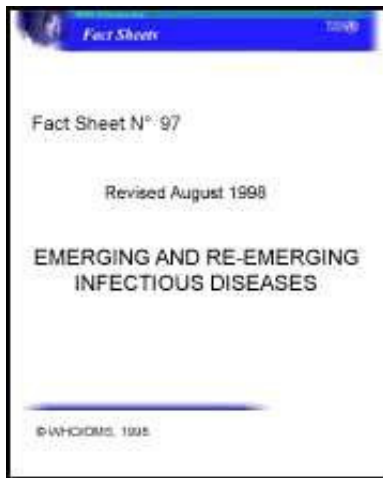
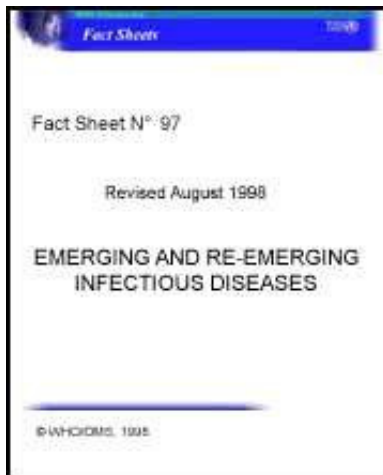


[Home](#) > [ar.cn.de.en.es.fr.id.it.ph.po.ru.sw](#)



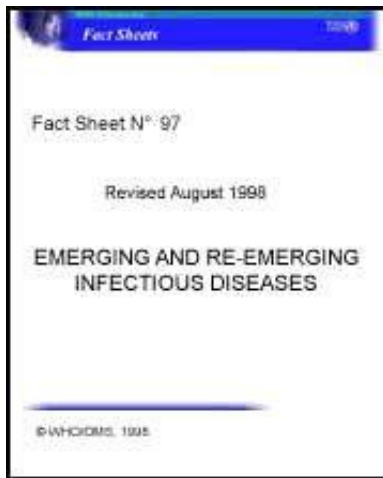
- ➔  **Fact sheet No 097: Emerging and Re-emerging Infectious Diseases - Revised August 1998 (WHO, 1998, 4 p.)**
-  **(introduction...)**
-  **EMERGING AND RE-EMERGING INFECTIOUS DISEASES**

[Home](#) > [ar.cn.de.en.es.fr.id.it.ph.po.ru.sw](#)



-  **Fact sheet No 097: Emerging and Re-emerging Infectious Diseases - Revised August 1998 (WHO, 1998, 4 p.)**
- ➔  **(introduction...)**
-  **EMERGING AND RE-EMERGING INFECTIOUS DISEASES**

Revised August 1998



 **Fact sheet No 097: Emerging and Re-emerging Infectious Diseases - Revised August 1998 (WHO, 1998, 4 p.)**

 *(introduction...)*

  **EMERGING AND RE-EMERGING INFECTIOUS DISEASES**

EMERGING AND RE-EMERGING INFECTIOUS DISEASES

New microorganisms capable of causing disease in humans continue to be detected (see examples in Table 1). Whether an emerging microorganism develops into a public health threat depends on factors related to the microorganism and its environment, or the infected human and his/her environment. Such factors include ease of transmission between animals and people and among people, potential for spread beyond the immediate outbreak site, severity of illness, availability of effective tools to prevent and control the outbreak, and ability to treat the disease. Some of the new agents detected in the past 25 years are now genuine public health problems on a local, regional or global scale.

What are emerging infectious diseases?

***Emerging infectious diseases* result from newly identified and previously unknown infections which cause public health problems either locally or internationally. A recent example of an emerging disease is the new variant of Creutzfeldt-Jakob disease, which was first described in the United Kingdom in 1996. The agent is considered to be the same as that causing bovine spongiform encephalitis, a disease which emerged in the 1980s and affected thousands of cattle in the United Kingdom and some other European countries. Examples of emerging diseases associated with viruses and bacteria are:**

Viruses:

- ***Ebola virus***: The first outbreaks occurred in 1976 and the discovery of the virus was reported in 1977. Indigenous cases have been confirmed in four countries in Africa (Cte d'Ivoire, Democratic Republic of Congo, Gabon and Sudan). Through June 1997, 1 054 cases had been reported to WHO, 754 of which proved fatal. Monkeys infected with an Asian strain of Ebola were imported from the Philippines into the United States of America in 1989 and 1990, and into Italy in 1992. This Asian strain, Ebola-Reston, does not appear to cause illness in humans.

- ***Human immunodeficiency virus (HIV)***: The virus which causes AIDS was first isolated in 1983. By the beginning of June 1998, the number of AIDS cases reported to WHO by national authorities since the beginning of the epidemic was close to 1.9 million. However, it is estimated that, since the start of the epidemic, 30.6 million people worldwide have become HIV infected and nearly 12 million have died from AIDS or AIDS-related diseases.

- ***Hepatitis C*: Identified in 1989, this virus is now known to be the most common cause of post-transfusion hepatitis worldwide, with approximately 90% of cases in Japan, the United States and western Europe. Up to 3% of the world population are estimated to be infected, among which 170 million are chronic carriers at risk of developing liver cirrhosis and/or liver cancer.**
- ***Sin nombre* (i.e., an unnamed) virus was isolated from cases of a local outbreak of a highly fatal respiratory disease in the southern United States in 1993. It has subsequently been diagnosed in sporadic cases across the country and in Canada and several South American countries.**
- ***Influenza A(H5N1) virus*: This influenza virus is a well known pathogen in birds but was isolated from human cases for the first time in 1997. The emergence of human influenza A(H5N1) initially followed a possible scenario of the expected next influenza pandemic but, in the event, the virus transmitted poorly and the spread of the virus appeared to have been contained in 1997.**

Bacteria:

- ***Legionella pneumophila*: The detection of the bacterium in 1977 explained an outbreak of severe pneumonia in a convention centre in the USA in 1976 and it has since been associated with outbreaks linked to poorly maintained air conditioning systems.**
- ***Escherichia coli* O157:H7: Detected in 1982, this bacterium is typically**

transmitted through contaminated food and has caused outbreaks of haemolytic uraemic syndrome in North America, Europe and Japan. A widespread outbreak in Japan in 1996 caused over 6 000 cases among school children, among whom two died. During a single outbreak in Scotland in 1996, 496 people fell ill, of whom 16 died.

• *Borrelia burgdorferi*: Detected in the USA in 1982 and identified as the cause of Lyme disease, this bacterium is now known to be endemic in North America and Europe and is transmitted to humans by ticks.

• *Vibrio cholerae* O139: First detected in 1992 in India, this bacterium has since been reported in 7 countries in Asia. The emergence of a new serotype permits the organism to continue to spread and cause disease even in populations protected by antibodies generated in response to previous exposure to other serotypes of the same organism.

Antimicrobial resistance:

Another emerging public health issue is the rapidly growing number of bacteria becoming resistant to an increasing range of antibiotics. In many regions, the low cost, first choice antibiotics have lost their power to clear infections of *Escherichia coli*, *Neisseria gonorrhoea*, *Pneumococcus*, *Shigella*, *Staphylococcus aureus* - increasing the cost and length of treatment of many common diseases including epidemic diarrhoeal diseases, gonorrhoea, pneumonia and otitis. Further problems stem from the use of antimicrobial substances in food animal production.

What are re-emerging infectious diseases?

Re-emerging infectious diseases are due to the reappearance of, and an increase in, the number of infections from a disease which is known, but which had formerly caused so few infections that it had no longer been considered a public health problem.

***Cholera:* Cholera has been re-introduced into countries and continents where it had previously disappeared, and where it can spread because water and sanitation systems have deteriorated and food safety measures are not adequate. In 1991, the 7th cholera pandemic reached the Americas where cholera had not been registered for a century. In that year, over 390 000 cases were notified in over 10 South American countries, which altogether accounted for 2/3 of the number of cases notified in the world. In 1997, cholera outbreaks chiefly affected Eastern Africa and, while the overall numbers have declined since 1991, there were still over 147 000 cases reported globally in 1997. In 1998, the epidemic spread over eastern and southern Africa and new outbreaks occurred in South America.**

***Dengue fever:* Dengue fever has spread in many parts of South-East Asia since the 1950s and re-emerged in the Americas in the 1990s following deterioration in active mosquito control and spread of the vector into urban areas. Infection with dengue virus has often resulted in dengue haemorrhagic fever (DHF) in Asia, but rarely in the Americas until a severe outbreak in Cuba in 1981. Dengue haemorrhagic fever has since spread and during the epidemics in Central and South America in 1995-1997, DHF was reported in 24 countries.**

***Diphtheria:* Diphtheria re-emerged in the Russian Federation and some other**

republics of the former Soviet Union in 1994 and culminated in 1995 with over 50,000 cases reported. The re-emergence was linked to a dramatic decline in the immunization programmes following the disruption of health services during the unsettled times immediately after the break-up of the Soviet Union. Since then immunization services have been re-established, reversing the upward trend: in 1996, 13 687 cases were reported in the Russian Federation.

***Meningococcal meningitis:* Meningococcal meningitis occurs worldwide but devastating, large-scale epidemics have mainly been in the dry Sub-Saharan regions of Africa, designated the "African meningitis belt". Since the mid 1990s, epidemics in this area have been on an unprecedented scale and epidemic meningitis has also emerged in countries south of the "meningitis belt". A new strain of *Neisseria meningitidis* (serogroup A clone III.1), which was first seen in the 1980s in Nepal and China, has spread west and has now been diagnosed in major meningitis outbreaks in Africa.**

***Rift Valley fever (RVF):* RVF is a zoonotic disease typically affecting sheep and cattle in Africa. Mosquitoes are the principal means by which RVF virus is transmitted among animals and to humans. Persons in contact with sick animals occasionally become infected. The disease in humans is typified by fever and myalgia but, in some cases, progresses to retinitis, encephalitis or haemorrhage. Following abnormally heavy rainfall in Kenya and Somalia in late 1997 and early 1998, RVF occurred over vast areas, producing disease in livestock and causing haemorrhagic fever and death among the human population. The extent of the outbreak and the severity of the disease was probably due to many factors, including climatic conditions, malnutrition and, possibly, route of infection.**

***Yellow fever (YF):* YF is an example of a disease for which an effective vaccine exists but, because it is not widely used in many areas at risk, epidemics continue to occur. The threat of YF is present in 33 countries in Africa and eight in South America. Since the mid-1980s there has been a steady increase in the number of cases or countries reporting cases (up to 5 300 per year worldwide), yet the true number of cases occurring could be many times higher, as outbreaks in general occur in remote areas and miss the attention of health services. YF is typically a disease of the tropical forest areas where the virus survives in monkeys. Humans bring it back to their villages and if a suitable mosquito vector is present, the disease will spread quickly and kill a large proportion of the population, which has no immunity.**

What causes emergence or re-emergence of infectious diseases?

Several factors contribute to the emergence and re-emergence of infectious diseases, but most can be linked with the increasing number of people living and moving in the world: rapid and intense international travel; overcrowding in cities with poor sanitation; substantially increased international trade in food, mass distribution of food and unhygienic food preparation practices; increased exposure of humans to disease vectors and reservoirs in nature; and alteration of the environment and climatic changes which have a direct impact on the composition and size of the population of insect vectors and animal reservoirs. Other factors include a deteriorating public health infrastructure which is unable to cope with the needs of the population. Travel has always been a vehicle to spread disease across the world. According to data from the World Tourism Organization, over 550 million travellers were counted at national borders in 1995 and over 117 million of them had crossed continents to arrive at the destination. Luckily, the

vast majority of infections brought along with travellers are common worldwide and the disease is more a nuisance to the traveller than to society. The traveller can avoid many health risks with vaccines, protective measures against malaria and good personal hygiene (for more details, see *International Travel and Health*, issued by WHO each year and accessible from WHO's website - <http://www.who.ch/emc/>).

WHO's Response

Since 1992, alarm over emerging and re-emerging diseases has resulted in a number of national and international initiatives to restore and improve surveillance and control of communicable diseases. In 1995, a resolution of the World Health Assembly (WHA) urged all Member States to strengthen surveillance for infectious diseases in order to promptly detect re-emerging diseases and identify new infectious diseases. This resolution led to WHO's establishment of the Division of Emerging and other Communicable Diseases Surveillance and Control (EMC), whose mission is to strengthen national and international capacity in the surveillance and control of communicable diseases, including those that represent new, emerging and re-emerging public health problems.

Table 1: Examples of pathogens recognized since 1973

Year	Microbe	Disease
1973	Rotavirus	Major cause of infantile diarrhoea globally
1976	<i>Cryptosporidium parvum</i>	Acute and chronic diarrhoea
1977	<i>Neisseria meningitidis</i>	Ebola haemorrhagic fever

1977	<i>Legionella pneumophila</i>	Legionnaires disease
1977	Hantaan virus	Haemorrhagic fever with renal syndrome
1977	<i>Campylobacter jejuni</i>	Enteric diseases distributed globally
1980	Human T-lymphotropic virus 1 (HTLV-1)	T-cell lymphoma-leukemia
1981	Toxin producing strains of <i>Staphylococcus aureus</i>	Toxic shock syndrome
1982	<i>Escherichia coli</i> O157:H7	Haemorrhagic colitis; haemolytic uraemic syndrome
1982	HTLV-II	Hairy cell leukemia
1982	<i>Borrelia burgdorferi</i>	Lyme disease
1983	HIV	AIDS
1983	<i>Helicobacter pylori</i>	Peptic ulcer disease
1988	Hepatitis E	Enterically transmitted non-A, non-B hepatitis
1990	Guanarito virus	Venezuelan haemorrhagic fever
1991	<i>Encephalitozoon hellem</i>	Conjunctivitis, disseminated disease
1992	<i>Vibrio cholerae</i> O139	New strain associated with epidemic cholera
1992	<i>Bartonella henselae</i>	Cat-scratch disease; bacillary angiomatosis
1994	Sabia virus	Brazilian haemorrhagic fever
1995	Hepatitis G virus	Parenterally transmitted non-A, non B hepatitis
1995	Human herpesvirus-8	Associated with Kaposi sarcoma in AIDS

1995	Human herpesvirus 8	Associated with Kaposi sarcoma in AIDS patients
1996	TSE causing agent	New Variant Creutzfeldt-Jakob disease
1997	Avian Influenza [Type A (H5N1)]	Influenza

For further information, journalists can contact Office of Public Information, WHO, Geneva. Telephone (41 22) 791 2584. Fax (41 22) 791 4458. E-Mail: info@who.ch. All WHO Press Releases, Fact Sheets and Features as well as other information on this subject can be obtained on Internet on the WHO home page <http://www.who.ch/>

