

In light of increases in Hantavirus Pulmonary Syndrome (HPS) cases in some countries of the Region in 2012 and part of 2013, the Pan American Health Organization (PAHO) / World Health Organization (WHO) recommends Member States continue efforts of detection, investigation, reporting, and case management for the prevention and control of infections caused by hantavirus.

Current situation

In the Americas, Hantavirus Pulmonary Syndrome (HPS) has been registered in the past years in Argentina, Bolivia, Brazil, Canada, Chile, Ecuador, Panama, Paraguay, the United States of America, Uruguay and Venezuela.

In **Argentina**, HPS cases have been detected since 1997, with an average of 83 cases annually, since then. In 2011, the annual cases were double to the previously recorded annual average. In contrast, the cases in 2012 and up to epidemiological week (EW) 35 of 2013 have remained below the annual average, showing a decline in cases.

In **Canada**,¹ while HPS remains very rare, cases are recorded annually and have demonstrated a seasonal pattern, with increases registered primarily during spring and autumn months (March-May and September-November). Since 2000, when HPS became notifiable nationally, a total of 64 cases have been confirmed, with no cases in 2009 and, as of 11 October 2013, there have been 12 cases reported this year. The number of confirmed cases in 2013, thus far, has surpassed the baseline of cases of the past 14 years. Geographically, most cases have occurred in the western provinces of Canada, including Alberta, British Columbia, Manitoba and Saskatchewan.

In **Chile**, there is an average of 67 cases annually since 1995; the illness appears primarily in the spring and summer months (September to March). However, in 2011 cases increased between June and October, coinciding with increased rodent populations, mainly in the regions of Los Lagos and Aysen. Wildfires in central and southern Chile in early 2012 led to the

Hantavirus Pulmonary Syndrome (CIE -10 B33.4)

Hantavirus Pulmonary Syndrome (HPS) is a zoonotic viral disease characterized by symptoms of fever, myalgia, and gastrointestinal complaints, followed by sudden onset of respiratory distress and hypotension.

The causative agent belongs to the genus Hantavirus, family *Bunyaviridae*. The infection is acquired primarily through inhalation of aerosols or contact with infected rodent excreta. The *Muridae* / *Cricetidae* rodents have traditionally been considered reservoirs of hantaviruses, although some studies describe the presence of the virus in a wide variety of species such as shrews and bats.

The incubation period varies from a few days to six weeks. The case-fatality rate can reach 35-50%.

¹ Information provided on October 17, 2013 by the Canada IHR National Focal Point.

migration of rodents to other areas of the country. A health alert on Hantavirus was issued in 2012 for the Biobío region and the province of Malleco. As of EW 40 of 2013, 33 cardiopulmonary syndrome cases and 3 mild cases have been confirmed, which is lower than those confirmed in 2011 and 2012.

In **Paraguay**, HPS was first detected in 1995 in the Chaco region. In 2011, 56 cases were reported, in 2012 there were 18 cases, and as of EW 40 of 2013 two cases have been reported.

In **Panama**,² there have been confirmed cases of HPS since 1999, with an annual average of 12 cases. However, in 2012, 16 cases were reported and as of 21 August 2013 there have been 14 confirmed cases.

In the **United States of America**, since 1993, confirmed cases of HPS have been recorded in 34 states, with an annual average of 29 cases per year. In 2012, there were 30 reported cases and as of 21 September 2013, 7 cases have been reported. In 2008, the first locally acquired case of hemorrhagic fever with renal syndrome caused by the Seoul virus was confirmed.

In **Uruguay**, there have been confirmed cases of HPS since 1997, with an annual average of 9 cases. The Canelones and Montevideo departments have reported the greatest number of cases. The first case recorded in northern Uruguay was in 2010.

Recommendations

Given increasing hantavirus infection cases in some countries of the Region in 2012 and early 2013, the Pan American Health Organization (PAHO) / World Health Organization (WHO) recommends Member States continue efforts of detection, investigation, reporting, and case management for the prevention and control of infections caused by hantavirus. PAHO/WHO recommends the following:

Surveillance and Outbreak Investigation

HPS surveillance should be part of a comprehensive national surveillance system and must include clinical, laboratory and environmental components. Excessive cases in any area where hantavirus transmission is known to occur should trigger an investigation and may provide an opportunity to expand knowledge about the virus.

The appearance of a single case in an area not previously known to have hantavirus infection should trigger a comprehensive medical and epidemiological assessment, individual risk factor/exposure analysis, and an ecological/environmental evaluation to develop future prevention and control strategies.

Criteria for diagnosis by laboratory studies

- Presence of specific hantavirus IgM antibodies, or an increase of four times or more in IgG antibody titers; **or**
- Positive reverse-transcriptase polymerase chain reaction (RT-PCR) results for hantavirus RNA; **or**

² Information provided on August 22, 2013 by the Panama IHR National Focal Point.

- Positive immunohistochemical results for hantavirus antigens.

Case management

Early identification and timely medical care improves clinical outcome. To raise the suspicion of impending HPS, clinicians must use a combination of the following three factors: epidemiological data for guidance of the possible exposure, the manifestations of fever and myalgia, and thrombocytopenia. An initial sign in tested samples is altered platelet counts, and if a low or decreasing count is detected, the patient should be hospitalized for observation.

Care during the initial stages of the illness should include antipyretics and analgesics as needed. In some situations, patients should receive broad-spectrum antibiotics while confirming the etiologic agent.

Effective clinical treatment depends largely on careful administration of intravenous solutions, hemodynamic monitoring and ventilation support. Given the rapid progression of HPS, clinical management should focus on the patient's hemodynamic monitoring, fluid management and ventilation support.

Severe cases should be immediately transferred to intensive care units (ICU).

Prevention and control

Health awareness campaigns must aim to increase detection and timely treatment of the illness and prevent its occurrence by reducing people's contact with rodents. Health awareness campaigns should be directed as much towards health personnel as to the general public.

The implementation of integrated environmental management, with the goal of reducing rodent populations, is recommended. The measures should be adapted to local realities.

Preventive measures should cover occupational and ecotourism related hazards. Most usual tourism activities impose little or no risk of exposure of travelers to rodents or their excreta. However, people who engage in outdoor activities such as camping or hiking, should take precautions to reduce possible exposure to potentially infectious materials. Accordingly, it is key that authorities report such risks and preventative actions to those persons.

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