

# Epidemiological Alerts and Updates 2012

## Annual Report 2012



**Pan American  
Health  
Organization**

Regional Office of the  
World Health Organization



**110**  
110th ANNIVERSARY



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# Introduction

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This annual publication provides a compilation of public health events that occurred in the Region of the Americas in 2012 and for which the Pan American Health Organization (PAHO), Regional Office of the World Health Organization (WHO), generated an alert or update with recommendations of preventative or mitigation measures for Member States.

The publication of the epidemiological alerts and updates started in 2008 and are complementary to the WHO Disease Outbreak News on public health events around the world.

In 2012, a total of 14 epidemiological alerts and updates were published on public health events in the Region of the Americas that had or could have had an impact on international public health. The majority of the alerts are related to communicable diseases, and one concerning a risk of chemical origin.

The elaboration and dissemination of the alerts has been made possible through the early detection and timely notification of Member States concerning events occurring within their territories. As timely and accurate information is essential to recognizing public health threats, the participation of all Member States in detecting and reporting such information is key to inform the international community.

PAHO/WHO would like to thank Member States for their contributions in the preparation and dissemination of these epidemiological alerts and updates and requests the continued participation in the regional and global surveillance of events that could constitute a public health emergency of international concern.





# Epidemiological Alert: Cholera

4 May 2012

The Pan American Health Organization/World Health Organization (PAHO/WHO) reminds Member States that measures such as restrictions on movement of persons and seizure of goods produced under good manufacturing practices are unnecessary and ineffective to control the spread of cholera. Member States are encouraged to continue surveillance activities and to implement the recommended actions that reduce cholera transmission determinants.

## Cholera Outbreak Situation in the Region

In consideration of the upcoming rainy season in Central America and the Caribbean, in which there is an increase in the risk of transmission for various diseases, including cholera, the PAHO/WHO encourages Member States to continue surveillance efforts to detect the occurrence of outbreaks, and to implement interventions to reduce the determinants of cholera spread.

In regard to the current cholera situation in the island of Hispaniola, from the beginning of the epidemic on 20 October 2010 through 10 April 2012, a total of 534,647 cases, 287,656 (53%) hospitalizations, and 7,091 deaths have been reported in Haiti.<sup>i</sup> The overall cumulative case-fatality rate was 0.6%, and hospital case-fatality rate, 1.1%. During the three weeks prior to this report, an increase in the number of cases has been detected, primarily in the Nord-Ouest, Sud, and Sud-Est departments, and in the capital city Port-au-Prince (Ouest department). This rise is associated with the onset of the rainy season, which in 2012 began earlier than expected.

In the Dominican Republic, since the beginning of the epidemic through epidemiological week (EW) 16 of 2012, a total of 23,347 cases, 17,977 (77%) hospitalizations, and 399 deaths have been reported. The overall case-fatality rate recorded from EWs 1 through 16 of 2012 was 1.2%. In the two weeks prior to this report, there was an increase in the number of cases due to an outbreak in Tamboril, a town in the province of Santiago. The outbreak is associated with heavy rains that caused flooding and damage to the main aqueducts system. Dominican Republic authorities are implementing measures to control this situation.

The Centers for Disease Control and Prevention's Morbidity and Mortality Weekly Report (MMWR) of 4 May 2012 reported the identification of a new serotype of *Vibrio cholerae* serogroup O1, serotype Inaba, in two clinical samples collected in Haiti between 12 and 13 March 2012 in Anse Rouge, Artibonite department. According to the report, molecular analyses

<sup>i</sup> Epidemiological data has been provided by the Ministry of Public Health and Population of Haiti, and the Ministry of Health of the Dominican Republic, respectively.

conducted to date suggest that the Inaba serotype was the product of serotype switching, a commonly observed phenomenon in cholera epidemics. This finding does not change cholera clinical management guidelines. Public health laboratories in the Region should be prepared to identify these two serotypes.

## Recommendations

The Pan American Health Organization reiterates the following recommendations previously published in Epidemiological Alerts on cholera in 2010 and 2011:

## Surveillance

Under the International Health Regulations (IHR, 2005), public health events that involve the risk of cholera cases should be evaluated on the basis of Annex 2 of the IHR, and the WHO Contact Point for the IHR should be notified in accordance with it.

Cholera surveillance should be part of an integrated national surveillance system, and should include timely feedback to the local level, as well as reporting to the global level. The use of the WHO standardized case definition is recommended, in order to obtain a more precise estimate of the global cholera burden, and to identify more sustainable support strategies.

In countries where no cholera cases have been reported, the recommendations are:

- To monitor trends of acute diarrheal disease, especially among adults.
- To notify immediately all suspected cases from the local to the central and peripheral level.
- To investigate all suspected cases and clusters.
- Laboratory confirmation of all suspected cases.

In an outbreak situation the recommendations are:

- To intensify surveillance, including active case finding.
- To provide laboratory confirmation to monitor geographic spread and antimicrobial resistance patterns.
- To conduct weekly analysis of the number of cases and deaths by age, sex, geographical location, and hospitalization.

## Laboratory Diagnosis

- Laboratory confirmation is by isolation of *V. cholerae* strains or by serological evidence of recent infection.
- It is important that public health laboratories in the Region be prepared to identify the Ogawa and Inaba serotypes. Laboratory personnel may find Table 1 useful, as it provides the identification algorithm for both serotypes.

## Treatment

Cholera is a disease that responds satisfactorily to medical treatment. The first goal of the treatment is to replace fluids lost by diarrhea and vomiting. Up to 80% of cases can be treated through early administration of oral rehydration salts (WHO/UNICEF oral rehydration salts standard sachet).

The administration of intravenous fluids is recommended for patients who have lost over 10-20 ml/kg/h, or patients with severe dehydration. Following initial fluid replacement, the best guide for fluid therapy is obtained by recording fluid losses and gains, and adjusting fluid administration as required.

The administration of appropriate antibiotics, especially in severe cases, shortens the duration of diarrhea, reduces the volume of fluids necessary for rehydration, and shortens the *V. cholerae* strain excretion period.

Massive administration of antibiotics is not recommended, since it has no effect on cholera dissemination and contributes to bacterial resistance to antimicrobials. With appropriate treatment the case fatality rate is less than 1%.

In order to provide timely access to treatment for populations affected by cholera outbreaks, cholera treatment centers should be established. These centers should be located at strategic points to maximize the number of affected individuals that can be treated in a non-hospital setting, based on management protocols defined by and agreed to by all parties.

Response plans must address the coordination between treatment centers, healthcare centers, and levels of care in the communities in which they are located, and should include promotion of proper hygiene practices and public health measures.

## Prevention Measures

### Prevention in the Health Care Setting

The following recommendations are aimed at reducing fecal-oral cholera transmission in healthcare environments:

- Wash hands with soap and water or glycerin-alcohol before and after patient contact.
- Use of gloves and gowns for close contact with patients, and contact with excretions or secretions.
- Isolation of patients in a single room or by cohorts.
- At least 1 meter separation between beds.
- Cleaning of debris and organic material with sodium hypochlorite (bleach) dilution (1:10).
- Cleaning of environment with sodium hypochlorite (bleach) dilution (1:100).
- Persons who care for children in diapers or incontinent individuals must strictly follow the same precautionary measures cited above, especially those related to hand hygiene (after changing diapers or contact with excretions). It is also recommended that soiled diapers be frequently changed.

## Preparedness and Response

The implementation of medium and long term prevention activities is key in the fight against cholera. In general, the response to cholera outbreaks tends to be reactive, and to take the shape of an emergency response. This approach prevents many deaths, but not cholera cases themselves.

A coordinated multidisciplinary approach, supported by a timely and effective surveillance system, is recommended for prevention, preparedness, and response.

Key sectors to involve in the response are health care, water supply and sanitation, agriculture and fisheries, education, as well as professional associations, non-governmental organizations and international partners in the country.

## Water Supply and Sanitation

The improvement of water supply and sanitation remains the most sustainable measure to protect people against cholera and other waterborne epidemic diarrheal diseases. However, this approach may be unrealistic for the poorest populations in our Region.

Cholera is usually transmitted by feces contaminated food or water. Sporadic outbreaks can occur anywhere in the world where water supply, sanitation, food safety, and hygiene are inadequate.

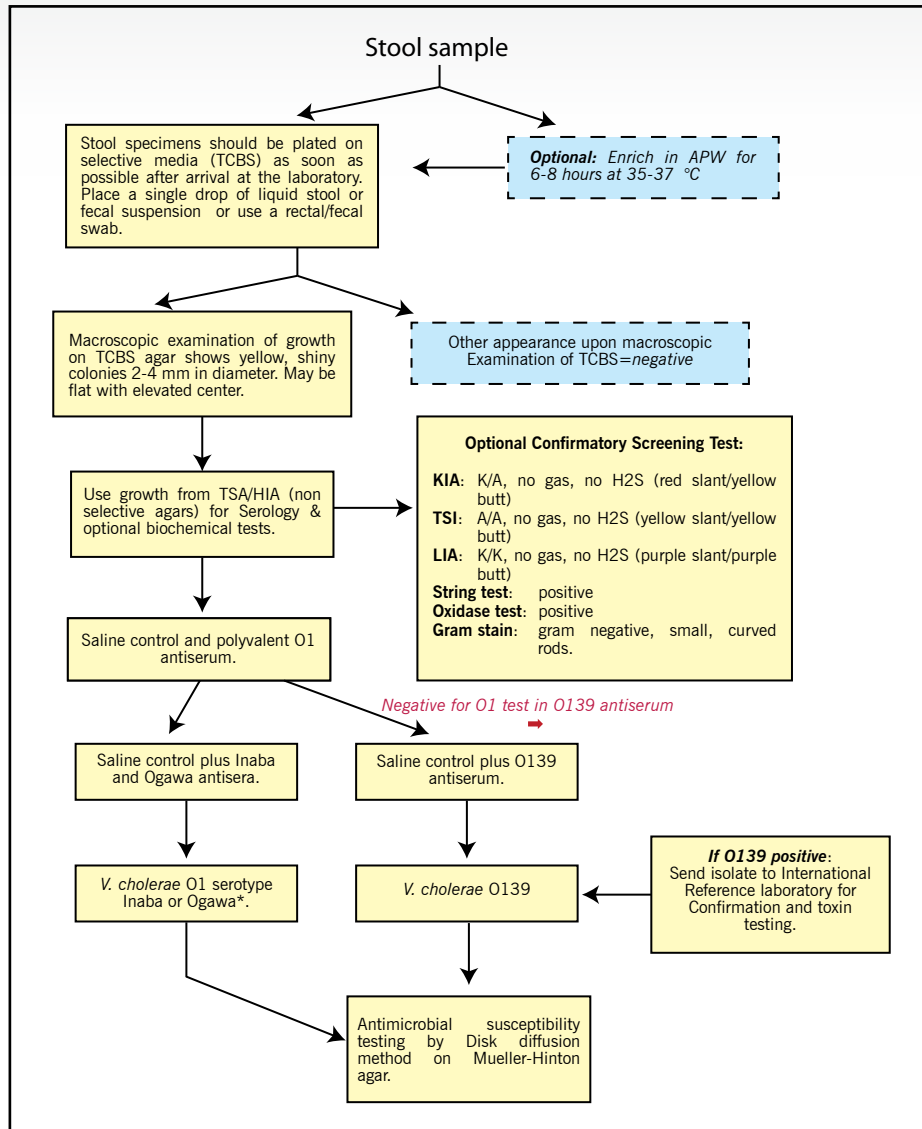
## International Trade and Travel

Experience has shown that measures such as quarantine—to limit movement of people--and the seizure of goods are ineffective and unnecessary in controlling the spread of cholera. Therefore, restricting the movement of people or imposing restrictions on imported food produced under good manufacturing practices based solely on the fact that there is a cholera epidemic or endemic in a country, is not justified.

## References

1. Haiti Ministry of Public Health and Population: Daily Reports of MSPP on the Evolution of Cholera in Haiti (Rapports journaliers du MSPP sur l'évolution du cholera en Haiti). Port-au-Prince, Haiti; 2012. Available in French at: <http://www.mspp.gouv.ht/site/index.php>.
2. The Dominican Republic Epidemiological Bulletin. Epidemiological Week 16, 2012. Available in Spanish at: <http://www.sespasdigepe.gob.do/>.
3. J Brunkard and DF Talkington. Notes from the Field: Identification of *Vibrio cholerae* Serogroup O1, Serotype Inaba, Biotype El Tor Strain — Haiti, March 2012. Morbidity and Mortality Weekly Report May 4, 2012 / 61(17);310-31.

**Table 1.**  
**Flowchart for isolation and identification of *Vibrio cholerae***



**Agglutination reactions in absorbed antiserum of serotypes of *Vibrio cholerae* serogroup O1**

<i>V. cholera</i> O1 serotype	Ogawa Antiserum	Inaba Antiserum
Ogawa	+ <sup>a</sup>	- <sup>b</sup>
Inaba	-	+
Hikojima <sup>c</sup>	+	+

a + indicate a positive agglutination reaction in the absorbed antiserum.

b – indicate a negative agglutination reaction in the absorbed antiserum.

c If there is a positive reaction in both Ogawa and Inaba antisera and the Hikojima serotype is suspected, send the isolate to an international reference laboratory, following packing regulations.

**GLOSSARY**

APWA: Alkaline peptone water, TCBS: Thiosulfate-citrate-bile salts-sucrose agar, TSI: Triple Sugar Iron Agar, KIA: Kligler Iron Agar, LIA: Lysine Iron Agar, HIA: Heart Infusion Agar, K: Alkaline reaction, A: Acid reaction.



## Current Cholera Situation in the Region

In **Haiti**,<sup>1</sup> from the beginning of the epidemic through 3 July 2012, a total of 577,509 cases of cholera, 312,155 (54%) hospitalizations, and 7,410 deaths have been reported. The overall case-fatality rate was 1.3%, and the hospital case-fatality rate, 1.5%. As of epidemiological week (EW) 15 of 2012, an increase in the number of cases was observed, mainly in the Centre, Nord, Nord-Est and Ouest departments. The increase is related to the early onset of the rainy season. In the three weeks prior to this report, the number of cases and hospitalizations has shown a decreasing trend.

In the **Dominican Republic**,<sup>2</sup> a total of 25,062 suspected cases have been reported since the beginning of the epidemic through epidemiological week (EW) 25 of 2012. Of those, 19,210 (76.6%) were hospitalized and 401 died. The cumulative case fatality rate recorded from EW 1 through EW 25 of 2012 is 0.8%. As of EW 15 of 2012, an increase in cases has been recorded primarily in the provinces of Puerto Plata, San Juan and Santiago. Santiago has reported the greatest increase in cases as a result of an outbreak in the municipality of Tamboril. The Tamboril outbreak is associated to damage in the main aqueducts system, and national authorities continue their efforts to control the situation.

On 3 July 2012, **Cuba's** Ministry of Public Health<sup>3</sup> reported an increase in the number of acute diarrheal diseases detected by the country's surveillance system. The disease was associated with water consumption from local contaminated wells. The increase was mainly detected in the Granma province. As part of the outbreak investigation, approximately 1,000 patients received care. Among the latter, different microorganisms were identified, including 53 cases of infection by *Vibrio cholerae*, of which 3 died. The three patients who died were elderly, and had a history of chronic diseases.

Prevention and control measures implemented by national authorities included the sampling of public and private water wells; closure of contaminated wells; providing chlorinated water in affected areas; eliminating water leaks; septic tank cleaning and sanitation; and public health awareness campaigns.

## Recommendations

PAHO/WHO reiterates its recommendations of 4 May 2012, provided in the Epidemiological Alert of the same date.

Official information is available at: <http://www.sld.cu/> and <http://www.sld.cu/sitios/colera/>

## References

1. Haiti Ministry of Public Health and Population: Daily Reports of MSPP on the Evolution of Cholera in Haiti (Rapports journaliers du MSPP sur l'évolution du cholera en Haiti). Port-au-Prince, Haiti; 2012. Available in French at: <http://www.mspp.gouv.ht/site/index.php>
2. The Dominican Republic Epidemiological Bulletin. Epidemiological Week 25, 2012. Available in Spanish at: <http://www.sespasdigepi.gob.do/>
3. Cuba Ministry of Public Health Note. Granma Daily. Year 16; number 182. Published 3 July 2012. Available in Spanish at: <http://www.granma.cubaweb.cu/2012/07/03/nacional/artic09.html>



## Current Cholera Situation in the Region

In **Haiti**,<sup>1</sup> from the beginning of the epidemic through 9 July 2012, the total number of cholera cases reached 579,014; of those, 313,226 (54%) were hospitalized and 7,418 died. The overall case-fatality rate is 1.3%, and the hospital case-fatality rate is 1.5%. As of epidemiological week (EW) 15 of 2012, an increase in the number of cases was reported mainly in the departments of Artibonite, Centre, Nord, Nord-Est, and Ouest. The increase is related to the early onset of the rainy season. In the four weeks prior to this report, the number of cases and hospitalizations has shown a decreasing trend.

In the **Dominican Republic**,<sup>2</sup> the total number of suspected cholera cases reported from the beginning of the epidemic through epidemiological week (EW) 26 of 2012 reached a total of 25,767, with 19,327 (75%) hospitalizations, and 411 deaths. A cumulative case fatality rate of 0.8% was reported between EW 1 and EW 26 of 2012. During EW 26 no deaths were reported, and the greatest increase in the number of cases was reported in the provinces of San Juan and Santiago. As of EW 15 of 2012, an increase in cases and hospitalizations was observed, with the greatest increase reported in the municipality of Tamboril, as a result of an outbreak associated with damage in the main aqueducts system. Provinces on red alert during that week were Santiago, Puerto Plata and Barahona.

In **Cuba**, on 13 July 2012, the International Health Regulations (IHR) National Focal Point reported that a cumulative total of 137 confirmed cases of *V. cholerae*, including three deaths. All the cases reported were from the municipality of Manzanillo, Granma province, and were characterized as toxigenic *V. cholerae*, serogroup O1, serotype Ogawa, biotype El Tor. There have been no further deaths since the initial report on 3 July.

All cases were treated at medical clinics, polyclinics, or the Manzanillo General Hospital and Pediatric Hospital. Health facilities have the capacity to promptly provide health care to patients. Health services have not been overwhelmed by the outbreak. The outbreak has remained confined to the initial area, and did not spread to the rest of the country.

Control measures implemented in the municipality of Manzanillo include: ensuring that water is safe for drinking; potable water distribution by mobile tanks; environmental sanitation measures; food safety control measures; and public health awareness campaigns emphasizing hand washing and consumption of safe food and water. Furthermore, an active case search is underway in the municipality of Manzanillo. The national epidemiological surveillance system has been activated with particular attention on acute diarrheal disease cases.

## Recommendations

PAHO/WHO reiterates its recommendations of 4 May 2012 published in the Epidemiological Alert of the same date.

## References

1. Public Health and Population Ministry, Haiti: Rapports journaliers du MSPP sur l'évolution du cholera en Haiti. Port-au-Prince, Haiti: Public Health and Population Ministry, Haiti; 2012. Available at: <http://www.mspp.gouv.ht/site/index.php>
2. Boletín Epidemiológico de República Dominicana. Semana Epidemiológica 26, 2012. Available at: <http://www.sespasdigepi.gob.do/>.

## Current Cholera Situation in the Region

In **Haiti**,<sup>1</sup> from the beginning of the epidemic through 22 July 2012, a total of 581,952 cases of cholera, 314,922 (54%) hospitalizations, and 7,455 deaths from the disease were reported, with an overall case-fatality rate of 1.3%, and the hospital case-fatality rate, 1.5%. At the national level, the increase in the number of cases reported starting in EW 15 of 2012, has been followed by a decrease as of EW 23.

In the **Dominican Republic**,<sup>2</sup> a total of 25,978 suspected cholera cases has been reported from the beginning of the epidemic through EW 28 of 2012, with a total of 411 deaths. The cumulative case fatality rate from EW 1 to EW 28 of 2012 is 0.8%. During EW 28 no new deaths were reported. At the national level, starting EW 25, a decrease in the number of cases was reported. However, at subnational level, there was an increase in cases in the provinces of Dajabon and Santiago.

In **Cuba**, on 31 July 2012, the International Health Regulations (IHR) National Focal Point reported that as of 29 July there had been a total of 236 confirmed cases of *V. cholerae*, including three deaths. All the cases were reported in the municipality of Manzanillo, Granma province, and were characterized as toxigenic *V. cholerae*, serogroup O1, serotype Ogawa, biotype El Tor. There have been no more deaths reported after the initial report on 3 July.

All cases have been treated at medical clinics, polyclinics, or the Manzanillo General Hospital and Pediatric Hospital. Health facilities have the capacity to promptly provide health care to patients. Health services have not been overwhelmed by the outbreak. The outbreak remained confined to the initial area, and did not spread to the rest of the country. Laboratory diagnosis is carried out locally, and confirmed by the Pedro Kouri Institute (IPK).

Official data are available at: <http://www.sld.cu/>, and <http://www.sld.cu/sitios/colera/>.

## Recommendations

PAHO/WHO reiterates its recommendations of 4 May 2012 detailed in the Epidemiological Alert of that same date.

## References

1. Public Health and Population Ministry, Haiti: Rapports journaliers du MSPP sur l'évolution du cholera en Haiti. Port-au-Prince, Haiti: Public Health and Population Ministry, Haiti; 2012. Available at: <http://www.mspp.gouv.ht/site/index.php>
2. Boletín Epidemiológico de República Dominicana. Semana Epidemiológica 26, 2012. Available at: <http://www.sespassdigepepi.gob.do/>.



# Cholera

2 November 2012

Due to the recent Isaac and Sandy hurricanes that affected several Caribbean countries, including Haiti, the risk of water- and food-borne acute diarrheal diseases may increase; therefore, a strengthening of health systems' response capacity in the affected region may be required. In such a scenario, PAHO/WHO's recommendation to Member States are that preparedness and response plans be updated, and surveillance systems strengthened so that outbreaks may be timely detected. Furthermore, the Organization reiterates the need for Member States to continue their efforts, and implement measures to improve water and sanitation quality.

## Current Cholera Situation in the Region

In **Haiti**,<sup>1</sup> from the beginning of the cholera epidemic (October 2010) through 28 October 2012, a total of 606,951 cases, 326,253 (54%) hospitalizations, and 7,615 deaths have been reported. The overall case-fatality rate is 1.2%, and the hospital case-fatality rate, 1.5%. In general, when comparing 2012 and 2011 data by month and epidemiological week (EW), 2011 had a higher number of cases and deaths than 2012. However, the distribution of cases and deaths followed a similar pattern both years, with peaks that coincide with heavy rain periods (May-June-July, and September-October).

In the **Dominican Republic**,<sup>2</sup> the total number of suspected cholera cases reported since the beginning of the epidemic through EW 42 of 2012 is 27,797, with 418 deaths. The cumulative case fatality rate from EW 1 to EW 41 of 2012 is 0.7%. As of EW 34, the number of cases reported has decreased. As of the date of this report, cases are being reported in the provinces of Santiago, National District (Santo Domingo), El Seibo, Espaillat, Puerto Plata, San Juan, Azua, Barahona, Duarte, La Romana, San Cristobal and Santiago Rodriguez.

In **Cuba**, suspected cholera cases detected in several areas of the country continue to be investigated by the acute diarrheal diseases surveillance system. However, so far, confirmed cases of cholera have been confined to the municipality of Manzanillo, Granma province, and have not spread to the rest of the country. More than 500 cases of cholera have been confirmed. No further deaths have been reported aside from the three previously reported in the Epidemiological Alert of 31 July 2012.

## Recommendations

PAHO/WHO reiterates its recommendations of 4 May 2012 published in the Epidemiological Alert of the same date.

## References

1. Ministry of Public Health and Population, Haiti: Rapports journaliers du MSPP sur l'évolution du cholera en Haiti. Port-au-Prince, Haiti: Ministry of Public Health and Population, Haiti; 2012. Available at: <http://www.mspp.gouv.ht/site/index.php>.
2. Boletín Epidemiológico de República Dominicana. Semana Epidemiológica 28, 2012. Available at: <http://www.sespasdigepi.gob.do/>.



# Epidemiological Alert: Dengue

28 March 2012

The Pan American Health Organization/World Health Organization (PAHO/WHO) advised Member States, especially those located in Central America and the Caribbean that during the second half of 2012 there could be a greater risk of dengue outbreaks, therefore, it was necessary to begin preparations and implementation of integrated response mechanisms to prevent deaths from the disease.

## Current Dengue Situation

Dengue and severe dengue continue to be a public health concern in the Region of the Americas. Despite Member States' efforts to contain and mitigate the consequences of dengue epidemics, in the past two years, some countries in the Region have surpassed their historic record of cases and deaths. In fact, 2010 was the year with the highest number of cases in the history of the continent, with 1.69 million cases and 1,185 deaths.

In 2011, a total of 1.04 million dengue cases and 719 deaths from dengue were reported.<sup>i</sup> In 2012, Bolivia, Colombia, Ecuador and Suriname reported dengue outbreaks. In Bolivia and Suriname, the increase in the number of cases begun by the end of 2011. In addition, to the aforementioned, other countries in the Region have reported dengue cases in endemic areas, although not at epidemic levels.

Notably, in 2012, areas of several countries, including Bolivia, Colombia, Ecuador and Peru, were affected by floods, adding to the challenge of implementing dengue prevention and control activities.

The objective of this alert is to call upon the Ministries of Health of Member States to increase their efforts through integrated inter-sectorial actions,<sup>ii</sup> and to implement outbreak response plans, to prevent the loss of human lives, and avoid overloading health services due to dengue. The PAHO/WHO reiterates the recommendations in 2011 Epidemiological Alerts, with particular emphasis on those aimed at reducing morbidity and mortality, as well as the social and economic impact of dengue epidemics.

<sup>i</sup> Up-to-date information on the dengue situation in the Region of the Americas is based on the data provided by the Ministries of Health of Member States through reports sent to PAHO/WHO and through updates on their websites. More information is available at: [http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=264&Itemid=363&language=en](http://new.paho.org/hq/index.php?option=com_content&task=view&id=264&Itemid=363&language=en)

<sup>ii</sup> Through national strategies for integrated management.

## Recommendations

PAHO/WHO recommends the implementation of simultaneous efforts addressing patient care, social communication, environmental management and/or vector control. Implementing these actions simultaneously increases the impact, and allows for faster results.

### Patient Care

1. Refer to the new dengue case management guidelines distributed in the Region by PAHO/WHO, also used for training workshops.
2. Strengthen health education strategies to provide patients and family members the information necessary to identify the disease and its warning signs, so that medical care may be sought at the nearest health center upon the onset of symptoms.
3. Continuously train medical personnel in charge of patient care, both at the primary care level as well as at other levels of care, to ensure early detection and identification of warning signs, and adequate and timely treatment.
4. Organize health care services so that referrals to hospital care or dengue treatment centers can be made immediately in cases presenting warning signs, co-existing conditions or diseases,<sup>iii</sup> or for persons living in special social circumstances,<sup>iv</sup> in order to provide timely treatment. The organization of patient care should include the possibility of expanding services, if the increase in the number of cases so requires.
5. The treatment of dengue should be approached holistically, as the disease may present mild clinical conditions as well as severe life-threatening clinical complications.

### Social Communication

1. Develop, adjust and implement plans for risk communication and social mobilization at local and national levels.
2. Conduct advocacy activities with policymakers and civil society organizations to raise awareness of problems, and promote a coordinated inter-sectorial response.
3. Implement plans to modify the social determinants of dengue in areas at risk for the disease.
4. Train health personnel in educational methodologies and risk communication in preparation for outbreak situations.
5. Organize an inter-institutional and inter-sectorial committee that provides an integrated response in case of a national dengue alert.

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<sup>iii</sup> Pregnancy or co-morbidity.

<sup>iv</sup> Persons who live alone or in very remote areas with difficult access to health services.



## Environmental Management

1. Eliminate common vector breeding sites, by:
  - a) Environmental cleaning of each home and common areas of neighborhoods and cities.
  - b) Organization of intensive sanitation campaigns (elimination of breeding sites), especially in areas where garbage collection is frequently interrupted for long periods of time.
  - c) Implementation of breeding site control measures through physical, biological and chemical methods that actively involve the community.
2. Respond in a sustainable manner to environmental problems that arise in every home and community by implementing the Primary Environmental Care strategy. This includes further work to achieve sustained changes in community awareness, public participation and state environmental policies.

Additional information on the treatment of dengue, may be found at the following links:

- Patient care guide in the Region of the Americas (in Spanish): [http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=264&Itemid=363&lang=es](http://new.paho.org/hq/index.php?option=com_content&task=view&id=264&Itemid=363&lang=es)
- Diagnostic, treatment, prevention and control guide (in Spanish): <http://new.paho.org/hq/dmdocuments/2011/ndeng31570.pdf>





# Dengue

13 November 2012

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In preparation for the start of the season with the highest risk of dengue transmission due rain and increased temperatures, the Pan American Health Organization/World Health Organization (PAHO/WHO) recommends that Member States (especially those in the southern hemisphere) implement integrated preparedness and response mechanisms in order to prevent dengue transmission and deaths.

During 2012, up to Epidemiological Week 42, there have been a total of 982,142 cases of dengue (180 per 100,000 population), 23,925 deaths and 521 severe cases in the Region. All four serotypes (DEN1, DEN2, DEN3 and DEN4) are circulating in the Americas. The highest incidence rate has been recorded in the Southern Cone (242.54 per 100,000 population), where 58.1% of all dengue deaths in the continent have occurred. More detailed information on the number of cases, severe cases, deaths, and circulating serotypes is available online.<sup>i</sup>

During 2012, several countries and territories in the Region have reported dengue outbreaks, including Bolivia, Colombia, Ecuador, El Salvador, the Dominican Republic, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, and Puerto Rico. In all these countries, as well as in Panama, multiple dengue serotypes circulated simultaneously, increasing the risk of severe dengue, and generating an additional burden on health services.

In most countries dengue outbreaks occurred in areas that had been previously affected by heavy rains, which further challenged the implementation of dengue prevention and control activities, especially those related to vector control.

In the year 2012 there were several initiatives to address dengue at the Regional and subregional levels that encouraged collaboration among countries, and coordination with the International Technical Expert Group on Dengue. The initiatives have focused on reducing rates of vector infestation; improving the coverage and organization of health services in border areas of intense population movements; training clinicians in patient management according to new PAHO/WHO guidelines; and articulating and coordinating risk communications according to the realities of border area populations.

The purpose of this alert is to advise Member States that are currently experiencing greater dengue transmission, as well as those entering the season of greatest virus circulation, to maintain or initiate their preparations to reduce the risk of transmission, to prevent the loss of lives due to dengue, and to avoid overloading health services with dengue cases. These

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<sup>i</sup> [http://new.paho.org/hq/index.php?option=com\\_content&view=article&id=1239&Itemid=2291&lang=en](http://new.paho.org/hq/index.php?option=com_content&view=article&id=1239&Itemid=2291&lang=en)

efforts include coordination with other sectors based on the activities in the national integrated dengue management strategies (IDS-Dengue), and comprehensive outbreak response plans.

PAHO/WHO reiterates the recommendations in 2011 and 2012 Epidemiological Alerts, with particular emphasis on inter-sectorial coordination, and reducing morbidity and mortality, as well as the social and economic impact of dengue epidemics.

It is recommended that Member states coordinate activities, both within and outside the health sector, and prioritize prevention activities contained in their national IDS-dengue. It is also recommended that national extra-sectorial commissions, as well as the evaluation of the implementation of outbreak preparedness and response plans be reactivated.

In addition, countries are advised to implement simultaneously activities to intensify epidemiological, entomological and laboratory surveillance, as well as to target their efforts to patient care, social communication and vector control components. Simultaneous actions in all three components will yield better results in a shorter period.

Refer also to recommendations published in the Epidemiological Alert of 28 March 2012, in previous pages.

# Seasonal Influenza

13 March 2012

Influenza outbreaks occur annually in the Americas, with an impact on public health, as well as on social and economic conditions. Three types of seasonal influenza virus are known: A, B, and C. The Pan American Health Organization (PAHO) / World Health Organization (WHO) reports on influenza in the Americas show that influenza viruses A and B are currently circulating. Subtypes A(H3N2) and A(H1N1)pdm09 are among the influenza A circulating subtypes.

To reduce the impact of seasonal influenza outbreaks, PAHO/WHO reminds Member States facing intense circulation of influenza viruses to maintain routine surveillance activities, promote appropriate clinical management, and disseminate information to the public on preventative measures. Member States of the Southern Hemisphere are also called upon to begin prevention and control preparations prior to the start of the season with the greatest circulation of influenza viruses.

## Situation Summary

Seasonal influenza outbreaks occur annually, with varying levels of intensity, and can affect all age groups, although the highest risk of developing severe manifestations is among children under 2 years of age, adults over 65 years of age, pregnant women and individuals of any age with underlying medical conditions.

Notably, since the end of the influenza A(H1N1)pdm09 pandemic was declared in August 2010, the virus is now considered a seasonal strain, i.e. it will be in circulation just like other viruses. Therefore, clinical management and outbreak response are the same as for any other seasonal influenza virus.

The likely occurrence of outbreaks increases during the autumn and winter seasons in temperate regions. PAHO/WHO publishes, on a weekly basis, an online situation report on seasonal influenza in the Region.<sup>i</sup> The Organization also periodically issues guidelines to underscore measures for the prevention and control of influenza outbreaks.

<sup>i</sup> Regional surveillance of influenza and other respiratory viruses. Available at: [http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=3352&Itemid=2469&to=2246](http://new.paho.org/hq/index.php?option=com_content&task=view&id=3352&Itemid=2469&to=2246)

## Recommendations: Seasonal Influenza Outbreak Response

### Epidemiological and Laboratory Surveillance

- Routine influenza surveillance activities should continue, including epidemiologic and laboratory surveillance. Epidemiologic surveillance should include surveillance of out-patient influenza-like illness (ILI) and hospital admissions due to severe acute respiratory infection (SARI). In those cases, samples of clinical and epidemiological significance should be taken and analyzed within the capacity established by the national laboratory system.
- To understand, identify and characterize circulating influenza viruses, PAHO/WHO recommends following the guidelines for SARI surveillance, as indicated in the SARI Surveillance Protocol.<sup>ii</sup>
- All specimens that cannot be subtyped, as well as those with inconclusive or unexpected subtyping results should be forwarded, as soon as possible, to the United States Centers for Disease Control and Prevention (CDC) for additional testing. The CDC is a WHO Collaborating Center for influenza.

### Clinical Management

- Influenza should be considered a possible cause of infection in any febrile patient with respiratory symptoms admitted to a healthcare facility.
- Some population groups are more susceptible to developing serious infections and require special attention, such as children under 2 years of age, adults over 65 years of age, pregnant women, and individuals with underlying clinical conditions. These cases should be considered for antiviral treatment (oseltamivir) at the onset of symptoms.
- Treatment should be initiated even in the absence of laboratory confirmation of influenza. Treatment success rate is highest when treatment is administered early.

### Public Information

- The public should be informed that the primary form of transmission of influenza is through interpersonal contact, therefore it is important to:
  - Remind the population that hand washing is the most effective way of reducing transmission.
  - Disseminating knowledge on respiratory etiquette can also help prevent virus transmission.
  - People with fever should avoid going to work or to other public places until the fever is gone.

### Vaccination

- PAHO/WHO reiterates the recommendations formulated by the Technical Advisory Group (TAG) on Vaccine Preventable Diseases at its last meeting in July 2011, regarding the vaccination of the elderly, children, those with underlying conditions, and health workers. Given the vulnerability of pregnant women to influenza infection complications, the TAG urges countries to strengthen the vaccination of said population group.

<sup>ii</sup> Operational guidelines for the enhanced national surveillance of severe acute respiratory illnesses (SARI). PAHO 2011. Available at: [http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=3353&Itemid=2470&to=2256&lang=en](http://new.paho.org/hq/index.php?option=com_content&task=view&id=3353&Itemid=2470&to=2256&lang=en)



# Influenza A(H3N2)v Infection

11 August 2012

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## Situation Summary

On 22 November 2011, the United States of America's International Health Regulations National Focal Point (USA IHR-NFP) reported a cluster of cases of human infection with influenza A virus (H3N2)v.<sup>i</sup> Subsequently, between December 2011 and July 2012, 12 additional cases were reported.

As of August 10, 2012, the total number of confirmed cases of influenza A(H3N2)v increased to 153<sup>ii</sup> most of them detected in two states of the United States.

Most cases occurred in children, and all had been in contact with pigs prior to the onset of symptoms. The investigation indicated limited human-to-human transmission in some cases reported in 2011.

It is possible that sporadic infections and outbreaks will continue to be detected in the United States, and cases resulting from limited human-to-human transmission are possible.

The signs and symptoms among cases have generally been consistent with seasonal influenza, and include the following: fever, pharyngitis, myalgia, and headache. Two cases required hospitalization; however, no deaths have been reported.

Available data from limited serological studies indicate that children would have little to no pre-existing immunity to this new virus (whereas adults may have some pre-existing immunity). The current seasonal vaccine for the northern hemisphere will not protect against this influenza A(H3N2) virus variant.

## Laboratory

All cases had confirmed infection by a variant influenza A(H3N2) virus. This virus has different characteristics from current circulating seasonal influenza viruses in humans, and has a new gene constellation: seven genes from the triple reassortant swine A(H3N2) viruses known to have been circulating in pigs in North America, and the M gene from an A(H1N1)pdm09 virus, a seasonal virus currently circulating among humans. The M gene could confer increased transmissibility among humans.

PAHO/WHO encourages Member States to maintain and strengthen routine surveillance activities, and to promote and disseminate influenza case management and prevention information to the public. The Organization also encourages Member States to update and implement plans to respond to public health emergencies.

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<sup>i</sup> [http://new.paho.org/hq/index.php?option=com\\_docman&task=doc\\_view&gid=15786&Itemid=1091](http://new.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=15786&Itemid=1091)

<sup>ii</sup> <http://www.cdc.gov/flu/swineflu/influenza-variant-viruses-h3n2v.htm#table>

## Recommendations

PAHO/WHO reiterates that the following recommendations continue to be applicable.

- Routine influenza surveillance activities should be continued, including epidemiological and laboratory surveillance. Epidemiological surveillance should include surveillance of ambulatory influenza-like illness (ILI)/acute respiratory infection cases, as well as cases of hospitalized with severe acute respiratory infection. Clinical samples should be collected from these patients and tested by real-time rRT-PCR for influenza. Laboratories that use kits provided by the CDC should follow routine protocols for testing, including testing of all influenza A positive cases using the subtyping kit primer/probe sets: H1, H3, pdm InfA, and pdm H1.
- All influenza-positive specimens that cannot be subtyped, as well as specimens with inconclusive or unexpected subtyping results, should be forwarded to the CDC, as soon as possible for further testing.
- Influenza should be considered a possible diagnosis in any patient with respiratory symptoms admitted to a healthcare facility. Some population groups are more susceptible to developing serious infections, and require special attention; these include pregnant women, and individuals with chronic diseases. These patients should be treated with antivirals (e.g. oseltamivir) at the onset of symptoms, even in the absence of laboratory confirmation of influenza. Treatment success rates are higher when antivirals are promptly administered.
- The public should be reminded that the primary form of influenza transmission is through interpersonal contact or contact with infected animals or contaminated settings. Hand washing is encouraged as a prevention measure; practicing respiratory etiquette can also help prevent the spread of the virus. People with fever should avoid going to work or other public places, until the fever has disappeared. Persons with increased risk for influenza complications (those with underlying chronic medical conditions, pregnant women, children under 5, and adults over 65 years of age) and those with weakened immune systems should avoid exposure to pigs and swine barns, particularly if ill swine have been identified.

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# Meningococcal Meningitis (Cerebrospinal fever)

24 April 2012

Given the increasingly frequent occurrence of meningococcal meningitis clusters in different countries of the Region and the need for information to characterize the situation and target public health actions, the Pan American Health Organization/World Health Organization (PAHO/WHO) encourages Member States to strengthen surveillance and laboratory capacity to enable prompt detection of outbreaks, and to implement an appropriate response.

## Situation summary

Cases of meningococcal meningitis make up a variable proportion of endemic bacterial meningitis cases, and usually appear in small clusters, with seasonal variations in the number of reported cases. In temperate regions, the number of cases increases in winter and spring.

In the Americas, in 2011 and early 2012, Argentina, Bolivia, Brazil,<sup>i</sup> Chile,<sup>ii</sup> Colombia,<sup>iii</sup> the United States, Mexico,<sup>iv</sup> Uruguay<sup>v</sup> and Venezuela<sup>vi</sup> reported cases of meningococcal meningitis, mostly in small clusters that could be controlled. Some situations, as happened in Bolivia, drew attention due to a reemergence of cases in areas where none had been reported in 10 years.

A majority of cases were due to serogroups B and C, but those due to serogroups Y and W-135 are increasing. In Brazil, vaccination against serogroup C was incorporated into the routine vaccination program following an outbreak due to that serogroup in 2009.<sup>vii</sup>

A lack of historical information regarding the number of cases, case fatality rate, serogroup, and other epidemiologic data have prevented a better characterization and evaluation of the Regional situation.

<sup>i</sup> [http://portal.saude.gov.br/portal/saude/profissional/visualizar\\_texto.cfm?idtxt=37810](http://portal.saude.gov.br/portal/saude/profissional/visualizar_texto.cfm?idtxt=37810)

<sup>ii</sup> [http://epi.minsal.cl/epi/html/AtlasInteractivos/AB\\_101/Menin.htm](http://epi.minsal.cl/epi/html/AtlasInteractivos/AB_101/Menin.htm)

<sup>iii</sup> <http://www.ins.gov.co/?idcategoria=94853#>

<sup>iv</sup> [http://www.dgepi.salud.gob.mx/2010/plantilla/intd\\_boletin.html](http://www.dgepi.salud.gob.mx/2010/plantilla/intd_boletin.html)

<sup>v</sup> [http://www.msp.gub.uy/ucepidemiologia\\_5428\\_1.html](http://www.msp.gub.uy/ucepidemiologia_5428_1.html)

<sup>vi</sup> [http://issuu.com/sotero/docs/bolet\\_n\\_50/26](http://issuu.com/sotero/docs/bolet_n_50/26)

<sup>vii</sup> [http://portal.saude.gov.br/portal/saude/profissional/area.cfm?id\\_area=1563](http://portal.saude.gov.br/portal/saude/profissional/area.cfm?id_area=1563)

## Recommendations

### 1. Laboratory Diagnosis

Laboratory diagnostic tests to confirm *Neisseria meningitidis* infection include culture, antigenic, and polymerase chain reaction (PCR).

The reference etiological diagnosis is either blood or cerebrospinal fluid culture. However, the test's sensitivity is poor in patients who have been treated with antibiotics prior to specimen collection. Antimicrobial susceptibility testing should be routinely performed to confirm the efficacy of empirical antimicrobial treatment, and to provide epidemiological data to guide empirical treatment in successive cases.

Latex agglutination and counter-immunoelectrophoresis are among the antigen tests. The latex agglutination test tends to give false negative results, particularly in the case serogroup B isolates.

PCR is based on the detection of meningococcal DNA in cerebrospinal fluid or plasma, for which specific primers are used. It has greater sensitivity than culture tests in patients previously treated with antimicrobials.

Microscopic examination of Gram stained smear from specimen collected from petechiae can show the presence of *N. meningitidis* in lesions, but caution is recommended in the interpretation of results, due to the high proportion of false negatives.

#### Serogroup Confirmation

Serogroup confirmation is done by serum agglutination with specific antibodies. When serotyping cannot be achieved with this technique, PCR is the recommended method for serogroup determination.

#### **Meningococcal meningitis (ICD-10 A39.0)**

This is an acute bacterial disease caused by strains of *Neisseria meningitidis*. The capsular polysaccharide of *N. meningitidis* distinguishes at least 13 serogroups, of which 6 are most frequently associated with disease: A, B, C, Y, W-135 and X. Serogroups A and C have the greatest epidemic potential.

Meningococcal meningitis primarily affects children and adolescents, and is spread from person to person by droplets.

It is characterized by the sudden onset of fever, intense headache, nausea and often vomiting, stiff neck and photophobia.

It has an incubation period of four days (ranging from 2 to 10 days). Communicability persists up to 24 hours after the onset of antibiotic treatment.<sup>viii</sup>

There are three main clinical presentations: meningeal syndrome, septic form, and pneumonia. The case fatality rate can be up to 50% among untreated cases.

Of surviving patients, 10-20% may experience sequela, the most frequent being necrosis of extremities, neurological deficits and varying degrees of hearing loss (especially in children).

<sup>viii</sup> Meningococci usually disappear from the nasopharynx within 24 hours after commencement of treatment with efficient antimicrobials.

## 2. Case Management and Chemoprophylaxis

Meningococcal meningitis can have a case fatality rate of up to 50% when antimicrobial treatment is not timely administered. Therefore, early diagnosis and timely treatment are critical.<sup>ix</sup>

Diagnosing suspected cases is critical for immediate initiation of appropriate antimicrobial therapy, assessment of chemoprophylaxis for contacts, and for the implementation of appropriate measures in outbreak situations. Whenever possible, lumbar puncture and blood culture samples should be collected prior to initiating antibiotic therapy; nonetheless, antimicrobial treatment should never be postponed for the sake of obtaining microbiological samples.

### Treatment of Cases

Empirical antibiotic therapy must begin as soon as possible. In addition to antibiotic treatment, necessary support measures are necessary to address intravascular coagulation, shock, heart failure, lethargy, pericarditis and pneumonia, as these signs can complicate an infection; correct application of said measures has a clear and positive impact on patient prognosis. In cases of suspected community acquired acute bacterial meningitis, which can be caused, inter alia, by *Neisseria meningitidis*, the treatment detailed in Table 1 is recommended for patients ≤ 18 years of age.

Table 1.  
Antimicrobial Treatment Options in Cases of Suspected Community  
Acquired Acute Bacterial Meningitis

Age group	First choice	Other choices
< 1 month	Cefotaxime 200 mg/kg/iv/d divided into 4 doses + ampicillin 400 mg/kg/iv divided into 4 doses for 14 to 21 d. In case of enterobacterial infections, a minimum of 21 d, according to progress, and 28 d in cases of ventriculitis.	Ampicillin 300 mg/kg/iv/d divided into 4 doses + gentamicin 5-7.5 mg/kg/iv or amikacin 15-20 mg/kg/iv, both in 1 dose, for 14 to 21 d. In case of enterobacterial infections, a minimum of 21 d, according to progress, and 28 d in cases of ventriculitis.
1 to 3 months	Cefotaxime 300 mg/kg/iv/d divided into 4 doses or ceftriaxone 80-100 mg/kg/iv/d in 1 dose or divided into 2 doses + ampicillin 200-400 mg/kg/iv/d divided into 4 doses, for 10 to 14 d. Enterobacterial infections, minimum of 21 d, according to progress, and 28 d in cases of ventriculitis.	Ampicillin 400 mg/kg/iv/d divided into 4 doses + chloramphenicol 75-100 mg/kg/iv divided into 4 doses, for 10 to 14 d. Enterobacterial infections: minimum of 21 d, according to progress, and 28 d in cases of ventriculitis.
> 3 months to 5 years <sup>ii, 13</sup>	Cefotaxime 300 mg/kg/iv/d divided into 4 doses or ceftriaxone 80-100 mg/kg/iv/d in 1 dose or divided into 2 doses, for 7 to 10 d. <sup>iii</sup>	Ampicillin 400 mg/kg/iv/d divided into 4 doses + chloramphenicol 75-100 mg/kg/iv divided into 4 doses, for 10 to 14 d.
> 5 to 18 years <sup>11, iv</sup>	Cefotaxime 300 mg/kg/iv divided into 4 doses or ceftriaxone 80-100 mg/kg/iv in 1 dose or divided into 2 doses for 7 to 10 d <sup>12</sup> . In the presence of resistant strains of <i>Streptococcus pneumoniae</i> , add vancomycin 60 mg/kg/iv divided into 4 doses.	Ampicillin 400 mg/kg/iv divided into 4 doses or crystalline penicillin G 400,000 IU/kg/iv divided into 4 to 6 doses for 7 to 10 d.

<sup>ix</sup> Norton JF, Gordon JE. Meningococcus meningitis in Detroit in 1928-1929. I Epidemiology J Prev Med. 1930; 4:207.

- <sup>i</sup> PAHO/WHO. Treatment of Infectious Diseases, 2011-2012, 5th Edition. Washington DC 2011.
- <sup>ii</sup> Where resistance of *Streptococcus pneumoniae* to penicillin (MIC > 0.1 µg/ml) is higher than 5%: cefotaxime 300/mg/kg or ceftriaxone 100/mg/kg. When resistance to cefotaxime is a possibility (MIC > 0.5 µg/ml), empirically add vancomycin 60 mg/kg/iv/d divided into 4 doses until sensitivity is documented. A controlled cerebrospinal fluid study is recommended within 24 to 48 h. Rifampicin po or iv should be added to the antibiotic treatment when dealing with pneumococcus with MIC for cefotaxime ≥ 4 µg/ml in CSF culture or when there is no clinical response within 48 h after onset of treatment.
- <sup>iii</sup> Children infected by *N. meningitidis* and good clinical progress: 5 days of treatment.
- <sup>iv</sup> Allergy to β-lactams in children under 5 years of age: initiate treatment with vancomycin 60 mg/kg/iv/d divided into 4 doses, plus rifampicin 20 mg/kg/po or iv/d divided into 4 doses for 7 to 10 days, provided that gastrointestinal absorption can be guaranteed. In children older than 5 years of age, initiate empiric treatment with vancomycin 60 mg/kg/iv/d divided into 4 doses + rifampicin 20 mg/kg/iv or po.

When meningitis by *N. meningitidis* is microbiologically confirmed, the following treatment can be provided:

**Table 2.**  
**Antimicrobial Treatment for Meningococcal Meningitis<sup>i</sup>**

First choice	Other choices
Ceftriaxone 2 g/iv c/12h for 7 days or cefotaxime 2 g/iv c/4 hours for 7 days.  Change to crystalline penicillin G 4,000,000 UI/iv every 4 hours to complete 7 days if antibiotic sensitivity (MIC= 0.1 to 1 microgram/ml) is known.	If allergy to β-lactam: chloramphenicol 1g/iv every 6 hours for 7 days.

<sup>i</sup> PAHO/WHO. Tratamiento de las enfermedades infecciosas, 2011-2012, 5th Edition. Washington DC 2011.  
G: grams; IV: intravenous; MIC (Minimum Inhibitory Concentration).

National authorities' recommendations and current full prescribing information provided in the package inserts of each drug should be consulted prior to prescribing any product. Recommendations on treatment schemes can change in light of new evidence, or due to emerging resistance to specific antimicrobials.

### 3. Prevention and Infection Control Measures

Transmission is through respiratory droplets; transmission requires close contact for at least 4 hours a day within a radius of 1 meter in the 7 days preceding the onset of illness; or close contact with respiratory secretions such as in kissing, mouth to mouth resuscitation, tracheal intubation, or nasopharyngeal secretions aspirate for health personnel.

All cases should be hospitalized; standard precautions and droplet transmission precautions must be applied. Use of masks is recommended for contacts ≤ 1 meter for at least 24 hours after the onset of effective treatment.

Case isolation in single room is recommended. If this is not feasible, patients should be hospitalized in cohorts. Isolation precautions should be maintained for 24 hours after initiation of antibiotic therapy.<sup>x</sup>

The use of masks for health personal performing lumbar puncture is recommended.

## 4. Prevention

### Chemoprophylaxis

The purpose of chemoprophylaxis is to prevent secondary infection following the index case, and is therefore indicated on an individual basis by an attending physician, based on the risk of transmission.

People most at risk for infection include: household contacts; other close contacts, especially children (school contacts, people who have eaten or slept with the patient for at least 4 hours a day within a radius of 1 meter in the 7 days preceding onset of illness); health workers in contact with patients' oral secretions (e.g. mouth to mouth resuscitation).

Chemoprophylaxis options for close contacts

- Rifampicin. Adults: 600 mg orally, every 12 hours, for 4 doses; children > 1 month of age, 10 mg/kg weight every 12 hours, for 4 doses; children < 1 month of age, 5 mg/kg weight every 12 hours, for 4 doses, or
- Ceftriaxone. Adults: 250 mg IM, one dose, preferred during pregnancy; children < 15 years of age, 25 mg IM, single dose, or
- Ciprofloxacin.<sup>xi</sup> Adults, 500 mg orally, single dose.

### Immunoprophylaxis

There are three types of vaccines:

- Polysaccharide-based vaccines have been available for over 30 years. These vaccines can be bivalent (groups A and C), trivalent (groups A, C and W) or tetravalent (groups A, C, Y and W135).
- Polysaccharide-based vaccines against group B cannot be developed because of this subtype's antigenic mimicry of polysaccharide human nervous tissue. Therefore, vaccines against meningococcal group B developed in Cuba, Norway and the Netherlands are based on outer membrane proteins.
- Since 1999, conjugate vaccines against meningococcal serogroup C have been available and widely used. Since 2005, a quadrivalent conjugate vaccine (groups A, C, Y and W135) for children and adults has been authorized for use in the United States, Canada and Europe.

These vaccines have been shown to be safe and effective, and side effects are mild and infrequent. The vaccines may not provide protection until 10 to 14 days after administration.

The decision of which vaccine is the most appropriate in each country should be based on the circulating serogroup, or serosubtype, in the case of serogroup B.

<sup>x</sup> <http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf>

<sup>xi</sup> Ciprofloxacin is contraindicated in pregnant women and children.

Meningococcal vaccination is recommended for defined risk groups, such as children and young adults residing in closed communities, e.g. boarding schools or military camps. Laboratory workers at risk of exposure to meningococci should also be vaccinated. Travelers to high-endemic areas should be vaccinated against prevalent serogroups. In addition, meningococcal vaccination should be offered to all individuals suffering from immunodeficiency, including asplenia, terminal complement deficiencies, and advanced HIV infection.

## 5. Outbreak Response

Outbreak response must include early and appropriate treatment of cases, chemoprophylaxis of close contacts, and vaccination of groups considered at high risk (boarding schools or military camps).

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# Mercury in Skin Lightening Products

1 June 2012

Many skin lightening creams and soaps contain some form of mercury as an active agent. But mercury is dangerous. It can cause kidney damage and may also cause skin rashes, skin discoloration and scarring, as well as a reduction in the skin's resistance to bacterial and fungal infections, as stated in the World Health Organization (WHO) June 2012 Information Sheet.

The Pan American Health Organization/World Health Organization (PAHO/WHO) recommends that Member States promote public awareness of skin whitening products that may contain any chemical form or compound of mercury and the risks associated with exposures to different forms of mercury.

## Introduction

Mercury is a common ingredient found in skin lightening soaps and creams. It is also found in other cosmetics, such as eye makeup cleansing products and mascara.<sup>1-3</sup> Skin lightening soaps and creams are commonly used in certain African and Asian nations.<sup>1,4,5</sup> They are also used among dark-skinned populations in Europe and North America.<sup>2,6,7</sup> Mercury salts inhibit the formation of melanin, resulting in a lighter skin tone.<sup>8,9</sup>

Mercury in cosmetics exists in two forms: inorganic and organic.<sup>3,10,11</sup> Inorganic mercury (e.g. ammoniated mercury) is used in skin lightening soaps and creams. Organic mercury compounds (thiomersal [ethyl mercury] and phenyl mercuric salts) are used as cosmetic preservatives in eye makeup cleansing products and mascara.<sup>1-3,12</sup>

### **Use, production and availability**

In Mali, Nigeria, Senegal, South Africa and Togo, 25%, 77%, 27%, 35% and 59% of women, respectively, are reported to use skin lightening products on a regular basis.<sup>1</sup>

In 2004, nearly 40% of women surveyed in China (Province of Taiwan and Hong Kong Special Administrative Region), Malaysia, the Philippines and the Republic of Korea reported using skin lighteners.<sup>1</sup>

In India, 61% of the dermatological market consists of skin lightening products.<sup>3</sup>

Skin lightening products are manufactured in many countries; for example, consumer protection agencies in the European Union<sup>13–18</sup> and the United States of America (USA)<sup>19,20</sup> have identified mercury-containing products made in China,<sup>13,16,19,20</sup> the Dominican Republic,<sup>1,19</sup> Lebanon,<sup>13,21</sup> Mexico,<sup>19,22</sup> Pakistan,<sup>13,14</sup> the Philippines,<sup>13,15</sup> Thailand,<sup>13,17,23</sup> and the USA.<sup>13,18</sup>

Mercury-containing skin lightening products are available for sale over the Internet.

A 2011 survey funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety noted that individuals from Brazil, Kyrgyzstan, Mexico and the Russian Federation believe that mercury-containing skin lightening products are easy to obtain.<sup>24</sup>

Some manufacturers are no longer using mercury as a preservative in mascara and eye makeup cleansing products as a result of consumer pressure. However, most jurisdictions still allow the sale of makeup products containing mercury compounds.<sup>25</sup>

## **Products, packaging and ingredients**

- Skin lightening products come in different forms, including soaps and creams; the soap is often sold as “antiseptic soap”.<sup>1,2</sup> These products are supposed to be applied to the skin to dry overnight.<sup>2</sup> Women use the soap to wash their hair, arms or face or their entire body.<sup>2</sup> It is reported that some women use these products for as long as 20 years.<sup>1</sup>
- The soaps come in bar form and are sold individually in boxes.<sup>6</sup> The creams are generally packaged in tubes or jars.<sup>6</sup> The soaps contain approximately 1–3% mercury iodide, and the creams are composed of 1–10% mercury ammonium.<sup>2</sup> Some soap products tested contained mercury at concentrations up to 31 mg/kg, whereas cream products had mercury concentrations as high as 33,000 mg/kg.<sup>26</sup> Products with very high levels of mercury contamination look grey or cream coloured.<sup>27</sup>
- The amount or concentration of mercury in a product may be labeled on the packaging or in the ingredient list. Names to look for include mercury, Hg, mercurous chloride, ammoniated mercury, amide chloride of mercury, quicksilver, cinnabaris (mercury sulfide), hydrargyri oxydum rubrum (mercury oxide), mercury iodide or “poison”; directions to avoid contact with silver, gold, rubber, aluminium and jewelry may also indicate the presence of mercury.<sup>1,6</sup> However, companies selling products that contain mercury, do not always list it as an ingredient.



## Health effects and how to measure exposure

- The main adverse effect of the inorganic mercury contained in skin lightening soaps and creams is kidney damage.<sup>9</sup> Mercury in skin lightening products may also cause skin rashes, skin discoloration and scarring, as well as a reduction in the skin's resistance to bacterial and fungal infections.<sup>1,3</sup> Other effects include anxiety, depression or psychosis and peripheral neuropathy.<sup>1-3</sup>
- The medical literature reports specific instances of individuals suffering from the aforementioned health effects following exposure to mercury through skin lightening creams and soaps. One case report describes a 34-year-old Chinese woman who developed nephrotic syndrome, a condition marked by high levels of protein in the urine. The mercury levels in her blood and urine returned to normal one month and nine months, respectively, after she stopped using the skin lightening cream.<sup>28</sup>
- One study indicated a large proportion of nephrotic syndrome among African women using ammoniated mercuric chloride-containing skin lightening creams for periods ranging from one month to three years. Over three quarters of the women who stopped using the creams went into remission.<sup>9,29</sup>
- Mercury in soaps, creams and other cosmetic products is eventually discharged into wastewater. The mercury then enters the environment, where it becomes methylated and enters the food-chain as the highly toxic methylmercury in fish. Pregnant women who consume fish containing methylmercury transfer the mercury to their fetuses, which can later result in neurodevelopmental deficits in the children.<sup>2</sup>
- Exposure to inorganic mercury can be quantified through measurements in blood and urine.<sup>10</sup>

## Regulations

- Distribution of mercury-containing creams and soaps is banned in the European Union and numerous African nations.<sup>2,24,30</sup>
- A European Union Directive specifies that mercury and mercury compounds are not allowed as ingredients in cosmetics (including soaps, lotions, shampoos and skin bleaching products). However, phenyl mercuric salts for use as a preservative in eye makeup and eye makeup removal products are allowed at concentrations equal to or less than 0.007% by weight.<sup>1</sup>
- The United States Food and Drug Administration allows mercury compounds in eye area cosmetics at concentrations at or below 65 mg/kg expressed as mercury (approximately 100 mg/kg expressed as phenylmercuric acetate or nitrate).<sup>31</sup> All other cosmetics must contain mercury at a concentration less than 1 mg/kg. The presence of mercury must be unavoidable under good manufacturing practice.<sup>31</sup>
- Health Canada's draft guidance on heavy metal impurities in cosmetics specifies a limit of 3 mg/kg for mercury as an impurity in cosmetic products.<sup>32-34</sup>
- The Philippines is reported to have banned skin lightening products with mercury levels exceeding the national regulatory limit of 1 mg/kg in 2011.<sup>23</sup>

## Conclusions

- Mercury-containing skin lightening products are hazardous to health and as a result have been banned in many countries. However, there are reports of such products still being available to consumers, and they are advertised on the internet. For example, the Texas Department of State Health Services reported the availability of a mercury-containing beauty cream on 1 September 2011.<sup>27</sup>
- Public awareness needs to be raised regarding the types of products and the specific products that contain mercury and the risks associated with mercury exposure.
- The 2011 survey described previously states that “Consumers gravitated to known mercury-free choices in countries that had government seals and/or regulation about mercury content.”<sup>24</sup>
- Information on alternatives must also be provided, because skin lightening products that do not contain mercury may contain other hazardous substances.

For further WHO information on mercury, please visit: [http://www.who.int/ipcs/assessment/public\\_health/mercury/en/index.html](http://www.who.int/ipcs/assessment/public_health/mercury/en/index.html)

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# Nosocomial transmission of NDM-type multiresistant bacteria

19 December 2012

The Pan American Health Organization (PAHO) / World Health Organization (WHO) recommends that Member States increase their efforts to implement prevention and control measures for health care associated infections, due to the detection and local spread of multiresistant microorganisms carrying *New Delhi Metallo- $\beta$ -lactamase-type* (NDM) antimicrobial resistance mechanisms in health services in countries of the Americas.

Worldwide circulation of microorganisms with a so called *New Delhi Metallo- $\beta$ -lactamase* (NDM) antimicrobial resistance mechanism has been documented since 2008. Said mechanism confers resistance to all  $\beta$ -lactam antibiotics, with the exception of aztreonam. These microorganisms are considered multiresistant, because they have other mechanisms of resistance to  $\beta$ -lactam antimicrobial drugs, leaving very few therapeutic options for treating patients infected with these bacteria.

In the Americas, the first microorganisms with NDM resistance mechanism were detected during 2010 in the United States of America and Canada, in patients with a history of recent medical care in countries outside the Region.

In 2011, this resistance mechanism was detected in Guatemala in *Klebsiella pneumoniae* isolates, and the investigation found no connection with travel or international travelers. In June 2012, Uruguay reported the isolation of *Providencia rettgeri* with NDM-type carbapenemase from three hospitalized patients. The three patients did not develop signs or symptoms of infection by this agent, and were discharged. In August 2012, an outbreak of infection by NDM producing *K. pneumoniae* was reported in six patients hospitalized in Bogota, Colombia. In November 2012, Paraguay reported detection of NDM-type carbapenemase in isolates of *Acinetobacter baumannii* in hospitalized patients. There was no history of recent travel abroad among patients or immediate family members in any of the aforementioned events.

An article recently published on the transmission of *Klebsiella pneumoniae* NDM-1 (*New Delhi Metallo- $\beta$ -lactamase-1*) in Canada, and risk factors for nosocomial transmission were identified using retrospective cohort analysis.

Given these findings, PAHO/WHO emphasizes the recommendations published in the November 2011 Epidemiological Alert, and highlights the importance of preventive and infection control measures in health care settings, as well as surveillance of this outbreak causing resistance mechanism, which is associated with increased nosocomial morbidity and mortality.

## Recommendations

### Surveillance Methods and Epidemiological Research

1. Increase laboratory participation in surveillance systems for the timely detection of outbreaks, in order to provide early guidance for control measures.
2. In national reference laboratories, apply the regional protocol for carbapenemases detection, and immediately notify local infection control committees and the epidemiology department.
3. In cases of suspected carbapenemases, suspected isolates should be referred to the national or regional reference laboratory for confirmation and molecular typing.
4. Disseminate information and recommendations in order to alert health workers and decision-makers at all levels.

### Laboratory Detection

The first line of defense against these multiresistant pathogens is at the laboratory, which, following detection of the resistance mechanism should report the findings to health care associated infections control committees and public health authorities, in order to alert other hospitals.

Laboratories of the Region participating in the Latin American Antimicrobial Resistance Monitoring Network (RedLAVRA), have the tools for phenotypical detection of NDM type carbapenemase. The strain can be molecularly typed in the same national reference laboratory, or may be forwarded to the Regional reference laboratory, i.e., the National Institute of Infectious Diseases Dr. Carlos G. Malbran, in Argentina.

### Antimicrobial Treatment

Limited clinical experience indicates that antibiotic combinations produce better results than single drug therapy. However, a general recommendation for antimicrobial treatment cannot be issued due to the lack of solid effectiveness evidence. Due to treatment complexities, it must be prescribed by infectious disease specialists.

### Infection Prevention and Control Methods

Strict administrative and technical infection prevention and control measures in hospitals are indicated for patients colonized or infected by the NDM pathogen.<sup>i</sup>

In addition to standard precautions, contact precautions should be applied, and hospital environmental hygiene strengthened. In general, these precautions are to be maintained until the patient's discharge. As a minimum, the following measures should apply: hand washing with water and soap or glycerinated alcohol; use of gloves and gowns for close contact with patients and secretions; and isolation in single room or by cohort.

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<sup>i</sup> Infection control precautions in outbreaks of carbapenemases – producing bacteria. Prevention and control of infections in health care. Information available at: [http://new.paho.org/hq/index.php?option=com\\_docman&task=doc\\_view&gid=18671&Itemid=4130](http://new.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=18671&Itemid=4130)

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# Pertussis (Whooping Cough)

2 March 2012

Given the significant increase in the number of pertussis cases in several areas of the Region, the Pan American Health Organization/World Health Organization (PAHO/WHO) encourages Member States to increase their level of surveillance, and to continuously monitor vaccination coverage among 1 year-old infants and children less than 5 years of age, with particular emphasis on identifying susceptible group.

## Situation Summary

Pertussis is regarded as a major cause of childhood morbidity and mortality. An estimated 50 million cases and 300,000 deaths occur every year worldwide. The case-fatality rate in developing countries is estimated to be as high as 4% among infants less than 12 months of age.

In the Region of the Americas, the annual number of cases ranges from 20,000 to 30,000. Vaccination coverage with DPT3 in the Region reached approximately 93% in 2009. However, outbreaks continue to be detected in several countries, indicating that new measures must be implemented to increase the level of protection.

In 2011 and the start of 2012, an increase in the number of pertussis cases was reported in Argentina,<sup>1</sup> Colombia,<sup>2</sup> Chile,<sup>3</sup> Canada and the USA,<sup>4</sup> predominantly in adolescents and newborns.

In light of this situation, PAHO/WHO reiterates the recommendations issued by the Technical Advisory Group (TAG) on Vaccine-Preventable Diseases during their XIX Meeting in July 2011.

Member States are encouraged to increase their level of surveillance, to continuously monitor vaccination coverage in 1 year-old infants and children less than 5 years of age, with particular emphasis on the identification of susceptible groups.

## Laboratory Diagnosis

Bacterial culture, polymerase chain reaction (PCR) and serological diagnosis are the laboratory diagnostic tests used to detect infection caused by the bacterium *B. pertussis*.

Etiological diagnosis is based on recovering *B. pertussis* from nasopharyngeal samples collected during the catarrhal stage and early paroxysmal stage. This test is very specific, but not very sensitive (less than 60%), and requires selective media.

Polymerase chain reaction (PCR) for *Bordetella* is a more sensitive test and can be performed on the same biological samples used for cultures.

#### **Pertussis ( CIE-10 A37.0, A37.9)**

Whooping cough is an acute bacterial infection of the respiratory tracts caused by the bacterium *Bordetella pertussis* that is transmitted from an infected individual to another by means of droplets expelled by the respiratory tracts.

The incubation period is between 7 to 10 days, after which patients develop catarrhal symptoms, including the cough. The different phases of the disease (catarrhal, convulsive and of convalescence) can last from one to several months.

In its catarrhal initial phase, pertussis is easily communicable with a secondary case at a rate of up to 90% in non-immune people who are in contact with the patient.

Patients who are not treated can be contagious for three weeks or more starting for the time of the characteristic cough. Chronic carriers of *B. pertussis* are not frequent.

Most of the cases are in children of one to 5 years old. Between 5 to 6% of pertussis patients suffer complications, with more frequency in infants under 6 months old.

Adolescents and adults are frequent carriers of transmission of *B pertussis*.

Serological diagnosis is based on detecting a significant increase in the concentration of specific antibodies against pertussis toxin (PT) in paired serum samples (catarrhal stage and convalescent stage). This test cannot be used for diagnosis during the first year following vaccination.

## **Recommendations**

Faced with an increase in the number of cases of whooping cough in several countries of the Region, PAHO/WHO recommends:

1. Strengthening surveillance to monitor the disease burden, to evaluate the impact of immunization through vaccination, and to identify outbreaks. Every pertussis outbreak should be thoroughly investigated to improve the understanding of the current epidemiology of the disease in the Region of the Americas.
2. Analyzing vaccination coverage of 1 year-old infants and children under five years of age, with special emphasis on the identification of groups without vaccination coverage.
3. Countries should ensure vaccination coverage  $\geq 95\%$  with 3 doses of pertussis-containing vaccines in children aged  $<1$  year; and encourage timely vaccination and completion of vaccination schedules. The 4th DPT vaccine dose should be incorporated into the regular vaccination program in every country, and the coverage attained with this dose (as with all vaccine doses) should be the object of careful recording, monitoring, reporting and evaluation.
4. Vaccinate health workers to prevent hospital transmission to infants  $< 6$  months of age, and immunocompromised individuals.

# Pertussis (Whooping Cough)

16 November 2012

## Situation Summary

Pertussis, commonly referred to as whooping cough, is a major cause of morbidity and mortality in children. An estimated 50 million cases and 300,000 deaths occur worldwide every year. The case fatality rate in developing countries can be as high as 4% in infants < 12 months old.<sup>1</sup>

Pertussis continues to be a public health problem in several countries in the Region of the Americas. During the past 10 years, the total number or annual cases reported ranged between 15,000 and 34,000.<sup>2,3</sup> In spite of the fact that vaccination coverage with DPT3 in the Region is above 90%, outbreaks continue to be detected in several countries.

As of November 2012, there has been an increase in the number of pertussis cases in Argentina,<sup>4</sup> Brazil, Colombia,<sup>5</sup> Chile,<sup>6</sup> Guatemala,<sup>7</sup> Mexico,<sup>8</sup> Paraguay,<sup>9</sup> Venezuela,<sup>10</sup> and the United States of America.<sup>11</sup>

In March 2012, in a PAHO convened meeting, experts from 12 countries concluded that the disease continues to affect children under 5 years of age whose immunization schedules are incomplete for their age. In September 2012, the WHO convened an informal meeting of experts to discuss the current pertussis situation in Australia, Canada, the United Kingdom and the United States. These experts concluded that the acellular pertussis (aP) vaccine has limitations, and that the problem needs further definition.

In light of this situation, PAHO/WHO highlights the need to continue implementing measures to increase the level of protection of populations, and reiterates the recommendations of the Technical Advisory Group (TAG) on Vaccine Preventable Diseases in its Twentieth Meeting.

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