During the

[e] http://www.who.int/csr/resources/publications/infection_control/en/index.html

2014-2015 influenza season, the National Microbiology Laboratory (NML) characterized 10 A(H3N2) influenza A viruses, two (2) of which were antigenically similar to A/Texas/50/2012 (vaccine component), and eight (8) showed reduced titers to antisera produced against strains recommended for the seasonal influenza A/H3 vaccine component.

In Mexico, influenza activity remained within the endemic channel, and the proportion of consultations for ILI and SARI remained below 2%.[10]

In the United States, although influenza activity was low nationwide, some areas in the south of the country registered moderate to high activity; further increases were expected for the following weeks. The proportion of outpatients with ILI during EW 48 of 2014 reached 2.6%, above the national baseline of 2%. As of EW 48, deaths from pneumonia and influenza remained below the epidemic threshold. The predominant virus was influenza A(H3N2).

The US CDC issued a health advisory on 3 December 2014, indicating that 48% of influenza A(H3N2) samples collected and analyzed in the United States between 1 October and 22 November 2014 (n = 85) were antigenically similar to influenza A(H3N2) A/Texas/50/2012 virus that is included in the influenza 2014-2015 vaccine for the Northern Hemisphere. This meant a difference of 52% (antigenic drift) between the circulating influenza A(H3N2) and the 2014-2015 vaccine component for the Northern Hemisphere.[11] Nonetheless, the vaccine would protect against strains included in the vaccine (non-drifted), and would be somewhat effective against the drifted strain, thus reducing severe cases and deaths associated with influenza.

More detailed information on the status of influenza and other respiratory viruses can be obtained in the Regional Update on Influenza published weekly on the PAHO/WHO website.

Note: The recommendations for the 2015 Southern Hemisphere influenza vaccine include A/Switzerland/9715293/2013 (H3N2)-like virus— the drifted H3 virus which is circulating in Canada and the United States.

Recommendations

With the beginning of the influenza season in the Northern Hemisphere, PAHO/WHO reemphasized the recommendations regarding clinical management of patients, implementation of prevention and control measures in health care settings, and public awareness of preventative measures published in the 28 March 2014 Epidemiological Alert on Influenza (see preceding pages).

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6. Weekly epidemiological report on influenza. General Directorate of Epidemiology. Ministry of Health of Mexico. Available at: http://www.epidemiologia.salud.gob.mx/informes/2014/influenza/influenzasemanas.html

7. Weekly Influenza Surveillance report prepared by the Influenza Division. Center for Disease Control and Prevention. Available at: http://www.cdc.gov/flu/weekly/

8. PAHO/WHO Operational Guidelines for intensified national severe acute respiratory illness (SARI) surveillance, 2011. Available at: http://new.paho.org/hq/index.php?option=com_content&view=article&id=3353&Itemid=2470&to=2256&lang=en

9. Weekly Report, Public Health Agency of Canada. FluWatch. Available at: http://www.phac-aspc.gc.ca/fluwatch/

10. Mexico, Secretaria de Salud. Informes epidemiológicos de influenza de la Dirección General de Epidemiologia. Available at: http://www.epidemiologia.salud.gob.mx/informes/2014/influenza/influenzasemanas.html

11. CDC Health Advisory Regarding the potential for circulation of drifted Influenza A(H3N2) viruses. U.S. Centers for Disease Control and Prevention. Available at: http://emergency.cdc.gov/han/han00374.asp

Additional Information Sources

- Influenza Update. World Health Organization. Available at: http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html
- Regional surveillance of influenza and other respiratory viruses. Pan American Health Organization. Available at: http://www.paho.org/hq/index.php?option=com_content&view=article&id=3352&Itemid=2469&to=2246&lang=en

Chikungunya Fever

24 January 2014

Situation summary, 24 January 2014

Since the first report of autochthonous transmission of chikungunya infection to PAHO/WHO on 6 December 2013, six territories in the Region of the Americas had reported cases: the British Virgin Islands, Guadeloupe, Martinique, Saint Barthelemy, Saint Martin (French) and Sint Maarten (Dutch). (Table 1, Figure 1).

Chikungunya infection is transmitted by mosquitos of the genus *Aedes*, particularly de species *Aedes aegypti* and *Aedes albopictus*. The disease symptoms usually appear after an incubation period of three to seven days (range of one to 12 days). Chikungunya virus (CHIKV) can cause acute, sub-acute, and chronic disease. In acute disease, symptoms develop abruptly and include high fever, headache, myalgia and arthralgia (predominantly, in limbs and large joints). A maculopapular rash is also frequent.

The total number of cases reported by 24 January 2014 had reached 786.[f] In addition, imported cases had been reported in French Guiana (one case from Martinique and one from Saint Martin) and Dominica (one case from Saint Martin). At that time, the health services capacity of affected countries and territories had not been exceeded. Table 1, below, summarizes data by country and territory; Figure 1 shows the countries/territories with autochthonous transmission as of 24 January 2014.

[f] Totals provided for the French territories of Guadeloupe, Martinique, Saint Bartholomew and Saint Martin include both probable and confirmed cases. A probable case as defined by the Institut de Veille Sanitaire (INVS), is a suspected case presenting borderline IgM or positive for chikungunya.

Table 1: Reported Number of Autochthonous Cases of Chikungunya, Date of First Report, and Cumulative Number of Cases by 24 January 2014, by Country or Territory

Territory	Date of First Report	Cumulative Number of Cases Reported by 24 January 2014	Remarks
British Virgin Islands	15 January 2014	…	Three cases on Jost Van Dyke island.
Guadeloupe	24 December 2013	68	Includes 3 cases imported from Saint Martin. No hospital admissions.*
Martinique	19 December 2013	267	Includes 15 hospital admissions.*
Saint Barthelemy	31 December 2013	45	No hospital admissions.†
Saint Martin	6 December 2013	393	Includes 17 hospital admissions.¶
Sint Maarten	19 December 2013	10	No hospital admissions.*

*The incidence of the disease presented an upward trend.
†The incidence of the disease presented a downward trend, following the peak during EW 1 of 2014.
¶ Confirmed cases include the death of one adult with preexisting conditions; said death is, therefore, considered to be indirectly related to chikungunya infection. The incidence of the infection remained stable following an increase in the number of new cases reported during EW 52 of 2013.

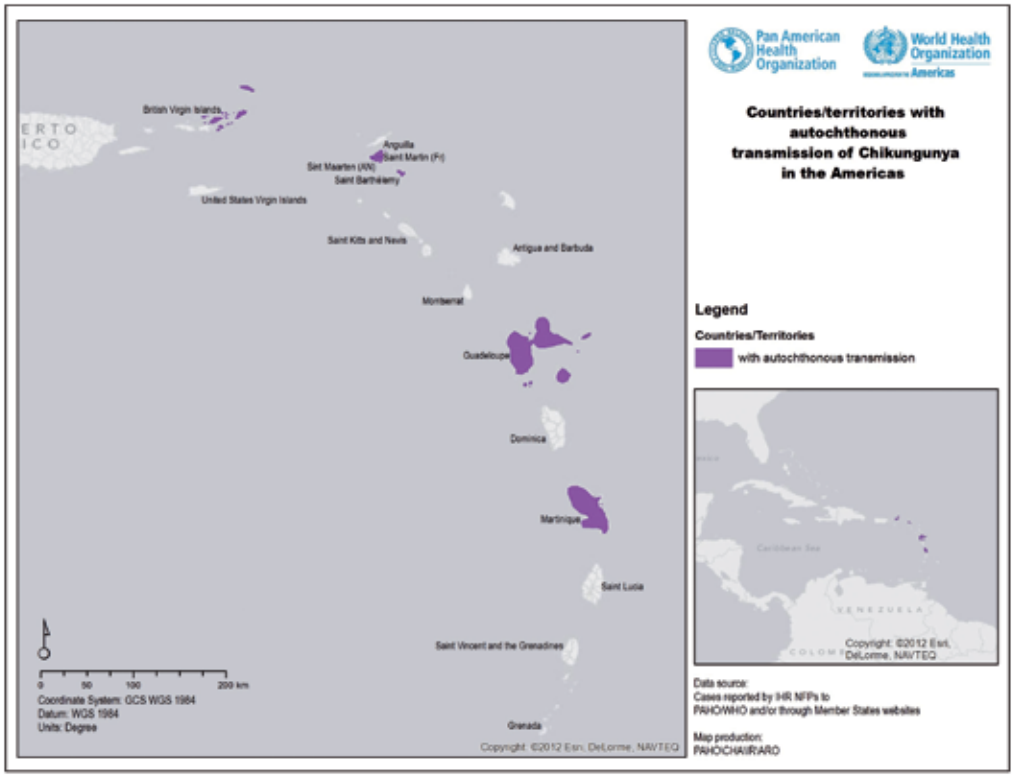
Recommendations

Given the increase in autochthonous transmission of chikungunya fever in the Americas, PAHO/WHO reiterated to Member States its recommendation regarding the need to establish and maintain the capacity to detect and confirm cases, manage patients, and implement an effective public communication strategy to reduce the presence of the vector, especially in areas where the mosquito vector is present. Member States were reminded that the recommendations issued in the 9 December 2013 Epidemiological Alert on Chikungunya Fever continue to apply. In order to carry out vector control activities, the Secretariat reiterated the need to work in coordination with all partners within and outside the health sector, including families and local communities.

In order to facilitate decision making in the face of early identification of chikungunya fever by healthcare providers, a diagnostic algorithm and guidance on clinical manifestations, laboratory diagnosis, clinical management, and public health measures relevant to clinicians are available through the links provided below. Guidelines also address provide recommendations regarding the possible blood-borne transmission of this virus.

- Diagnostic algorithm: http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=23978&Itemid=270&lang=en
- Aide Memoire for the clinical management of cases: http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=23974&Itemid=270&lang=en

Figure 1: Countries/Territories with autochthonous CHIKV transmission in the Americas, 24 January 2014



Situation Summary, 21 February 2014

Given the increase in CHIKV transmission in the Americas, PAHO/WHO reminded Member States to continue efforts to reduce vector density, and prepare health services for the possibility of CHIKV outbreaks that may increase the demand for such services, particularly in areas with concurrent dengue outbreaks.

As of 21 February 2014, 10 countries and territories in the Region of the Americas had registered autochthonous cases of chikungunya infection: Anguilla, the British Virgin Islands, Dominica, French Guiana, Guadeloupe, Martinique, Saint Barthelemy, Saint Martin (French), Sint Maarten (Dutch), and Saint Kitts and Nevis. In addition, Aruba reported one imported case. Table 2, below, summarizes data by country and territory. Thus far, the health services capacities of affected countries and territories had not been exceeded.

The confirmation of cases of autochthonous transmission in French Guiana indicates the introduction of CHIKV into South America (Table 2, Figure 2).

Table 2: Reported Number of Autochthonous Cases of Chikungunya,* and Cumulative Number of Cases in the Americas, by Country or Territory, as of 21 February 2014

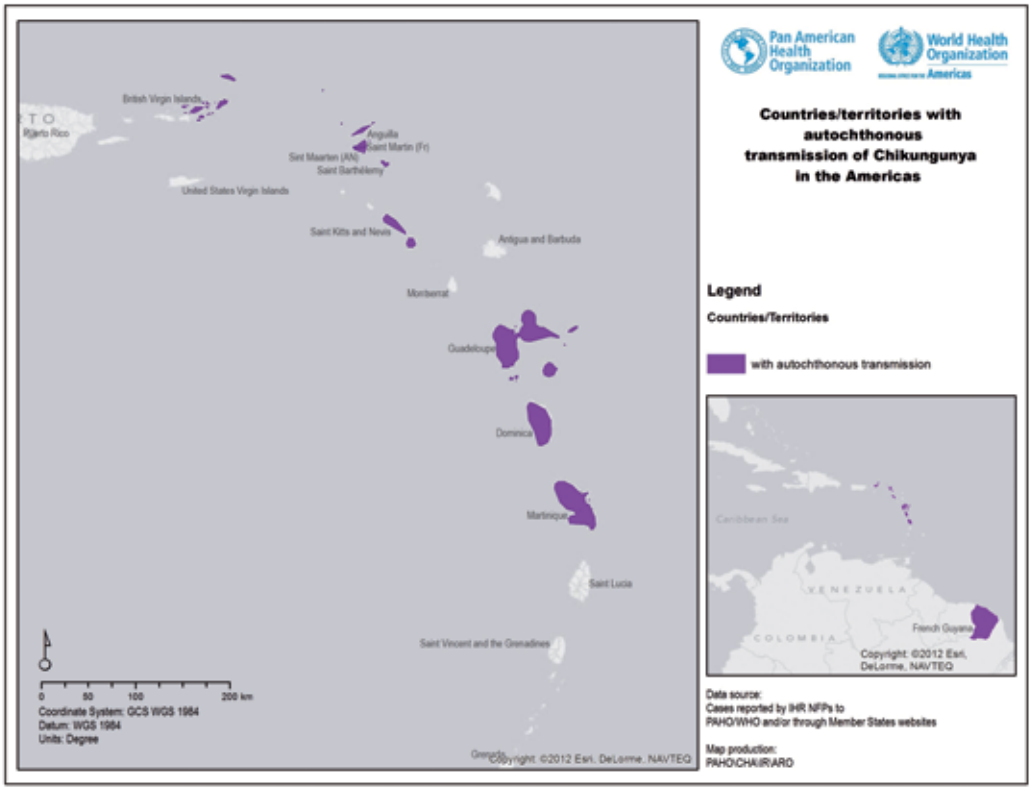
Territory	Cumulative Number of Cases Reported as of 21 January 2014	Remarks
Anguilla	11	Confirmed cases, including autochthonous and imported.
Aruba	1	Case imported and confirmed.
British Virgin Islands	5	Confirmed autochthonous cases; no hospital admissions.
Dominica	45	Includes six hospital admissions.
French Guiana	7	Two autochthonous cases; no hospital admissions.
Guadeloupe	1,380	Clinically suspected cases. Six hospital admissions.
Martinique	3,030	Clinically suspected cases. Includes 88 hospital admissions.
Saint Barthelemy	350	Clinically suspected cases.
Saint Martin	1,780	Clinically suspected cases. Includes 22 hospital admissions.†
Sint Maarten	65	Confirmed cases of autochthonous transmission.
St. Kitts and Nevis	1	One confirmed autochthonous case, hospitalized and since discharged without complications.

* Due the epidemiological situation at the time, the French territories of Guadeloupe, Martinique, Saint Bartholomew and Saint Martin discontinued the systematic confirmation of all cases, and include clinically suspected cases in their totals.
† Confirmed cases included the death of one adult with preexisting conditions; said death was, therefore, considered to be indirectly related to chikungunya infection.

Recommendations

The PAHO/WHO recommendations published in the Epidemiological Alerts of 9 December 2013, and 24 January 2014, above, remained unchanged.

Figure 2: Countries / Territories with autochthonous CHIKV transmission in the Americas, 21 February 2014



Situation Summary, 23 May 2014

After CHIKV was first detected in the Region of the Americas in December 2013, and up to EW 20 of 2014, autochthonous transmission of the virus had been detected in the following six Member States and nine territories of the Caribbean sub-region: Anguilla, Antigua and Barbuda, the British Virgin Islands, Dominica, the Dominican Republic, Guadeloupe, Guyana, Haiti, Martinique, Saint Barthelemy, Saint Kitts and Nevis, Saint Martin (French), Saint Lucia (imported case), Saint Vincent and the Grenadines, and Sint Maarten (Dutch) (Figure 3). As of 23 May 2014, a total of 61,864 suspected cases had been reported region-wide, as well as 4,356 confirmed cases, and 13 deaths.

After the Epidemiological Update of 21 February 2014, autochthonous transmission of CHIKV was confirmed in Antigua and Barbuda, the Dominican Republic, Haiti, Saint Kitts and Nevis, and Saint Vincent and the Grenadines. In addition to Aruba, imported cases had been detected in Panama and the United States.

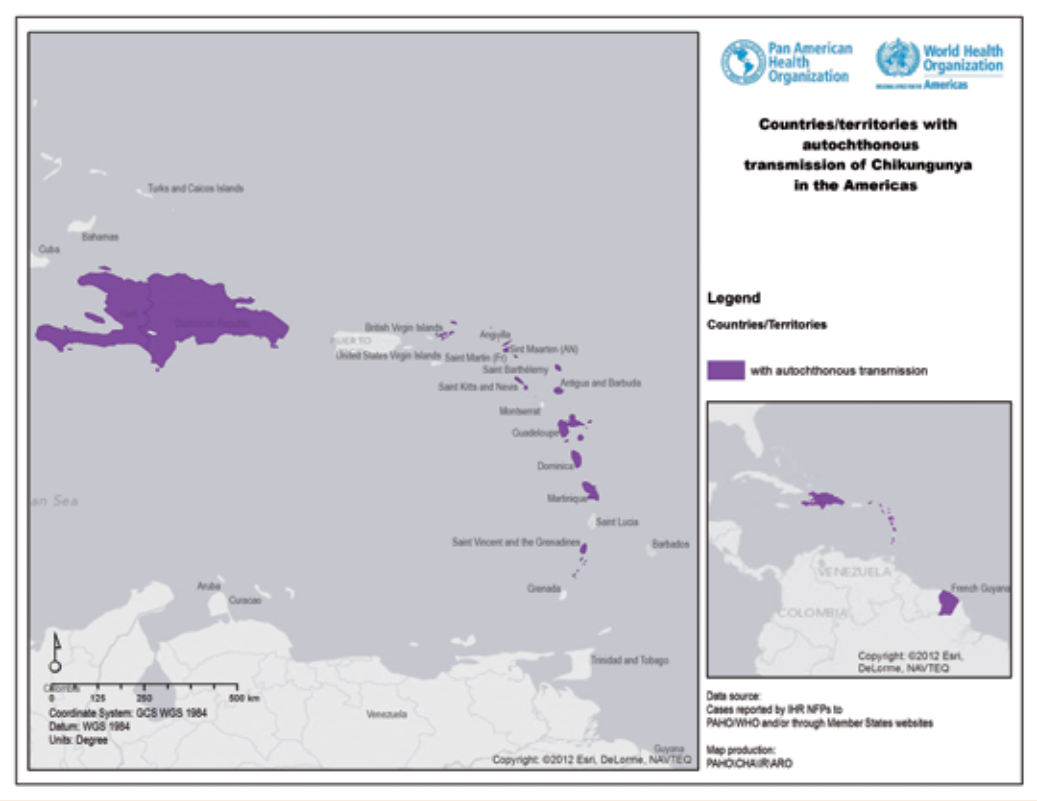
As of EW 20 of 2014, the situation in the French overseas territories varied; in Saint Martin and Saint Barthelemy, CHIKV circulation remained moderate, while in French Guiana, Guadeloupe, and Martinique, there was an increase in the number of suspected cases.

In the Dominican Republic,[1] autochthonous circulation of chikungunya was detected during EW 9 of 2014. As of EW 17 of 2014,[2] there had been 8,058 suspected cases country-wide. Of the total number of cases reported, 68% occurred in the province of San Cristobal, and 20 provinces had reported suspected outbreaks of chikungunya infection. Six provinces

(Barahona, Hato Mayor, Monte Plata, San Cristobal, San Pedro de Macoris, and Santo Domingo) had confirmed autochthonous transmission, and imported cases were reported in the provinces of Maria Trinidad Sanchez and Puerto Plata. Three cases of chikungunya and dengue co-infection were detected in the provinces of San Cristobal (Nigua municipality) and Santo Domingo (Boca Chica and Santo Domingo Norte municipalities).

Since the confirmation of the first autochthonous cases of chikungunya infection in Haiti during EW 18 of 2014(3,4), there were 3,460 suspected cases recorded nationwide. The departments with the highest number of cases were Ouest (2,225 cases), Nord-Ouest (418 cases), Sud-Est (334 cases), Sud (212 cases) and Nippes (129 cases). The remaining 142 cases were distributed among the five other departments. In Haiti, as well as in the Dominican Republic, CHIKV had rapidly spread to departments and provinces, which resulted in an increased demand for health care. This would require an adaptation of health care services to meet the increased demand, without compromising the quality of care for other prevalent diseases, such as dengue.

Figure 3: Countries / territories with autochthonous CHIKV transmission in the Americas, by country and territory, 23 May 2014



Recommendations

The PAHO/WHO recommendations regarding chikunyunga published in the 9 December 2013 and 24 January 2014 Epidemiological Alerts remained unchanged, and emphasize that:

- Given the broad distribution of *Ae. aegypti* and *Ae. albopictus* in the Americas, prevention and control measures should be aimed at reducing vector density, as well as at obtaining the acceptance and collaboration of the population regarding the adoption of such measures. It is important to provide quality and transparent information on the disease through local communication outlets.
- An effective and operational dengue control program provides the basis for adequate preparation for chikungunya, because the biology and control procedures for *Ae. aegypti* and *Ae. albopictus* are similar. To respond to the introduction of CHIKV, prevention and control recommendations developed for the management of dengue as part of the Integrated Strategy for the Prevention and Control of Dengue (EGI -Dengue) may be used and intensified. The integrated vector management (IVM) program, an independent quality control program, should be incorporated into the approach.
- To succeed, the chikungunya IVM program must include participation and collaboration at all levels of government, and among the health, education, environment, social development and tourism sectors. IVM programs also benefit from the participation of non-governmental and private organizations. The CHIKV control program must maintain risk communication and mobilize the whole community.

Personal prevention measures

Patients infected with the CHIKV can be reservoirs of the virus for others in the household and the community. Therefore, public health measures to minimize mosquito exposure become imperative to prevent the outbreak from spreading. Patients and other household members must be educated about the risk of transmission to others and on ways to minimize the risk by reducing vector populations and contact with the vector.

Minimizing vector populations and vector-patient contact

- Efforts to reduce larval habitats in and around the house are necessary, including the elimination of stagnant water from trash surrounding the household and peri-domestic areas.

To minimize vector-patient contact:

- Patients should rest under mosquito nets (bed-nets), preferably permethrin impregnated nets.
- Patients and other members of the household should wear clothes that cover the extremities.
- Wire-mesh/nets on doors and windows are recommended.

These personal prevention measures are also effective in preventing infections among the healthy. Guidance on laboratory diagnosis and clinical management were provided in pages above.

Chikungunya and Dengue Fever in the Americas

29 August 2014

Given the continued spread of CHIKV in the Americas, and the beginning of the season of higher dengue circulation in the Caribbean and Central America, PAHO/WHO advised Member States where *Aedes aegypti* can be found to increase efforts to reduce vector density, based on the Dengue Integrated Management Strategy (EGI-Dengue), in addition to establishing and maintaining dengue and chikungunya case management capacity, and to implement effective public communication strategies to eliminate mosquito breeding sites.

Situation summary, 29 August 2014

Since the first evidence of autochthonous chikungunya transmission was recorded in the Americas, autochthonous transmission had been detected in 33 countries and territories (27 in the Caribbean, three in Central America, two in South America, and one in North America).[g,h] As of EW 35 of 2014, PAHO/WHO had received notification of a total of 659,367 cases, including 37 deaths in the Region.[5, 6, 7]

Usually, during the second half of each year, the Caribbean, Central America, and Mexico experience a seasonal increase in dengue fever transmission. As of 29 August, the Dominican Republic, El Salvador, Guatemala, and Honduras were recording increases in the number of cases, coinciding with this period of higher transmission.

The threat posed by a seasonal increase of dengue transmission, and the risks posed by the introduction of CHIKV in the Region required an integrated approach for prevention and vector control activities of both diseases. With the rapid spread of CHIKV observed in some countries of the Americas, simultaneous dengue and chikungunya outbreaks could occur; these would result in an increased health care demand. Accordingly, health care services must be prepared to meet increased demands without compromising the quality of care; preparations should be guided by the PAHO/WHO recommendations for clinical management of patients with dengue or chikungunya.

[g] Anguilla, Antigua and Barbuda, Aruba, the Bahamas, Barbados, the British Virgin Islands, Curacao, the Cayman Islands, Costa Rica, Dominica, the Dominican Republic, El Salvador, French Guiana, Granada, Guadeloupe, Guyana, Haiti, Jamaica, Martinique, Panama, Puerto Rico, Saint Barthelemy, Saint Kitts and Nevis, Saint Lucia, Saint Martín (French), Saint Vincent and the Grenadines, Sint Maarten (Dutch), Suriname, Trinidad and Tobago, Turks and Caicos, the United States of America, the U.S. Virgin Islands, and Venezuela.

[h] An updated table of the distribution of recorded chikungunya cases is posted weekly on the PAHO/WHO chikungunya website available at: http://www.paho.org/chikungunya.

To optimize available resources, activities should be stratified according to the risk of transmission. Following are the recommendations on key technical components to be taken into account for surveillance and response.

Guidance for national authorities

Since 2003, countries of the Region of the Americas began implementing the EGI-Dengue for dengue prevention and control.[i] This strategy and its components lead to a strengthened integrated institutional response through a multi and inter-sectorial approach, operationalized by the Dengue Task Force (GT-Dengue). The EGI-Dengue includes six areas of work: epidemiology, laboratory, patient care, social communication, environment, and integrated vector management.

PAHO/WHO advised countries to continue strengthening the six areas of work to respond to dengue and chikungunya, while preserving the technical specificities of each disease in the components of patient care and epidemiology.

Epidemiology

Epidemiological surveillance is a key element of this component, and should be adapted to each national epidemiological situation according to the different scenarios. In order to gear interventions and optimize the use of resources, each country must predefine and analyze the different possible scenarios, and implement relevant surveillance activities. Following are three possible scenarios.

Scenario I: Current dengue transmission with no evidence of chikungunya transmission.

Surveillance of febrile or dengue fever patients should continue in accordance to national guidelines or protocols. In such a scenario, chikungunya surveillance is primarily aimed at detecting autochthonous transmission. Surveillance activities should be aimed at detecting clinically compatible cases of chikungunya[j] (negative for dengue). A fraction of this cluster (or the entire cluster, depending on resources available) should be tested for chikungunya.[k]

Scenario II: Evidence of chikungunya transmission and current dengue transmission.

Surveillance should focus on gathering information to describe each disease.

- **For dengue**: Organize and present epidemiological data based on the three epidemiological variables (time, place and persons), trends, proportion of severe cases, case fatality rate, and circulating serotypes.
- **For chikungunya**: Trends, geographic distribution of the virus, clinical presentation, impact on society (e.g., days missed from work, school closures, etc.), identification of risk factors for infection or severe disease, and circulating CHIKV lineages. Surveillance through sentinel sites is proposed for this purpose.

[i] The 44th PAHO/WHO Directing Council adopted Resolution CD44.R9, in which the new strategy of integrated management for the dengue prevention and control was introduced.

[j] Suspected cases: patients with fever >38.5 oC (101.3 oF) and severe arthralgia or acute onset of arthritis not explained by other medical conditions and who resides or has visited epidemic or endemic areas during the two weeks preceding the onset of symptoms.

[k] See page 6 of the Preparedness and Response for Chikungunya Virus Introduction in the Americas. Available at http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=index.php?option=com_docmantask=doc_download&gid=26869&Itemid=.

Scenario III: Concomitant chikungunya and dengue outbreaks.

Surveillance should be geared to the identification of epidemiological and ecological changes in transmission for both viruses, and to monitoring the clinical presentation of infected patients, in order to implement measures to minimize severe cases and deaths caused by dengue.

- **For dengue**: Surveillance of clinical cases with warning signs, and monitoring of circulating serotypes.[I]
- **For chikungunya,** as national resources allow:
  - (–) Monitor trends and geographic distribution of the virus through surveillance of clinically compatible cases (in areas where virus transmission has been confirmed), and identify new areas of transmission through surveillance of clinically compatible chikungunya cases or clusters of cases.
  - (–) Depending on resources available, the following should also be monitored: the different types of clinical presentation, impact on society (e.g., days missed from work, school closures, etc.), risk factors for infection or severe disease, and circulating chikungunya virus lineages. Surveillance through sentinel sites is advised for this purpose.

Special attention must be given to the clinical management and evolution of patients co-infected with both viruses.

Patient Care

The clinical case management component of the EGI-Dengue aims to prevent severe cases and deaths; accordingly, this component must be designed to ensure early detection, identification of warning signs, and appropriate and timely treatment of cases, regardless of the suspected disease (dengue or chikungunya). Considering the clinical differences of both illnesses, it is recommended that all patients, children in particular, be managed as a dengue case until confirmed by laboratory diagnostic, or unless the clinical picture is very indicative of chikungunya infection.

Patients and families should be taught to identify the illnesses and its warning signs, and to seek assistance from the nearest health care services as necessary. In addition, health care personnel handling cases at both the primary care and other levels of care should be continuously trained.

Patient Referral and Health Care Services Organization

Health care networks must be organized based on the potential need to expand services in case of an increase in the number of cases. In addition, health services should also be prepared to immediately refer for hospitalization those patients with warning signs of dengue requiring specialized medical attention, with the illness, with concomitant conditions, or persons whose social situation prevent access to necessary care (e.g., persons living in remote areas or displaced, refugees, others).

With regards to patient management where there is simultaneous circulation of dengue and chikungunya, adapting and revising the patient care component within the EGI-Dengue framework, should consider the following:

[I] As recommended by the EGI-Dengue

- Both diseases should initially be evaluated and managed at the primary care level. Appropriate management at this level will ensure that hospitals are reserved for patients with warning signs of dengue and severe dengue, and for atypical or severe cases of chikungunya, which are unusual.

- The screening/triage at clinical, health care centers, emergency rooms, and by health care providers is key to prioritize patients who need the most attention. In places with simultaneous transmission of both diseases, clinical management should be geared to the identification of dengue warning signs, which are not present in chikungunya. The presence of warning signs indicates the need for strict patient monitoring and specialized attention, both critical life-saving measures in the case of dengue.

- At the secondary care level (usually hospitals), where medical care for dengue and chikungunya is sought, it is important to organize the provision of health services to ensure that patients with warning signs of dengue are cared for in specific wards that include intensive monitoring.[m] This is a key element for timely treatment, and to prevent evolution into a severe case or death.

It is not necessary to wait for or to have laboratory results of dengue or chikungunya to begin clinical management and treatment of patients suspected of either disease. The initial clinical diagnosis is sufficient to provide timely and quality treatment and medical care.

Integrated Vector Management (IVM)

In addition to the recommendations of the 23 May 2014 Epidemiological Update on Chikungunya, it was emphasized that, given the broad distribution of *Ae. aegypti* and *Ae. albopictus* in the Americas, prevention and control measures should be aimed at reducing vector density, and obtaining the acceptance and collaboration of communities in adopting such measures.

Prevention and control measures by national authorities should include the following:

- Strengthening environmental management to prevent or minimize the spread of the vector and human contact with the mosquito, by eliminating vector breeding sites in each household, and in common areas of districts and cities (e.g., parks, schools, cemeteries, etc.).

- Organizing mass communication campaigns for the elimination of breeding sites in specific areas where routine garbage collection has been interrupted.

- Implementing breeding site control measures through physical, biological and chemical methods, while actively involving communities.

- Identifying areas of high risk of transmission (risk stratification), and prioritizing those where people concentrate (e.g., schools, transport terminals, hospitals, health centers, etc.). Mosquitos should be removed from an area within a radius of at least 400 meters around these facilities.

- In areas where autochthonous or imported cases of chikungunya transmission have been detected, insecticide treatment for adult mosquitos (primarily through spraying) could be used to remove infected mosquitos and interrupt transmission. It is important to

[m] Hospital wards have a routine for the monitoring of vital signs. In practice, it is frequently observed that deterioration of dengue patients that are monitored with the same routine are not detected in a timely manner. To avoid this, hospitalization of patients with warning signs in designated rooms for enhanced and continuous monitoring of signs and symptoms is recommended.

keep in mind that this is an exceptional measure, and is only effective when carried out by adequately trained personnel following internationally accepted technical guidelines, and when implemented together with other measures (as described above). Spraying is the primary method for interrupting transmission and gaining time to consolidate the removal of larval habitats.

- Selecting an appropriate insecticide (in accordance with PAHO/WHO recommendations), verifying the product label and formula, and considering mosquito populations' susceptibility to that insecticide.
- Maintaining and using spraying equipment in an appropriate manner and maintain a stockpile of insecticides.
- Ensuring intensified monitoring (e.g., quality control) of fieldwork operators, both during larval control and during adult insecticide treatment.

Integrated (simultaneous or coordinated) vector control measures in space and time (e.g., adult insecticide and larval control by trained personnel, coupled with sanitation and the promotion of community actions) is essential to achieving the greatest impact in the shortest period.

Personal Prevention Measures

The following actions are recommended to minimize vector-patient contact, and to prevent transmission of the virus to healthy individuals:

- Patients should rest under mosquito nets (bed-nets), impregnated with or without insecticide.
- Patient and other members of the household should wear clothes that cover the extremities.
- Wire-mesh/ nets on doors and windows are recommended.
- Apply repellents containing DEET, IR3535 or Icaridina to exposed skin or clothing; its use must be strictly in accordance to the instructions indicated on the product label.

Travelers

Prior to departure, health authorities should advise travelers heading to any country with documented circulation of dengue and/or chikungunya to take the necessary steps to protect themselves from mosquito bites. It is also important to inform travelers of the symptoms of dengue or chikungunya fevers so that they can promptly identify them during their trip. The advice could be relayed through travel medicine services or clinics, dedicated travel health web pages of the Ministry of Health or other relevant Governmental web pages, among others.

While visiting places with dengue and/or chikungunya transmission, advise travelers to:

- Take appropriate measures to protect themselves from mosquito bites by applying repellent or wearing appropriate clothes to minimize skin exposure.
- Avoid mosquito-infested areas.
- Use nets and/or insecticide.
- Recognize symptoms of dengue and/or chikungunya and seek professional health care, if any of these symptoms occur.

Upon their return home, advise travelers to contact their health care provider should they suspect they have dengue or chikungunya.

Clinicians and Health Care Providers

- While continuing to remind clinicians to always inquire about patients' travel history, they should also be reminded that if a returning traveler seeks medical assistance and is suspected of having dengue or chikungunya, they should contact the appropriate public health authorities, as required by national protocols.
- To create awareness among health care providers in the private sector of the need to report any dengue or chikungunya case to allow for a timely response by the national public health services.

Dissemination of Information

Information on prevention measures may be provided through:

- Medical services or travel clinics, as well as warning panels at airports, ports, train stations and bus terminals and through airlines operating in the country.
- Travel agencies and other tourism-related entities; in addition, diplomatic channels, postal services and others could be used to provide information to travelers regarding prevention measures before, during, and after a trip.

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Cholera

Situation summary

Cuba

In Cuba, a total of 678 cholera cases, including three deaths, had been reported between EW 27 of 2012 and EW 34 of 2013. As of 24 August 2013, no new cases were reported. Between EW 35 of 2013 and EW 8 of 2014, the International Health Regulations (IHR) National Focal Point (NFP) of Cuba reported 23 additional confirmed cholera cases detected through the investigation of suspected cases. In total, 701 cholera cases, including three deaths, had been reported since the beginning of the outbreak through EW 8 of 2014. National authorities continued to investigate suspected cholera cases detected through the clinical-epidemiological surveillance system. Public awareness campaigns on hygiene, especially those related to hand washing, water chlorination, and cleaning and proper food handling had been intensified.

No new cases were reported since EW 8 of 2014. National authorities continued to detect and investigate suspected cases. However, in EW 38 of 2014, the IHR NFP of Chile reported a confirmed case of *Vibrio cholerae* O:1, serotype Ogawa, in a Chilean national with history of travel to Cuba.

Dominican Republic[1]

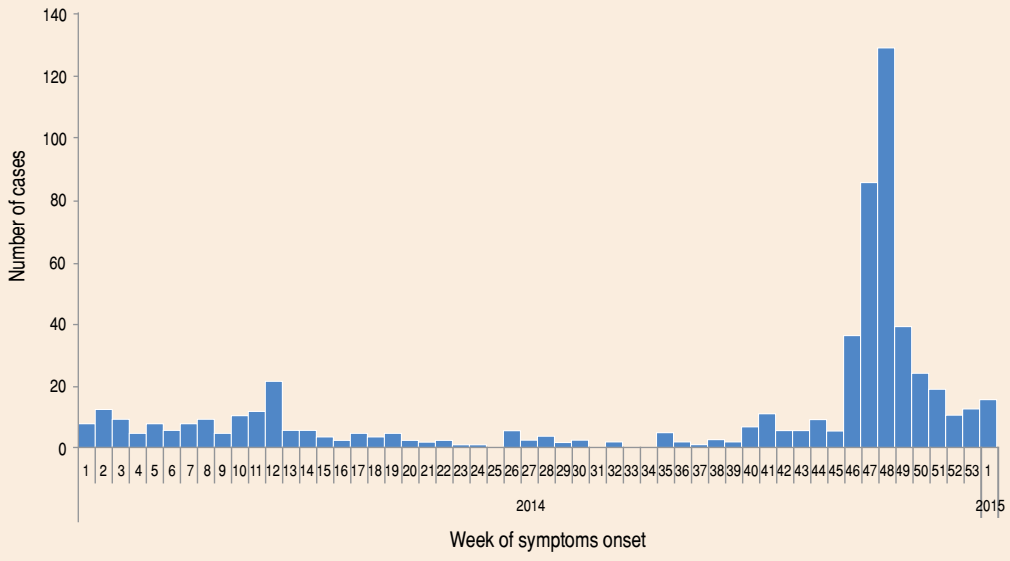
In the Dominican Republic, from the beginning of the epidemic in November 2010 through EW 41 of 2014, a total of 31,703 suspected cholera cases, including 472 deaths, had been reported. Between EW 1 and EW 6 of 2014, there were 46 suspected cholera cases reported in the country as a whole; no deaths were reported. This number was significantly lower than the number of new cases reported during the same period in 2013 (646 cases and eight deaths). During those first weeks of 2014, two provinces, Santo Domingo and Santiago, recorded 65% of all cases reported in that period.

Between EW 1 and EW 8 of 2014, there had been 57 suspected cholera cases and no deaths, for a monthly average of 28 cases. This was lower than the average number of new cases reported for the same period in 2013 (monthly average of 112 cases, and two [2] deaths), 2012 (563 cases, and four [4] deaths), and 2011 (934 cases, and 16 deaths). As of 20 March 2014, a decreasing trend in the number of cases reported was observed. Only three provinces, Maria Trinidad Sanchez, Santo Domingo, and San Pedro de Macoris, had registered cases during the three weeks prior to that date.

As of EW 22 of 2014, 156 suspected cases of cholera were recorded for the year, as well as four (4) deaths; the monthly average of cases was 31. This is also a lower monthly average than that for the same period of 2013 (130 cases, and 13 deaths), 2012 (557 cases, and 21 deaths), and 2011 (240 cases, and 35 deaths). As of 24 June 2014, reported cases showed a decreasing trend nationwide.

Between EW 1 and EW 41 of 2014, there were 209 suspected cholera cases, including five deaths, for a monthly average of 23 cases. This monthly average was lower than that reported for the same period of 2013 (130 cases, and 13 deaths), in 2012 (557 cases, and 21 deaths), and in 2011 (240 cases, and 35 deaths). By EW 41 of 2014, the decreasing trend in new cases reported continued nationwide. At the end of November of 2014 (EW 48) there had been 112 suspected cholera cases identified, including two deaths, in the province of San Juan, and eight suspected cases in the province of Azua. Previously, no cholera cases had been reported in either province during 2014. Samples were taken for laboratory testing. Figure 4 shows the weekly distribution of cholera cases reported in 2013 and 2014. By week 53 of 2014, a total of 597 suspected cases of cholera and 10 deaths had been reported for the whole year.

Figure 4: Suspected cholera cases in the Dominican Republic, by EW, from EW 1 of 2013 to EW 1 of 2015



Source: The Dominican Republic Ministry of Public Health. Department of Epidemiology. Weekly Epidemiological Bulletin. EW 1 of 2015.

Haiti[2]

In Haiti, since the beginning of the epidemic in October 2010, and up to EW 6 of 2014, there were 699,197 cases of cholera reported, of which 391,074 required hospitalization (55.9 %). These numbers included 8,549 reported deaths. The cumulative case fatality rate remained at 1.2 %, with a range between 4.5 % and 0.6%, in the departments of Sud-Est and Port-au-Prince, respectively. During the first six weeks of 2014, there were 2,536 cholera cases reported, including 18 deaths (the cumulative case fatality rate for 2014 was 0.7%). The average weekly number of cases reported was 422, with three deaths, significantly lower than the 2013 recorded weekly average of 1,140 cases, and nine deaths. Although the number of cases showed an increasing trend during the latter weeks of 2013, coinciding with the rainy season, the first six weeks of 2014 saw a decreasing trend in the number of cases and deaths.

Through 10 March 2014, there had been a total of 700,541 cases of cholera, of which 391,751 required hospitalization (55.9%), and 8,546 died. The cumulative case fatality rate remained at 1.2%, ranging from 4.4% in the department of Sud-Est to 0.6% in Port-au-Prince. On the other hand, between 1 January and 10 March 2014, there were 3,850 cholera cases recorded, including 18 deaths (cumulative case fatality rate of 0.5% for 2014); the weekly average was

385 cases and two deaths. These numbers were lower than those for 2013 (weekly average of 1,106 cases and nine deaths), 2012 (4,429 cases and 77 deaths), and 2011 (29,167 cases and 243 deaths). For 2014, the number of cases and deaths reported showed a decreasing trend; however, all departments continued to report new cases.

As of EW 23 of 2014, a total of 703,510 cholera cases had been reported; of those, 393,912 required hospitalization (56%), and 8,562 had died. The cumulative case fatality rate remained at 1.2 %, with a range between 4.4 % in the department of Sud-Est and 0.6 %, in Port-au-Prince. During 2014 and up to EW 23, there were 6,689 cholera cases reported, including 31 deaths, with a cumulative case fatality rate equal to 0.5% for 2014. The weekly average was 291 cases and one death, which was lower than that for the same period in 2013 (993 cases and eight deaths), 2012 (1,498 cases and 11 deaths), and 2011 (7,697 cases and 62 deaths). Both the number of cases and deaths were on a decreasing trend nationwide. However, eight out of ten departments continued to record new cases. The departments of Nippes and Nord -Est had not reported new cases since EW 19 of 2014.

By EW 44 of 2014, a total of 711,442 cases of cholera had been reported, of which 400,103 were hospitalized (56%) and 8,646 died. The cumulative case fatality rate was 1.2%, ranging from 4.4% in the department of Sud-Est to 0.6% in Port-au-Prince. While the number of reported cases for 2014 remained well below the numbers reported in previous years, there had been a steady increase in cases since EW 37. Between EW 1 and EW 37 of 2014, the average weekly number of new cases was between 250 and 290, but from EW 38 to EW 44, the weekly average increased to 629 new cases.

From EW 37 to EW 47 of 2014, the average number of weekly reported cases reached 918, representing a nationwide increase. Four departments accounted for 90% of registered cases in 2014: Artibonite, Centre, Ouest and Nord. Ouest was the department with the highest number of cases reported, and accounted for 36% of the total. Over the previous six months, those four departments reported an average hospitalization rate of 70%. By 21 November 2014 (EW 47), there had been 717,203 reports of cholera cases, of which 404,371 had been hospitalized (56%) and 8,721 had died. The cumulative case fatality rate continued to be 1.2%, with the Sud-Est department registering the highest rate (4.5%) and Port-au-Prince, the lowest (0.6%).

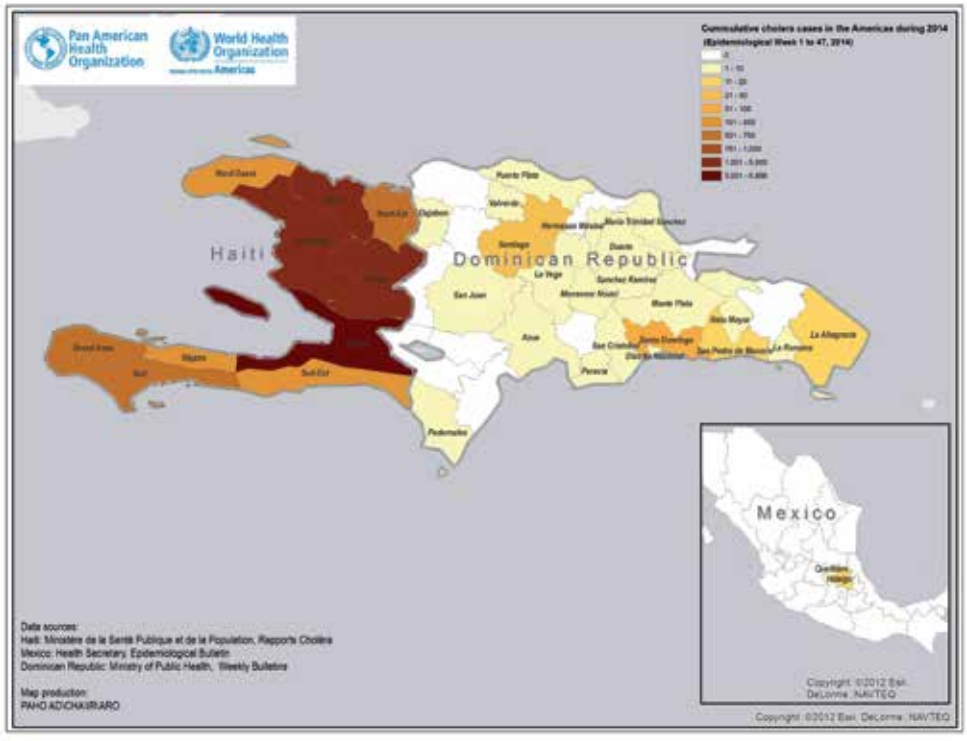
Mexico[3]

Between EW 37 and EW 51 of 2013, 187 cases of infection by *Vibrio cholerae* O:1 Ogawa toxigenic were reported, including one death. No new cases were reported beyond 15 November 2013.

On 13 June 2014, the IHR NFP reported three confirmed cases of *Vibrio cholerae* O:1 Ogawa toxigenic, among residents of Tlaxcoapan, state of Hidalgo. The three cases were members of the same family. Symptoms began on 4 June 2014, and cases reported a history of consumption of street vendor foods prior to the onset of symptoms. These three cases represented the first confirmed cases of cholera in Mexico in 2014. National authorities responded with an enhancement of prevention and control measures, and as of 27 June 2014, no additional cases had been reported. From EW 24 to EW 46 of 2014, the total number of cases of cholera cases reported was 14, 13 of them in the state of Hidalgo, and one in the state of Querétaro. During 2013, 176 cases of *V. cholerae* O:1 Ogawa toxigenic, including one death, had been recorded nationwide.

The cumulative number of cases reported in the Region of the Americas as of 2 December 2014 is demonstrated in Figure 5.

Figure 5: Number of Cumulative Cases of Cholera reported in the Dominican Republic, Haiti, and Mexico, EW 1 through EW 47 of 2014



Recommendations

On 2 December 2014, given the resurgence of cases in the previous months on the island of Hispaniola, national authorities of Member States were encouraged by PAHO/WHO to remain vigilant and continue implementing the recommendations published in the Epidemiological Alert of 2 November 2012 on Cholera. The latter recommendations were emphasized throughout 2014.

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Carbapenemase of type New Delhi Metallo-ß-Lactamase (NDM)

7 March 2014

In light of the spread of microorganisms carrying the New Delhi Metallo-ß-lactamase (NDM) resistance mechanism, both across bacterial species and across geographic boundaries, PAHO/WHO emphasized the importance of strengthening established surveillance and control strategies to prevent further spread of this resistance mechanism.

Situation Summary

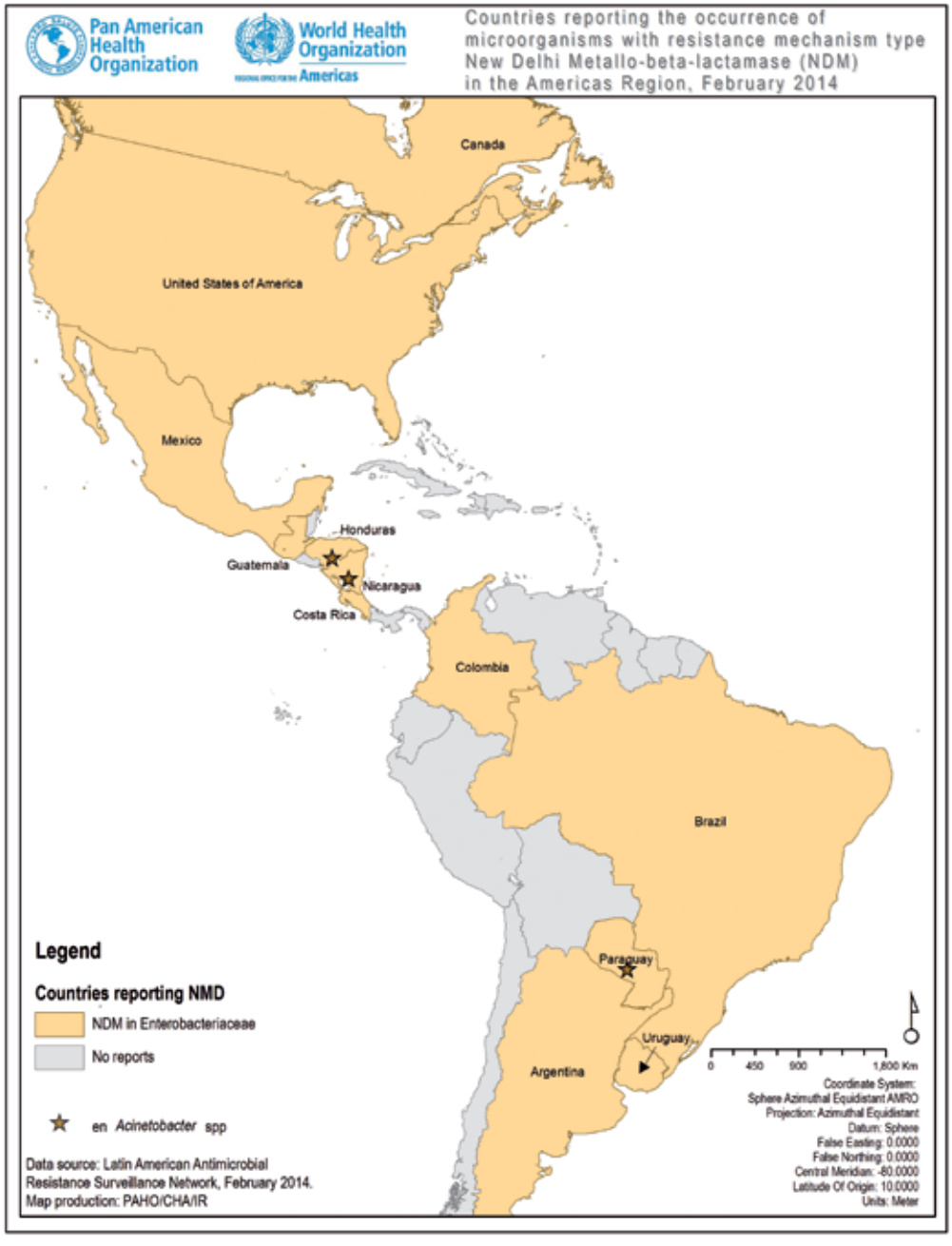
Since 2008, worldwide circulation of microorganisms with the antimicrobial resistance mechanism, known as New Delhi Metallo-ß-lactamase (NDM), had been documented. NDM, a type of carbapenemase, is known to cause resistance to all beta-lactam antibiotics, with the exception of aztreonam. Thus far, 12 countries in the Region of the Americas had detected microorganisms with said resistance mechanism (Figure 6), beginning with Canada and the United States in 2010, among patients who had recently received medical care in countries outside of this Region.

In 2011, the NDM resistance mechanism was detected in Guatemala.[1] In 2012, Colombia detected it in isolates of *Klebsiella pneumoniae*,[2] Paraguay[3] in *Acinetobacter pittii* isolates, and Uruguay in strains of *Providencia rettgeri*. In 2013, other countries reported detection of the NDM mechanism; Argentina,[4] Brazil,[5] and Mexico detected it in *P. rettgeri* isolates;[6] Honduras in *A. baumannii* isolates;[7] Nicaragua in *A. baumannii, K. pneumoniae, Escherichia coli* and *Enterobacter cloacae* strains; and most recently, Costa Rica detected the mechanism among *E. coli* isolates.[8]

Recommendations

Given these findings, PAHO/WHO reiterated recommendations issued in the 22 November 2011 and 19 December 2012 Epidemiological Alerts on NDM, and highlighted the importance of establishing timely prevention and infection control in health care services, as well as surveillance and detection of this resistance mechanism. The mechanism causes outbreaks, and is associated with increased nosocomial morbidity and mortality.

Figure 6: Countries Reporting Detection of Microorganisms with New Delhi Metallo-ß- Lactamase (NDM) in the Americas Region, February 2014



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Rabies

5 May 2014

Given the circulation of the rabies virus in several areas of Americas, the Pan American Health Organization / World Health Organization (PAHO/WHO) encouraged Member States of the Region to continue inter-sectoral prevention and control activities aimed at reducing the risk of human cases and also prepare to respond to possible human cases by having post-exposure prophylaxis, human rabies immune globulin and vaccine available.

Rabies is caused by the rabies virus, which belongs to the Rhabdoviridae family, genus *Lyssavirus*. It infects domesticated and wild animals, and is transmitted to human beings through rabies infected saliva (by bites and scratches, through skin and mucous membranes).

The incubation period is variable, but usually ranges from three to eight weeks. The first symptoms of rabies may be similar to those of the flu, including fever, headache and general weakness. Symptoms then progress to affect the respiratory and digestive tracts, and the central nervous systems, eventually producing complete paralysis, coma, and death in all cases.

Once symptoms appear, the disease is almost always fatal; hence the importance of post-exposure prophylaxis with both the vaccine and immune globulin, depending on the severity of the situation.

Situation summary

In the Americas, human rabies transmitted by dogs is on the path to elimination. Since the launch of the Regional program for the elimination of rabies transmitted by dogs in 1983, there was a 95% decrease in the number of human cases in the Americas to date.

In recent years, cases of human rabies transmitted by dogs were detected in Bolivia, Brazil, the Dominican Republic, Guatemala, Haiti and Peru. The most recent cases were concentrated in the periphery of cities and international border areas, and were linked to poverty and unfavorable environments, with low canine vaccination rates. The provision of post-exposure prophylaxis is a logistical challenge.

Most cases were reported in a timely manner. Nonetheless, health care providers frequently have not prescribed prophylaxis to patients needing it; this has been a common element among human rabies cases transmitted by dogs in the Americas between the end of 2013 up to the date of this report in 2014.

In addition to rabies transmitted by dogs, in recent years, human rabies transmitted by wildlife has become a public health problem in the Region. The most significant wildlife

reservoirs of the virus in the Americas are the mongoose (Cuba and the Dominican Republic), insectivorous and frugivorous bats (Chile), and vampire bats (Brazil, Ecuador, and Peru). Brazil, Ecuador, and Peru have reported the most cases of human rabies transmitted by wildlife in this Region.

Recommendations

Prevention of human rabies should involve both veterinary and human public health services. There are safe and effective vaccines for the prevention of rabies in animals and humans, for administration prior to and following suspected exposures to rabies.

Through this alert, PAHO/WHO emphasized its recommendation to Member States regarding the need to continue to immunize dogs, and to prepare to respond to possible human cases of rabies by having post exposure prophylaxis (rabies vaccine and immune globulin) available in case of emergency. Also, PAHO/WHO recommended:

- Carrying out mass vaccination of dogs, until appropriate and sustainable immunity levels are achieved. This is the most efficient and cost-effective method for the control and elimination of human rabies transmitted by dogs. Vaccination of domestic animals (dogs and cats) has reduced, and even eliminated, the occurrence of the disease in some developed and developing countries.
- Raising awareness among the public so that exposed individuals may seek immediate medical attention; and among health care workers so that appropriate prophylaxis and treatment may be provided.
- Remind the public and health care workers that cleaning wounds and getting post-exposure vaccinations as soon as possible after contact with an animal suspected of rabies can prevent the onset of rabies in virtually 100% of exposures, as recommended by the WHO. Post-exposure prophylaxis is not contraindicated for pregnant women, infants, the elderly, and those with other diseases.
- Immediately begin post-exposure treatment for individuals exposed to rabies. Treatment should only be stopped if the attacking animal shows no signs of rabies while under observation for pre-established periods of time: 10 days for dogs. If the biting animal is dead, whether by slaughter or otherwise, it must be tested for the rabies virus. Results should be sent to the veterinary and public health services responsible for planning and implementing control activities in the area where the exposure occurred.

PAHO/WHO also reiterated recommendations published in Epidemiological Alerts of 30 August 2010 and 22 December 2011 on rabies regarding the need to develop strategies to ensure access to pre-exposure prophylaxis for humans, based on advanced characterization of areas considered most at risk for rabies exposure, for example, people who reside in or visit rainforests, where there is a risk of exposure through bats or other wild animal that can transmit the virus.

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Imported Wild Poliovirus: Detection in Environmental Samples

21 June 2014

Upon detection of wild poliovirus type 1 (WPV1) in environmental samples from Brazil, PAHO/WHO recommended that Member States of the Region of the Americas continue to strengthen surveillance of cases of acute flaccid paralysis, in order to rapidly detect any new instances of imported poliovirus, and to maintain high immunization coverage against poliomyelitis.

Situation Summary

On 18 June 2014, the Brazil IHR NFP reported the detection of wild poliovirus type 1 (WPV1) in sewage samples collected in March 2014 at the International Airport of Viracopos, in Campinas, state of Sao Paulo.[1] The WPV1 was detected in sewage only, through routine environmental surveillance that includes regular testing of sewage water from multiple sites. Brazil has been carrying out this routine surveillance for over 20 years. As of 20 June 2014, there had been no reports of suspected or confirmed case of paralytic polio in the country. Genetic analysis of the WPV1 indicated a close match with a strain of poliovirus recently isolated from a case in Equatorial Guinea.

Following detection of the aforementioned isolate, Brazilian public health authorities strengthened surveillance of acute flaccid paralysis (AFP), and conducted an active search for AFP cases across the state of Sao Paulo. Starting in the 1980s and through 2011, Brazil conducted two yearly national immunization campaigns, which included, among others, oral polio vaccine. In 2012 and 2013, single vaccination campaigns were carried out. These campaigns have achieved vaccination coverages of over 95% in the last eight years. Routine vaccination coverage has been above 95% in the municipality of Campinas, as well as the State of São Paulo.

PAHO/WHO assessed the risk of further international spread of this virus from Brazil, and concluded that it was as very low, given that there is a high level of immunity in the population, as evidenced by the high levels of routine immunization coverage, periodic vaccination campaigns in the area, and the response measures being implemented. There has been no evidence of WPV1 transmission thus far. The Americas Region has been free of wild poliovirus transmission since 1991, and the last case of poliomyelitis in Brazil occurred in 1989.

Recommendations

PAHO/WHO reminded Member States of the need to achieve and maintain high quality surveillance for timely detection of and response to imported wild poliovirus. Member States were also reminded to achieve and maintain high vaccination coverage against poliomyelitis in all municipalities. In this regard, Member States should analyze their coverage data

systematically, to identify any areas with low vaccination coverage, and intensify surveillance and vaccination in those areas accordingly.

PAHO/WHO reiterated the recommendations of the Technical Advisory Group meeting in Quito, Ecuador, on 3 to 5 July 2013, which include that:[2]

- All countries must strengthen activities aimed at achieving or maintaining vaccination coverage >95% in every district or municipality. If countries do not achieve that coverage, they must evaluate the accumulation of non-immunized individuals, and conduct vaccination campaigns.
- All countries must continue to maintain adequate AFP surveillance in order to timely detect any imported case or the emergence of vaccine-derived polioviruses, and must report such event to PAHO/WHO in a timely manner, to allow the proper monitoring of the Regional situation.

Wild Poliovirus:

Public Health Emergency of International Concern Related to its International Spread. Implications for the Americas

4 August 2014

Situation Summary

On 5 May 2014, the WHO Director General accepted the International Health Regulations (IHR) Emergency Committee's assessment and declared the international spread of wild poliovirus in 2014 a public health emergency of international concern (PHEIC).[n]

On 31 July 2014, the IHR Emergency Committee met for the second time to assess the situation, and advise the WHO Director General. Based on the conclusions of said meeting, and considering the reports submitted by the concerned States Parties, the WHO Director General accepted the Committee's assessment, and stated that the international spread of wild poliovirus in 2014 continues to be a PHEIC. The temporary recommendations issued on 5 May 2014 remained valid.

From 5 May to 31 July 2014, there had been new international spread of wild poliovirus in Central Asia (Pakistan to Afghanistan), and in June 2014, wild poliovirus originating in Central Africa (Equatorial Guinea)[o] was detected in the Americas. Because of this last event, Equatorial Guinea was confirmed as a state that exported wild poliovirus.

The current characterization is as follows: (i) States currently exporting wild poliovirus (Cameroon, Equatorial Guinea, Pakistan, and Syrian Arab Republic), and (ii) States infected with wild poliovirus but not currently exporting it (Afghanistan, Ethiopia, Iraq, Israel, Nigeria, and Somalia). Temporary recommendations effective 5 May 2014 were issued in with the purpose of stopping the spread of wild poliovirus; those recommendations remain valid.[p,q]

According to the Temporary Recommendations[r] formulated by the WHO Director General in relation to the declaration of the PHEIC concerning the international spread of wild poliovirus, the primary responsibility of stopping the spread to wild poliovirus free areas falls on the States Parties with active outbreaks (in other words, the ten aforementioned countries).

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[n] IHR Procedures concerning public health emergencies of international concern (PHEIC). Available at: http://www.who.int/ihr/procedures/pheic/en/

[o] 21 June 2014 , PAHO/WHO Detection of imported wild poliovirus in environmental samples. Available at: http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=25922+&Itemid=999999&lang=en.

[p] The complete WHO statement on the meeting of the International Health Regulations Emergency Committee concerning the international spread of wild poliovirus, is available at: http://www.who.int/mediacentre/news/statements/2014/polio-20140505/en/

[q] The complete WHO statement on the second meeting of the International Health Regulations Emergency Committee concerning the international spread of wild poliovirus, is available at: http://www.who.int/mediacentre/news/statements/2014/polio-20140803/en/

[r] Available at: http://www.who.int/mediacentre/news/statements/2014/polio-20140505/en/

For States Parties in the Americas, a polio-free Region, the vaccination coverage levels reported, and the performance of acute flaccid paralysis surveillance systems are considered adequate measures, commensurate to the risk, to maintain the polio-free status of the Region. The Report of the XXI Meeting of Technical Advisory Group on Vaccine-Preventable Diseases: "Vaccination: A Shared Responsibility," provides the following recommendations regarding poliomyelitis:

- All countries must reinforce the activities aimed to achieve or maintain vaccination coverage >95% in every district or municipality. If countries do not achieve that coverage they must evaluate the accumulation of non-immunized and conduct vaccination campaigns.
- All countries must continue to maintain adequate AFP surveillance in order to timely detect any importation or emergence of vaccine derived poliovirus, and must report to PAHO on a timely fashion to allow the proper monitoring of the Regional situation.

Considerations for the Region of the Americas

1. Any measure that polio-free States Parties may consider adopting in addition to those detailed in the Temporary Recommendations related to the PHEIC concerning the international spread of wild poliovirus, and that might have implications for travel and trade, should be analyzed in the light of Article 43 of the IHR and subsequent action taken accordingly.

2. Countries in the Americas should not require certificate of vaccination against polio from travelers or residents from States that currently export wild poliovirus or from States currently infected with wild poliovirus.

3. PAHO Member States may recommend to travelers from the Americas and heading to the aforementioned States, to be immunized prior to travelling. Immunized travelers should have appropriate documents evidencing such vaccination, i.e. the international certificate of vaccination or prophylaxis in the format specified in Annex 6 of the IHR. To this end, Member States of the Americas should take steps to inform travelers heading to those countries of the places where such certificates may be obtained locally.

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2. Final report of the XXI Technical Advisory Group (TAG) Meeting on Vaccine-preventable Diseases of the Pan American Health Organization, held in Quito, Ecuador, 3-5 July 2013. Available at: http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=22423&Itemid=270&lang=en.

Other Information Sources

General information on poliomyelitis

- Basic Polio Facts, PAHO/WHO, available at: http://www.paho.org/hq/index.php?option=com_content&view=article&id=7065&Itemid=2244&lang=en
- Polio Case Definition, PAHO/WHO, available at: http://www1.paho.org/english/ad/fch/im/PolioCaseDefinition.htm

Publications on poliomyelitis

- Polio Field Guide, PAHO/WHO, available at: http://www.paho.org/hq/index.php?option=com_content&view=article&id=787%3Apoliomyelitis-field-guide&catid=4049%3Afch03-polio-publications&lang=en
- Polio Weekly Bulletin, PAHO/WHO, available at: http://www.paho.org/hq/index.php?option=com_content&view=article&id=295&Itemid=3626&lang=enhttp://www.paho.org/hq

Ebola virus disease (EVD): Implications of its Introduction in the Americas

Given the current situation of Ebola virus disease (EVD) in West Africa (Table 3), PAHO/WHO advised its Member States to remain vigilant for potential introduction of EVD in the Americas; to raise the awareness and knowledge among health care providers and to strengthen the implementation of standard precautions for infection prevention and control in health care facilities at all levels.

Key Facts

- Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever produces severe illness; its case fatality rate can reach up to 90%. There are no licensed specific treatments or vaccines available.
- Genus Ebolavirus is 1 of 3 genera of the Filoviridae family (filovirus), along with Marburgvirus and Cuevavirus. Genus Ebolavirus comprises five distinct species: Bundibugyo ebolavirus (BDBV), Zaire ebolavirus (EBOV), Reston ebolavirus (RESTV), Sudan ebolavirus (SUDV) and Taï Forest ebolavirus (TAFV).
- The incubation period of EVD varies from 2 to 21 days: the observed average is 8 to 10 days. Following the introduction of Ebola virus in the human population through animal-to-human transmission, person-to-person transmission by direct contact with body fluids/secretions of infected persons is considered the principal mode of transmission. Indirect contact with the environment and fomites soiled with contaminated bodily fluids (e.g., needles) may also occur. Airborne transmission has not been documented during previous EVD outbreaks.
- There is no risk of transmission during the incubation period.
- The most common symptoms among persons infected with the virus are sudden onset of fever, intense weakness, muscle pain, headache and sore throat, followed by vomiting, diarrhea, rash, impaired kidney and liver functions. At advanced stage, there is both internal and external bleeding. Laboratory findings include low white blood cells and platelet counts, and elevated liver enzymes.

Situation summary –West Africa

Table 3: Cases and deaths from EVD in Guinea, Liberia, Nigeria, and Sierra Leone as of 31 July 2014

Country	Cases	Deaths	Case fatality rate (%)	Health care workers affected (Cases/Deaths)
Guinea	472	346	73	(33/20)
Liberia	360	181	50	(47/28)
Nigeria	1	1	100	-
Sierra Leone	574	215	37	(44/23)
Total	1,407	743	53	(124/71)

* Note: These numbers need to be interpreted with caution because they are subject to change and may not reflect the situation on the field accurately. Updated information is available at WHO Diseases Outbreak News: http://www.who.int/csr/don/archive/disease/ebola/en/.

The spread of EVD among and within the three neighboring countries – Guinea, Liberia, and Sierra Leone – with most of the cases reported so far is due to high cross-border movement; the introduction of EVD in additional neighboring countries in the subregion might not be excluded due to the existence of similarly porous borders.

In addition to the high volume of cross-border movement, the current multi-focal nature of the outbreak, and the fact that urban areas are affected, efforts to control the outbreaks have been hampered by: deep-seated beliefs and cultural practices favoring further spread, impeding containment, and jeopardizing the safety of response teams; the loss of a critical mass of health care workers to EVD because of suboptimal infection prevention and control practices; and the fact that chains of transmission have moved underground, making early detection and isolation of cases, contact tracing and monitoring – the cornerstone of EVD control – difficult to perform.

Historically, cases of hemorrhagic fever disease were diagnosed after long distance travel; however, none developed symptoms during international travel. Long-distance travelers (e.g., between continents) infected in affected areas could arrive while incubating the disease and develop symptoms compatible with EVD after arrival. Although most of the countries in the Americas do not have direct flights to or from countries where transmission of EVD has been documented, the introduction of Ebola virus in the Region may occur through international air travelers. Therefore, in light of the current epidemiological and social context related to the outbreak in West Africa, preparedness efforts by national authorities to face the introduction of EVD cases in the Americas are warranted.

In order to assess whether the ongoing Ebola outbreak in West Africa constituted a public health emergency of international concern and, if it did, to recommend appropriate temporary measures to reduce international spread, the Director General of the World Health Organization convened an Emergency Committee meeting on 6 to 7 August 2014.

Advice to national authorities

PAHO/WHO advised its Member States to consider implementing the following measures:

Surveillance

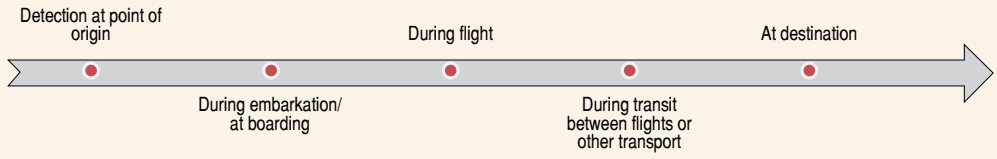
Detection of case with symptoms compatible with EVD

In a scenario where the introduction of cases is most likely, it is important that detection mechanisms be highly sensitive, so as to detect the slightest possibility of an individual being infected by the Ebola virus.

Any case compatible with Ebola virus infection or an unusual event associated with an Ebola virus infection should be reported through the channels established under the IHR. Likewise, any confirmed Ebola case must be reported internationally as established in the IHR.

The identification of a case of Ebola virus infection must take into account both clinical manifestations as well as the travel history and exposure history reported by the patient. The detection of these unusual health events potentially associated with the introduction of the Ebola virus can occur at different points of a journey, as described in Figure 7. Therefore, it is important that personnel operating at such points be properly trained. Said personnel must be updated on the status of EVD, and trained to recognize its symptoms, in order to inquire about the patient´s travel history, and follow the protocols for reporting to the proper authorities.

Figure 7: Different points of detection of potential cases of Ebola virus disease



Health facilities staff should be alerted to the possible introduction of EVD, and should be alerted to the need to properly adhere to protective measures.

Contact Tracing

When a person with clinical symptoms and epidemiological history compatible with EVD is identified or in the case of unexplained deaths among travelers with clinical and epidemiological history compatible with EVD (even if laboratory diagnosis is pending), identification of contacts and monitoring for 21 days (after the last known exposure to EVD) should be initiated.

When an in transit international traveler is among the contacts identified, national authorities should determine whether the traveler should stay in the country for follow up– based on the national legal framework – or continue to travel. If the latter is decided, national authorities must inform the recipient country of the arrival of said travelers, who should be monitored.

A contact is defined as any person having had contact with an Ebola case in the 21 days preceding the onset of symptoms in at least one of the following ways:

- Has slept in the same household as a case.
- Has had direct physical contact with the case (dead or alive) during the illness.
- Has had direct physical contact with the (deceased) case at the funeral.
- Has touched the blood or body fluids of a case during the illness.
- Has touched the clothes or linens of the case.
- Has been breastfed by the patient (baby).

If a patient with illness compatible with EVD develops symptoms while aboard an airplane, contact tracing must follow the risk assessment guidelines for diseases transmitted on aircraft (RAGIDA) protocol 2[s], which indicates that contact tracing should involve all those passengers seated in an adjacent seat to the patient in all directions -on the side, in front or behind, including across an aisle- , as well as the crew on board. If the cleaning of the aircraft is performed by unprotected personnel, they should be considered as contacts.

As part of contact tracing, the following information for each contact is to be collected: name, address, relationship with the patient, date of last contact, type of contact. Countries should have the tools for efficient information management. For those countries that do not have such tools, PAHO/WHO can provide the Field Information Management System (FIMS); countries interested in obtaining FIMS should contact their local PAHO/WHO Country Office.

Daily monitoring of contacts may be conducted through in person visits, or virtually if the system used allows visualization of the individual (e.g., video chat). The contact should be instructed to go to a health care facility if symptoms are present. For household visits of asymptomatic contacts, the use of personal protective equipment (PPE) by healthcare personnel performing the visit is not required.

The asymptomatic individuals identified as contacts do not need to wear PPE, as long as they remain asymptomatic, and may continue their daily routines. However, they must remain available, and notify health personnel of any change of location that may affect the health personnel's ability to carry out daily monitoring. For operational reasons, non-essential travel of contacts during the monitoring period is discouraged.

Both health personnel involved in the direct care of a patient under investigation or of a confirmed case of EVD, as well as laboratory personnel must be registered as contacts and monitored for 21 days after the last possible exposure to contaminated material have passed.

Contacts that develop symptoms compatible with EVD must be referred to the isolation ward in designated hospitals for medical assessment and further examination. This should trigger an active search for cases in both the community and at health facilities.

Additional guidelines will be provided in the event that local transmission is established.

Laboratory Diagnosis

Once an individual with illness compatible with EVD is identified, a sample must be taken (whole blood and/or serum) for the diagnosis. The sample should be taken by trained health personnel following extreme biosecurity measures, and additional protective equipment (non-sterile gloves, masks, goggles - preferably with an anti-fog visor, apron or waterproof apron,

[s] Risk assessment guidelines for diseases transmitted on aircraft (RAGIDA). Part 2: Operational guidelines Second edition. November 2009. Available at: http://www.ecdc.europa.eu/en/publications/_layouts/forms/Publication_DispForm.aspx?List=4f55ad51-4aed-4d32-b960-af70113dbb90&ID=332

if possible, disposable). This sample should ideally be taken at the hospital designated to handle cases compatible with EVD, and sent to the national reference laboratory.

Patient treatment is empirically started pending the receipt of a definitive confirmation.

Confirmation of Ebola virus infection can only be performed in patients who have already developed symptoms, as it is not possible to obtain during the incubation period. If a patient with clinical and epidemiological history compatible with EVD has died, taking an oral swab is suggested. In these situations, an autopsy is contraindicated.

The Ebola virus is classified as a Risk Group 4 pathogen, and, therefore, requires handling in a level 4 biosafety laboratory (BSL-4). However, molecular assays (for diagnosis of Ebola and other pathogens) can be performed in Biosafety Level 3 (BSL-3) conditions (and even BSL-2), provided that the sample has been inactivated. To minimize the risk of exposure in the laboratory, presumptive and differential diagnosis should only be conducted using molecular techniques. Due to its low specificity, the use of rapid testing is not indicated for confirming for either confirming or discarding cases; its use is discouraged.

Personnel of a BSL-2 laboratory handling samples of patients with illness compatible with Ebola should wear routine personal protective equipment (gloves, goggles-preferably with an anti-fog visor), and additional protection (N-95 masks, apron or waterproof apron, if possible, disposable) regardless of the type of sample and test to be performed.

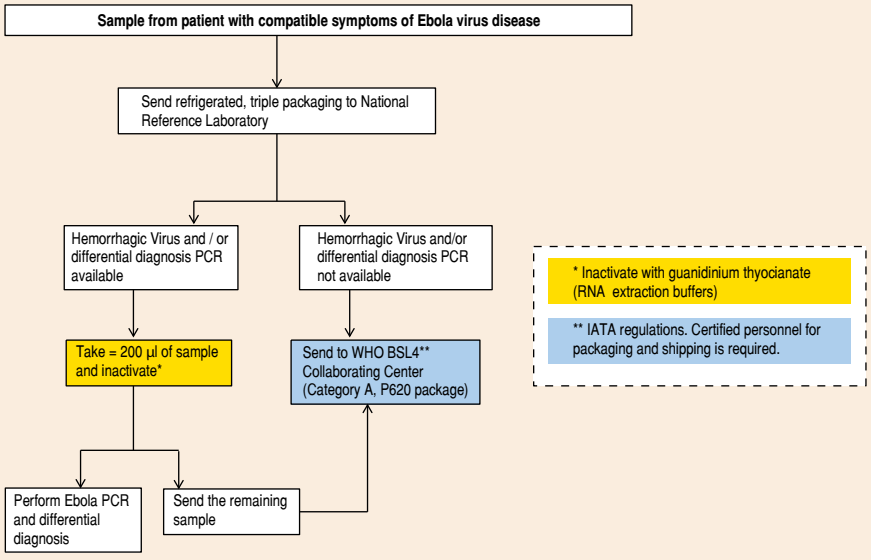
The final confirmation of Ebola virus infection should be performed by a WHO Collaborating Center. Samples must be sent by the national reference laboratory, as a category A infectious substance, according to the International Air Transport Association (IATA) standards and packed by IATA certified personnel on international shipping and handling. Sending samples presupposes functional delivery channels through a certified company (courier). The country must ensure in advance that the company is available for sample shipment.

The laboratories in the Region that can receive samples are:

- Viral Special Pathogens Branch (VSPB), Division of High Consequence Pathogens and Pathology (DHCPP), National Center for Emerging Zoonotic Infectious Diseases (NCEZID), Centers for Disease Control and Prevention (CDC): http://apps.who.int/whocc/Detail.aspx?cc_ref=USA-155&cc_city=atlanta&.
- Zoonotic Diseases and Special Pathogens, National Microbiology Laboratory, Infectious Disease and Emergency Preparedness Branch, Public Health Agency of Canada: http://apps.who.int/whocc/Detail.aspx?cc_ref=CAN-22&cc_city=winnipeg&.

Below is an algorithm for forwarding samples from patients with symptoms consistent with EVD (Figure 8).

Figure 8: Algorithm for forwarding samples from patients with symptoms compatible with EVD.



Case management

In health care services

Patients with symptoms compatible EVD can be detected at different levels of the health care system or entry points, and must be handled using standard precautions of infection control. The patient should be transferred and managed in a designated health care facility, which must have the following features: Contact isolation conditions; appropriate provisions of personal protective equipment; and health services personnel trained in infection prevention and control.

Ideally, patients should be isolated in single isolation rooms, or in cohorts separating those who have EVD laboratory confirmation from those still under investigation for EVD.

Countries should consider having a number of designated facilities compatible with their geographical and administrative management structure. If the country does not have designated hospitals for isolating patients with symptoms consistent with EVD, using those services that have already been identified for isolation of patients during the influenza pandemic and/or those used for isolation of patients with multidrug-resistant tuberculosis should be considered.

When a case is detected in an airplane or at airport facilities, he/she should be directed to an area designated for isolation and evaluation by health personnel, according to the airport's contingency plan and prior to transferring the case to the designated hospital.

Patient transfer

- Patient transfer should be performed by trained health care professionals in an appropriate vehicle for that purpose. The vehicle must only transport essential personnel for patient care.
- Personnel providing direct care to the patient must wear gloves, water-proof gowns, surgical masks, goggles (preferably with anti-fog visor), and enclosed shoes.
- The driver does not need personal protective equipment, unless potential direct contact with the patient is anticipated.

- Vehicle cleaning: After a vehicle has been used for patient transfer, it must be cleaned and disinfected with 0.05% hypochlorite solution. Personnel in charge of cleaning the vehicle should wear personal protective equipment (gloves, waterproof gowns, surgical masks, goggles [preferably with anti-fog visor], and enclosed shoes).

Infection Prevention and Control

Human-to-human transmission of the Ebola virus is primarily associated with direct or indirect contact with blood and body fluids. Transmission to health-care workers has been reported when appropriate infection control measures have not been followed.

Standard precautions

It is not always possible to identify patients with EBV early, because initial symptoms may be nonspecific. For this reason, it is important that health-care workers at all levels consistently apply standard precautions with all patients – regardless of their diagnosis – in all work practices at all times. These include hand hygiene; safe handling and disposal of sharp instruments; use of personal protective equipment (PPE) based on the risk assessment; and cleaning and disinfecting spills, environment, and reusable equipment safely.

Precautions for direct patient contact

- Restrict the number of staff dedicated to patient care, and the number of visits.
- Keep log books to register staff caring for patients as well as visitors.
- Use of PPE by both health-care personnel and visitors.
- Wash hands.
- Use of surgical masks, goggles – preferably with anti-fog visor, waterproof apron, gloves and enclosed shoes before entering the patient's room.
- Remove PPE before leaving the isolation area. Special care should be taken when removing PPE to prevent contact with eyes and mucous membranes.
- Designate staff dedicated to monitoring the correct use of PPE among health personnel and visitors.
- General use of disposable personal protective equipment. Where it is not possible to obtain disposable equipment, the following items can be reused following appropriate disinfection:
  - Goggles or eyewear must be washed with water and soap in advance, and then disinfected with 70% alcohol.
  - Impervious gowns or aprons that cannot be sent to the hospital laundry facilities must be disinfected with hypochlorite 0.05%.

Cleaning: hospital and household of EVD symptomatic patient

At home: If a patient develops symptoms at home before being isolated, the home should be disinfected, and the patient's bedding and clothing, incinerated.

Disinfection of the environment:

- Surfaces contaminated with blood or other body fluids should be cleaned with water and detergent prior to disinfection.
- For disinfection, use 0.05% hypochlorite solution.
- Use gloves, gowns and enclosed shoes for cleaning and disinfecting surfaces contaminated with blood and/or body fluids.

In the hospital: Both the patient's bedding and clothing should be placed in a bag before washing and routed separately to the hospital laundry facilities, where workers are to be adequately protected. Hand washing these items is not recommended.

Waste management in the hospital setting

- All sharp-edged objects must be disposed of in puncture-resistant containers. These containers should be discarded when 75% of their capacity is reached.
- All solid waste, with no sharp edges, must be disposed of in appropriate medical waste disposal plastic bags.
- All solid waste and sharp-edged objects related to a patient suspected or confirmed for EVD must be incinerated.

Infection control in aircraft

If the presence individual is suspected with illness compatible with EVD on board, the crew will have to implement recommendations made by IATA with respect to infection control and meet the ICAO requirements regarding notification.[t] This cabin crew should be using the Universal Precaution Kit such as that recommended by the International Civil Aviation Organization (ICAO): http://www.capsca.org/CAPSCARefs.htm.

Cleaning of affected aircraft: Since disinfection of aircraft surfaces depends on the disinfecting product compatibility with the material of the surface to be disinfected, the aircraft manufacturers should be consulted.

While the most probable scenario for the introduction of the Ebola virus would by air travel, there is a high volume of cruise ships in the Region of the Americas, as such prevention and control measures onboard a cruise ship or other boat are available in English.[u]

Safe disposal of dead bodies

The dead body must be kept whole and its handling should be limited.

Regardless of the funerary practice of family or friends of the patient, the body must not be embalmed. It should be disinfected with hypochlorite solution 0.05%, placed in resistant fluid extravasation body bags, which must be properly closed and placed in a closed casket before burial.

The staff for the management of dead bodies should be designated, equipped, trained and supervised by the national public health authorities to carry out the management of dead

[t] Available at: IATA guidelines for air crew to manage a suspected communicable disease or other public health emergency on board; and IATA guideline for cleaning crew for an arriving aircraft with a suspected case of communicable disease

[u] WHO Aviation Guide which includes information on sanitizing of aircraft

bodies under biosafety conditions. Personnel should use PPE at all times when handling a dead body, which includes aprons, overalls, waterproof gowns, surgical masks, eye protection (preferably with an anti-fog visor) and closed shoes.

Clinical Management

General medical support is critical. Severely ill patients require intensive supportive care. Such care must be administered with strict attention to barrier isolation. Patients are frequently dehydrated and require oral rehydration with electrolytes containing solutions or intravenous fluids. Currently, no specific licensed therapy has demonstrated efficacy in the treatment of EVD. Invasive procedures should be limited for EVD confirmed cases as well as for EVD suspected patients.

Criteria for halting patient isolation

The duration of precautions should be determined on a case-by-case basis, once the symptoms have ended. Deciding whether a patient should be removed from isolation should also take into consideration laboratory information.

Special considerations

- Breastfeeding: Because the virus is transmitted through breastfeeding, it is recommended that women not breastfeed if symptomatic for EVD, regardless of infection confirmation status.
- The Ebola virus can be transmitted through semen up to seven weeks after recovery from the illness. For this reason, it is important for men to avoid sexual intercourse for at least that period after recovery or to wear condoms if having sexual intercourse during those seven weeks.

Raising awareness and communication

Health Professionals

All institutions at different levels of the health care system and all health care workers (clinical, public health professionals, laboratory, janitorial staff, etc.) must be constantly informed about:

- The evolution of the EVD outbreak in West Africa, and the international level recommendations.
- The characteristics and modes of transmission of the disease.
- Any type of protocol that the country has developed, is developing, or is revising related to any response or requirements.

Based on their area of expertise, health care personnel should be trained to respond, prioritizing the implementation of infection prevention and control measures and the systematic and comprehensive collection of patient travel history.

Other Sectors

Given that the most likely scenario for the introduction of Ebola is through international passengers traveling by air, the following is recommended:

- Link and establish close coordination mechanisms with civil aviation and airport authorities and airlines operating in the country, in order to increase and coordinate detection of

cases among passengers; manage contacts and access information to enable tracking and tracing. It is essential, therefore to always involve government authorities responsible for transportation and immigration.

- Coordinate with the aforementioned authorities to:
  - Determine the exact country of origin of the potential case.
  - Facilitate the identification pf the exact location of potential contacts, both within and outside the country: through immigration for those who are in the country, through the airline manifest of to determine contact final destination, and to inform the relevant national authorities appropriately.
  - Activate the airport contingency plan in case of a response to a public health emergency is required.
  - Emphasize among travel industry personnel the importance of infection prevention and control.
  - Reiterate the need for airlines to adhere and comply with guidelines developed by IATA.
  - Disseminate information for travelers with symptoms, so they may know where to seek medical care.
- In conjunction with the Ministry of Tourism, inform the tourism sector (e.g., hotels, cruise lines, travel agencies, etc.) about the outbreak's evolution, international recommendations, and government's preparation efforts.
- Reach out to embassies and diplomatic channels, the private sector, or national institutions that have personnel or operations (commercial, scientific, military, humanitarian, cooperation or other) in the countries where EVD is documented, to inform them of the outbreak's evolution; measures recommended at the international level; and need to provide basic information about modes of transmission and arrangement for the treatment of cases among expatriates.

General Population

The implementation of an existing communications plan is recommended to ensure transparency about preparedness activities undertaken by the government as well as the detection of EVD compatible and/or confirmed cases. Communications with the public must be established to facilitate the discussion of the eventual implementation of public health measures that could impact society at large as well as individuals.

National health authorities are encouraged to identify cultural and religious practices and beliefs that may potentially prevent the acceptance of public health measures to control EVD in the community, should there be one or more suspected and/or confirmed cases of EVD.

Informing Travelers

Given the evolution of the outbreak, and considering published international recommendations, national authorities should, at the time of their trip, inform and advise those who want to travel to countries with documented transmission of EVD about the characteristics of the disease and transmission, and inform them about personal protection measures. This information should be disseminated through medical care centers or travel agencies and/or web pages dedicated to this purpose.

Informing expatriated communities (from countries where EVD transmission has been documented)

Engage appropriate national authorities to reach out to expat community leaders to ensure open dialogue, to facilitate health monitoring operations, and to provide access to health care services.

Media

National health authorities are invited to engage with the media to provide information about the modes of transmission and clinical presentation of EVD; about efforts by national authorities to prepare for the introduction of EVD; and to seek their collaboration and cooperation in advance for the delivery and dissemination of health messages to the population, especially in case of suspicion or confirmation of EVD in the countries.

United States of America, 1 October 2014

On 30 September 2014, PAHO/WHO was informed of the first confirmed imported case of EVD in the United States in an adult with recent travel history to West Africa. The case developed symptoms compatible with Ebola on 24 September 2014, approximately four days after arriving in the United States on 20 September 2014. The patient did not have symptoms when he left West Africa. The patient sought medical care on 26 September 2014, and was admitted into isolation on 28 September 2014 at Texas Health Presbyterian Hospital in Dallas. Samples were sent for testing to the US CDC and at the Texas State Laboratory. Results were positive for Ebola virus.

Close contacts were identified for daily monitoring for 21 days after exposure. Because the case did not exhibit symptoms of Ebola during the flights from West Africa, contact tracing of passengers on the same commercial airline flights was not indicated.

WHO recommend that no travel or trade restrictions be applied by countries, except in cases where individuals have been confirmed or are suspected of being infected with EVD, or where individuals have had contact with cases of EVD. Contacts do not include properly-protected health-care workers and laboratory staff.

Temporary recommendations from the Emergency Committee with regard to measures to be taken by countries can be found on the IHR Emergency Committee on Ebola outbreak in West Africa page, available at: http://www.who.int/entity/mediacentre/news/statements/2014/ebola-20140808/en/index.html.

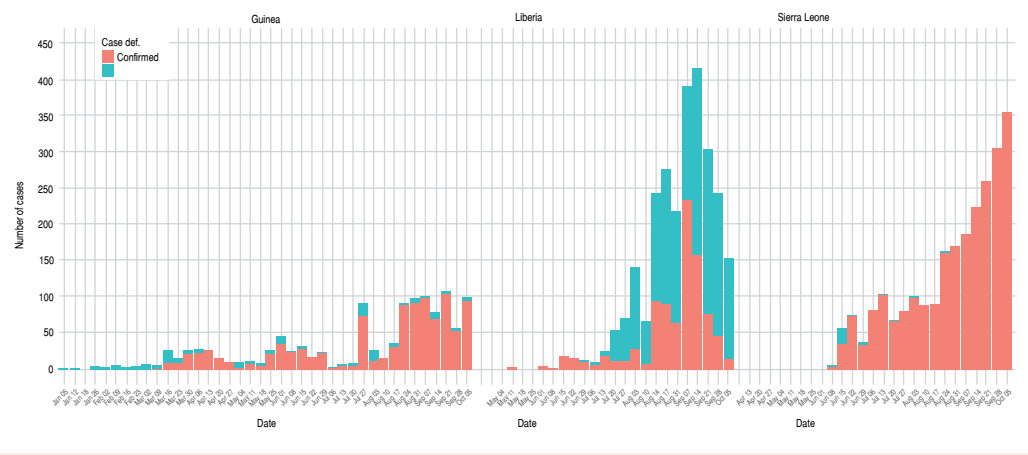
Future WHO updates on EVD in the United States will not be posted on the Disease Outbreak News. Further information will be available in WHO's Ebola Situation Reports which provide regular updates on the WHO response.

Situation Summary, 10 October 2014

PAHO/WHO urged Member States to continue preparedness and response efforts for the potential introduction of imported cases of EVD, particularly preparing health care workers to identify suspected EVD cases, and strengthening the implementation of infection prevention and control measures at all levels of care in health services.

In countries with widespread and intense transmission (Guinea, Liberia and Sierra Leone), a high number of new cases continued to be recorded. In the two months prior to this report, about 1,000 new cases per week had been reported, almost 500 of them in Liberia alone. At the time, there were no signs that the epidemic in those countries was under control. High transmission continued to be reported in areas such as Conakry, Gueckedou and Macenta (Guinea), Margibi district (Liberia), Freetown, and the districts of Bombali, Moyamba and Port Loko (Sierra Leone). These areas have a population of around 30 million (Figure 9).

Figure 9: Distribution of EVD Cases by week and by country (West Africa), 8 October 2014



Source: WHO: Ebola Response Roadmap Situation Report

Cases among health care workers also continued to be reported at a weekly rate of 24 to 55 new cases. In the two weeks prior to 10 October 2014, the greatest number of cases among health care workers had been recorded in Sierra Leone (Table 4). Liberia had the highest number of health care workers infected at the time, most of them were reported in Margibi County, which also had the highest EVD incidence rate. In Guinea, the greatest number of health care worker cases infected was recorded in the capital, Conakry; however, Gueckedou was the city with the highest EVD incidence rate there.[v]

Table 4: Number of EVD cases and deaths in Guinea, Liberia, Nigeria and Sierra Leone, by country, as of 10 October 2014*

Country	Cases	Deaths	Case fatality rate (%)	Health care workers affected (cases/deaths)
Guinea	1 350	778	58	(74/38)
Liberia	4 076	2 316	57	(201/95)
Nigeria	20	8	40	(11/5)
Sierra Leone	2 950	930	32	(129/95)
Total	8 396	4 032	48	(415/233)

*Note: These numbers are subject to change due to reclassification. They should be interpreted with caution, as they are provisional and may not accurately reflect the situation in the field.

Countries with (an) initial case(s) or local transmission. Four countries (Nigeria, Senegal, Spain, the United States) had reported one or more cases imported from one of the countries with active transmission. In Nigeria, 20 cases, including eight deaths, were detected; the outbreak was linked to a person who travelled from Liberia to Lagos, Nigeria, and died from EVD. In Senegal there was one confirmed case: a man from Guinea who travelled by road to Senegal. No new cases were reported in either country after 8 September 2014.

[v] Updated event information is available on the WHO Situation Reports, Ebola response roadmap website at: http://www.who.int/csr/disease/ebola/situationreports/en/.

United States of America: On 30 September 2014, the US CDC confirmed the first imported case of Ebola unrelated to a medical evacuation, in a person who had traveled to Dallas, Texas, from Liberia on 20 September, and was asymptomatic at the time of travel. This person developed symptoms on 24 September, sought medical attention on 26 September, was evaluated, and discharged home. The patient was later hospitalized and placed in isolation on 28 September 2014. The patient died on 8 October, and the handling of the body followed strict CDC guidelines. As of 9 October, 48 contacts had been monitored daily, and all remained asymptomatic.

Spain: The Ministry of Health, Social Services and Equality reported a secondary case of Ebola, acquired in the country. This was a nurse's assistant that cared for a confirmed case of Ebola who had recently been repatriated to Spain. The case developed symptoms on 29 September and was hospitalized and placed in isolation on 6 October 2014. The manner in which the virus was contracted was under investigation.

Meanwhile, in the Democratic Republic of Congo, another Ebola outbreak was underway, unrelated to the outbreak in West Africa. As of 7 October 2014, there had been 71 confirmed cases, including eight health care workers, and a total of 43 deaths.

Advice to national authorities

PAHO/WHO advised Member States that the guidance provided in the August 2014 publication on EVD Implications of Introduction in the Americas (above), remain the same. The full document is available at: http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&Itemid=270%20&gid=26416&lang=es.

Considering the situation at the time, PAHO/WHO emphasized the need for sensitive detection mechanisms for early recognition of cases. The Organization reminded readers that suspicions of imported cases of EVD should take into account clinical symptoms (even at the initial stage), travel history to areas with current transmission, and exposure history reported by the patient or obtained through epidemiological investigation. In addition to having point of entry personnel on alert for the possibility of the introduction of the virus, it is especially important to encourage health care workers to ask patients about their travel history, and review said information in light of the case´s signs and symptoms. This would allow immediate reporting to relevant national authorities for risk assessment and implementation of pertinent protocols.

In line with national authorities' preparedness, and to facilitate the international shipment of samples for the diagnosis of EVD, relevant documents and guidelines for shipment to either of the two WHO Collaborating Centers in this Region had been distributed to competent national authorities and the IHR National Focal Points. Collaborating centers are the US CDC in Atlanta, United States, and PHAC in Winnipeg, Manitoba, Canada.

PAHO/WHO emphasized that efforts to implement adequate infection prevention and control measures in health care services should be enhanced by health authorities, ensuring rigorous application of standard precautions. The Interim Infection Prevention Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health-Care Settings, with Focus on Ebola is available at: http://apps.who.int/iris/bitstream/10665/130596/1/WHO_HIS_SDS_2014.4_eng.pdf?ua=1& ua=1.

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Enterovirus D68

17 September 2014

On 10 September 2014, the United States notified the PAHO/WHO of an outbreak of severe respiratory illness associated with Enterovirus D68 (EV-D68). As of 16 September 2014, 130 laboratory-confirmed cases of EV-D68 had been reported in 12 states – Alabama, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Missouri, New York, Oklahoma, and Pennsylvania. Investigations into suspected clusters in many other states were ongoing.

EV-D68 is identified by molecular techniques at a limited number of laboratories in the United States. Enterovirus infections, including EV-D68, are not subject to mandatory reporting, but laboratory detections of enterovirus and parechovirus types are reported voluntarily to the National Enterovirus Surveillance System, which is managed by the CDC.

Currently, there are no available vaccines or specific treatments for EV-D68, and clinical care consists of supportive measures. Symptoms of EV-D68 may include fever, runny nose, sneezing, cough, and body and muscle aches. Individuals with preexisting conditions, such as asthma or other respiratory diseases, may be especially prone to severe infection from EV-D68, and may experience difficulty breathing or wheezing.

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