EID Weekly Updates:

Emerging and Reemerging Infectious Diseases, Region of the Americas

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Main Updates index

Outbreak of SARS in China

Sequence of Events, 2004

The first case reported to WHO on 22 April involved a 20-year-old nurse who developed symptoms compatible with the illness in Beijing on 5 April, and who was hospitalized in Beijing hospital on 7 April and was subsequently transferred to another hospital on 14 April. The patient is receiving intensive care.

On 23 April, WHO reported the existence of three other cases:

1. A 26-year-old female student who was carrying out research activities in the National Institute of Virological Research in Beijing, who is a native of Anhui province: This second probable case developed symptoms on 25 March and admitted to the same Beijing hospital where the 20-year-old nurse was working as part of the primary-care team tending to her. According to the current status of the ongoing research, this appears to be the index case for the outbreak.
2. The mother of the female researcher, who lives in Anhui, developed symptoms compatible with SARS on 8 April and was admitted to a hospital there, where she died on 19 April.
3. A 31-year-old male researcher from the National Institute of Virological Research in Beijing, who developed symptoms on 17 April, was hospitalized and was put into isolation on 22 April. The data on how he and the female researcher developed symptoms seem to indicate that they were exposed to the virus at different times.

On 26 April, WHO reported the existence of 4 new cases still classified as probable, all of whom have had close contact with the 20-year-old nurse who took care of the female student in the Beijing hospital. These new cases all appeared in Beijing, with the onset of symptoms between 16 and 19 April. One of them is in critical condition; the rest are stabilized.

On 28 April, the Chinese authorities reported to WHO the detection of yet another SARS case, as yet unconfirmed. This new case involves a 49-year-old female doctor who was admitted to the same hospital as the nurse, but for another reason. She began to develop symptoms compatible with SARS on 19 April and was transferred to a hospital in Ditan and put into isolation.

On 29 April, WHO announced the confirmation of 2 cases related to the nurse by reason of clinical profile, laboratory results and epidemiological linkage. Both belong to the third generation of cases.

Conclusions

These are the first SARS cases since January of this year, when the Guandong authorities reported the existence of 4 cases (3 confirmed and 1 probable) where the probable source of infection was environmental.

If it is indeed determined that the source of infection was the National Institute of Virology in Beijing, this will be the first outbreak caused by laboratory transmission. This kind of event probably produces a different pattern of illness and transmission. In September and December 2003, 2 cases were reported (in Singapore and Taiwan) where the source of infection was associated with a laboratory. Both cases recovered completely and there wasn't any further transmission.

In the current outbreak, all the cases are linked to chain of transmission, which indicates transmission involving close personal contact. There is no evidence of widespread airborne transmission in the community, although some recent studies suggest that this type of event could have occurred in last year's outbreak.

To date, a total of 9 cases and 1 death have been reported. Of the 9 cases, 2 have been confirmed and 7 are as yet unconfirmed, since the WHO surveillance guidelines stipulate that to classification as confirmed cases requires independent verification of laboratory test results by an external international reference laboratory. Of these 9 cases, 7 are from Beijing and 2 from Anhui.

Nearly 1,000 close contacts have been identified that are now under observation, 70% of them in Beijing and 30% in Anhui. WHO recognizes the possibility of additional exposure having taken place, since the patients were treated in 7 different hospitals (5 in Beijing and 2 in Anhui) and 2 of the people involved had traveled within the country over a wide area. The Chinese authorities have intensified surveillance and follow-up activities with these contacts, besides taking various environmental samples from the places where the cases occurred to determine the source of infection.

Additional Information

- *Severe Acute Respiratory Syndrome (SARS): WHO Guidelines/Recommendations/Descriptions*. Geneva: World Health Organization (WHO).
- Yu, Ignatius T.S. et al. (2004) Evidence of Airborne Transmission of the Severe Acute Respiratory Syndrome Virus. *N Engl J Med* 350: 1731-1739.

Source: *Severe Acute Respiratory Syndrome (SARS)*. Geneva: World Health Organization (WHO).

Outbreak of Acute Diarrhea in the Town of Rojas, Buenos Aires Province, Argentina

This past 25 March, PAHO received a report of an outbreak of acute diarrhea in the town of

Rojas, Province of Buenos Aires, Argentina. This discovery spurred intensive surveillance activity for waterborne diseases, which include acute diarrheas, viral hepatitis, and hemolytic uremic syndrome (HUS).

By 6 April 2004, a total of 3,165 cases of diarrhea had been reported, with a cumulative incidence of 1,385 for every 10,000 inhabitants, with 102 cases requiring hospitalization. The highest incidence rates occurred between 29 March and 1 April; with the trend diminishing from that time to the date of the report (see Figure 1).

The population most affected has been children between the ages of 1 and 4.

According to the laboratory results available to date, *Shigella* has been isolated in 24 of the 159 feces cultures carried out (15 with *Shigella flexneri* and 8 with *Shigella sonnei*), and *Escherichia coli* in 12 (with one isolated case of enterotoxigenic *Escherichia coli*). Three suspected cases of Hepatitis A were detected, two of which were ruled out and one confirmed. Up to now, there have been no reported cases of HUS.

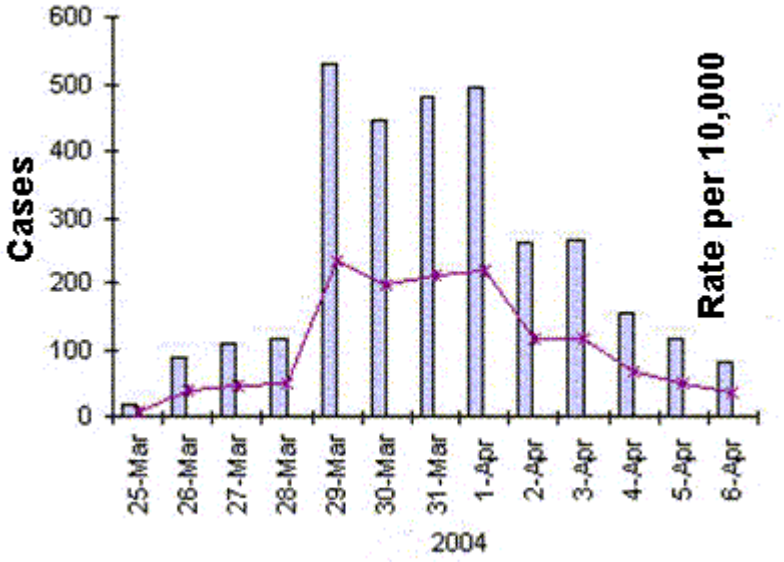
Bacteriological analysis of the water from the Partido de Rojas system was conducted between 21 March and 1 April, where the presence of coliforms was above the maximum acceptable levels; some samples also showed *E. coli.*

Inadequate maintenance and deteriorated lines in the system supplying drinking water to the town of Rojas caused the water to be contaminated with bacteria pathogenic to humans, resulting in the outbreak of diarrhea.

Among the prevention and control measures, a vaccination campaign against Hepatitis A was carried out in Rojas among children between the ages of 1 and 9 who had not received prior immunization. In addition, safe water was distributed and antimicrobial treatment was applied when needed, being the most frequently used Ciprofloxacin, Metronidazol, Ceftriaxone and Trimetoprim sulfametoxazole.

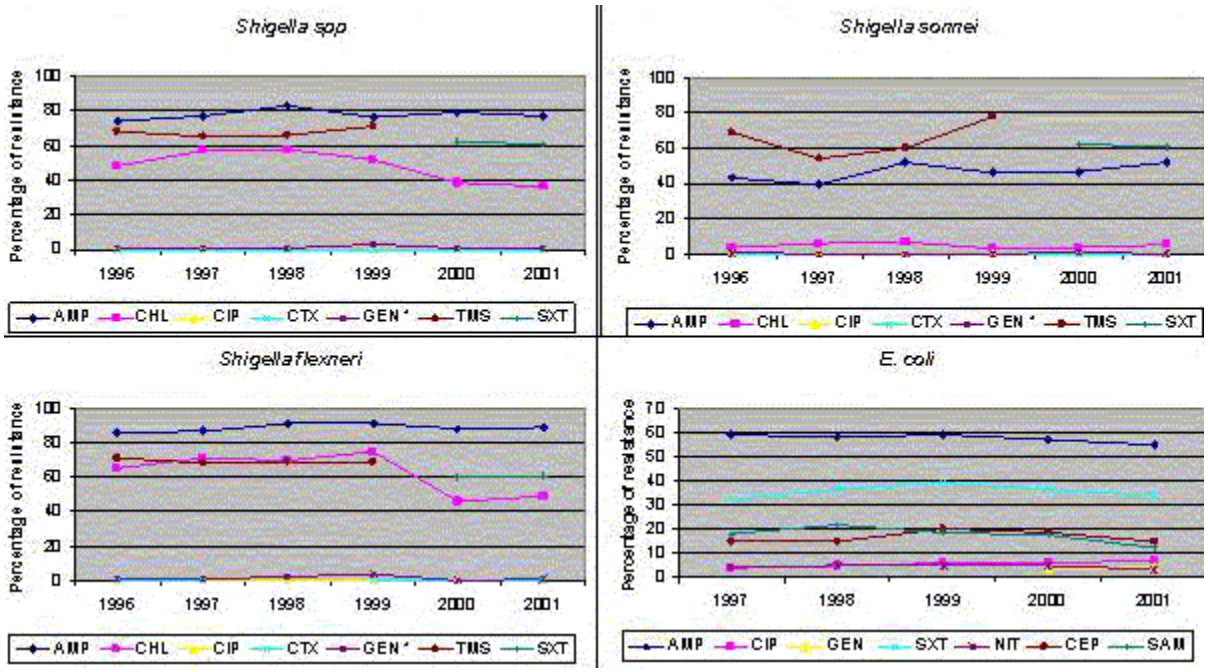
Laboratory identification of species of enteropathogenic bacteria and the

Figure 1: Acute Diarrhea Cases and Rates (Partido de Rojas, Buenos Aires Province, Argentina, 26 March–6 April 2004)



Source: Report to PAHO by the Ministry of Health of Argentina.

determination of sensitivity profiles is of vital importance to adequate treatment of cases and to prevent future complications. Since 1996, Argentina has been producing resistance profiles for the main pathogens, among which are *Shigella* and *E. coli* (see the four figures below). This information is very useful to choose the most cost-effective treatment, for the etiological treatment or for the empirical treatment of the diarrheal syndrome once the more prevalent bacteria is known.



Source: Data compiled by Pan American Health Organization / World Health Organization (PAHO/WHO), Communicable Disease Unit, Emerging and Reemerging Diseases, based on annual reports from the countries participating in the Antimicrobial Resistance Surveillance Network.

Additional Information

- Dirección de Epidemiología (Department of Epidemiology). Buenos Aires: Ministerio de Salud de la República de Argentina (Ministry of Health of the Republic of Argentina). (in Spanish)

- OPS/OMS-Argentina (PAHO/WHO-Argentina). Buenos Aires: Country Office in Argentina of the Pan American Health Organization / World Health Organization (PAHO/WHO). (in Spanish)
- *Shigella*. Washington, DC: Pan American Health Organization / World Health Organization (PAHO/WHO).
- *Antimicrobial Resistance*. Washington, DC: Pan American Health Organization / World Health Organization (PAHO/WHO).

Sources

- Report to PAHO by the Ministry of Health of Argentina.
- Annual Country Reports of the Antimicrobial Resistance Surveillance Network.