INFECTIONOUS DISEASES KILL OVER 17 MILLION PEOPLE A YEAR

WHO warns of global crisis

Nearly 50,000 men, women and children are dying every day from infectious diseases; many of these diseases could be prevented or cured for as little as a single dollar per person, the World Health Organization says in *The World Health Report 1996*, published today.

At least 30 new infectious diseases have emerged in the last 20 years and now together threaten the health of hundreds of millions of people. For many of these diseases, there is no treatment, cure or vaccine.

“We are standing on the brink of a global crisis in infectious diseases. No country is safe from them. No country can any longer afford to ignore their threat,”

the Director-General of WHO, Dr Hiroshi Nakajima, says in the report.
We stand on the threshold of a new era in which hundreds of millions of people will at last be safe from some of the world’s most terrible diseases. Sooner rather than later poliomyelitis, leprosy, guinea-worm disease, river blindness, Chagas disease and neonatal tetanus will join smallpox as diseases of the past. Already, about 8 out of 10 of all the world’s children are protected by immunization against six major childhood diseases.

These achievements would have been impossible without a dedicated international effort in creating awareness and stimulating action focused on the control of these diseases.

However, The World Health Report 1996 shows that we also stand on the brink of a global crisis in infectious diseases. No country is safe from them. No country can any longer afford to ignore their threat.

The optimism of a relatively few years ago that many of these diseases could easily be brought under control has led to a fatal complacency among the international community. This complacency is now costing millions of lives – lives that we have the knowledge and the means to save, yet we are allowing to trickle through our fingers. Furthermore, most of the lives lost are in the vital age groups that societies rely on to alleviate poverty – school-age children and working-age adults – the potential workforces of tomorrow, and the actual workforces of today.

Infectious diseases are attacking us on multiple fronts. Together they represent the world’s leading cause of premature death. At least 17 million people were killed by them last year, including about 9 million young children who died from such preventable causes as diarrhoea and pneumonia. Millions more were disabled even though effective measures to prevent them are available.

Many countries and the international community have reduced their investment in the control of diseases that cause heavy economic and human tolls. The socioeconomic development of many nations – their prospect of a better future – is being crippled by the burden of these diseases. Other countries are paying a huge price in lost foreign currency income from food trade and tourism as a result of epidemics of cholera, plague and other diseases.

Major diseases such as malaria and tuberculosis are making a deadly comeback in many parts of the world. In addition to HIV/AIDS, other new and highly infectious diseases such as Ebola haemorrhagic fever are emerging at an unprecedented rate – at least 30 have been recorded in the last 20 years – and many of them are incurable. Until recently, antibiotics were regarded as the solution to many infectious diseases. Today they are becoming less and less effective as resistance to them spreads. Meanwhile, evidence gathers on the role of viruses, bacteria and parasites in the genesis of deadly cancers of the stomach, cervix and liver. Fears are also growing of a possible food chain link between bovine spongiform encephalopathy (BSE or “mad cow disease”) and a form of the incurable Creutzfeldt-Jakob disease in humans, due to an infectious agent that affects the brain.

Today’s crisis is likely to get worse before it gets better. Internal and international movement of populations including refugees and migrants, haphazard and uncontrolled urbanization, economic development and changes in patterns of land use as well as in ecology...
and climate are creating new opportunities for the spread of infections. Because of rapidly increasing international air travel, there is also a growing risk that diseases will spread within days or even hours from one continent to another. The expanding world trade and marketing of foods carries with it the threat of foodborne diseases.

Changes in lifestyle and behaviour are an additional factor in the emergence of some infectious diseases, particularly those that are sexually transmitted.

As well as identifying these problems, this report recommends workable solutions. It suggests priorities, spelling out what must be done by the global community at national, regional and international levels. The only answer to a global threat is a global response – a response of the kind that saw smallpox vanquished for ever, and saw the protection of the world’s children as a priority. What is needed now is global solidarity that goes beyond selfish interests and national boundaries; it must provide a truly unprecedented response to make this world a safer and healthier one for all – rich or poor, male or female, young or old.

The focus now must be to renew the attack on those major diseases that are already targets for elimination or eradication. Extra resources must be mobilized against them, because to slacken the pace now would be to compromise progress already made. The surveillance and control of infectious diseases must be improved, and laboratory facilities for rapid recognition of outbreaks and monitoring antibiotic susceptibility have to be strengthened; they should be in the mainstream of health systems development. Intensive research on new and emerging diseases and on ways of controlling them has to be promoted and supported. If catastrophe is to be avoided, education of people in simple personal hygiene practices and basic food safety measures should be intensified.

The report also shows what the World Health Organization is undertaking in a wide range of activities against infectious diseases. The experience of dealing with recent outbreaks of cholera, plague and Ebola haemorrhagic fever has shown the need to strengthen global preparedness and readiness for epidemics. As it supports development of national expertise and capability, the Organization is strengthening its own capacity to respond rapidly and more efficiently to calls for help in such emergencies. It aims to have a team of experts at the location of an outbreak anywhere in the world within 24 hours of being officially notified of it. Extra resources are being sought to fund these operations.

The world has lost sight of its priority to reduce poverty through better health and foster development by fighting disease. Today, infectious diseases are not only a health issue; they have become a social problem with tremendous consequences for the well-being of the individual and the world we live in. We need to recognize them as a common threat that has been ignored, at great cost, for too long, and to build the global solidarity to confront them. What is required is the commitment of the international community to helping countries most at risk to help themselves. By helping each other, nations united protect the world and protect themselves.

The World Health Report 1996 shows what can be done. It provides an expert and unique assessment of the crisis in infectious diseases and issues today a call for action that the world must not ignore.

Hiroshi Nakajima, M.D., Ph.D.
Director-General
World Health Organization
50 facts from the World Health Report 1996

Births
1. About 139 million babies were born in 1995, a 12% increase over the last 15 years. However, mainly due to increasing contraceptive use, women are having fewer babies – an average of 3 today compared to 3.2 in 1990 and 3.7 in 1980.

2. Of all the births in 1995, almost 16 million were in the developed world, almost 25 million in the least developed countries, and over 98 million in other developing countries.

3. Between 1990-1995, about 15 million babies were born each year to teenagers or women over 35. Birth rates among young women aged 15-19 are twice as high in the developing world as in developed countries.

Deaths
9. About 52 million people died in 1995. The number is almost the same as it was 35 years ago, but the global population has almost doubled in that time.

10. More than 17 million of the 52 million deaths in 1995 were due to infectious diseases.

11. Of more than 11 million deaths among children under 5 in the developing world, about 9 million were attributed to infectious diseases, 25% of them preventable through vaccination.

12. Of the 52 million deaths, almost 34 million occurred at the extremes of life – over 11 million children died before the age of 5; over 22 million people survived until at least 65.


14. In Africa, more than 40% of all deaths were among children under 5.

15. About 8.4 million infants died last year before their first birthday. Developed market economies had only 6.9 infant deaths per 1 000 live births, compared to 106.2 infant deaths per 1 000 live births in the least developed countries.

Life expectancy
4. Average life expectancy at birth globally in 1995 was more than 65 years, an increase of about 3 years since 1985. It was over 75 years in developed countries, 64 years in developing countries, and 52 years in least developed countries.

5. The world’s lowest life expectancy at birth, just 40 years, is in Sierra Leone – barely half of the world’s highest, in Japan, where it is 79.7 years.

6. At least 18 countries in Africa have a life expectancy at birth of 50 years or less.

7. The number of countries with a life expectancy at birth of over 60 years has increased from at least 98 (with a total population of 2.7 billion) in 1980 to at least 120 (with a total population of 4.9 billion) in 1995.

8. On average, women today can expect to live over 4 years longer than men – 67.2 years versus 63 years. The female advantage is greatest in Europe – almost 8 more years – and smallest in South-East Asia, where it is just one year.

Population
16. The global population in mid-1995 was about 5.7 billion people. The current population growth rate of 1.5% per annum is the lowest recorded since the Second World War.
17. The population is expected to grow by about 90 million people a year for the next 20 years, dropping to about 50 million a year by 2050.

18. The world’s 48 least developed countries have a combined population today of about 589 million; this is expected to increase to 1.7 billion by the year 2050.

19. In 1995, about 2.6 billion people – 45% of the global population – were living in urban areas. The proportion is expected to reach 60% by the year 2025. Twenty years from now, 33 of the world’s biggest cities will have a combined population of more than 500 million people.

Child health

20. The prevalence of underweight children under 5 years fell from 34% in 1985 to 31% in 1995 for developing countries as a whole; but it is 40% in the least developed countries.

21. There were an estimated 6.7 million more underweight children in sub-Saharan Africa in 1995 than in 1990.

22. The number of countries with an infant mortality rate of below 50 per 1,000 live births has risen from at least 77 (with a total population of 1.3 billion) in 1980 to at least 103 (with a total population of 3.2 billion) in 1995.

Emerging and re-emerging infectious diseases

23. At least 30 new diseases have been scientifically recognized around the world in the last 20 years.

24. The existence of HIV, the virus that causes AIDS, was unknown barely a decade ago. Today, more than 20 million adults are estimated to be infected. The cumulative total could reach 40 million in the next 5 years.

25. Several new hepatitis viruses have been identified in recent years. Hepatitis B has infected 2 billion people alive today, of whom 350 million are chronically infected and therefore at risk of death from liver disease. About 100 million are chronically and incurably infected with hepatitis C and are similarly at risk. Hepatitis E can cause major epidemics in countries with hot climates.

26. A completely new strain of cholera, called *Vibrio cholerae* 0139, appeared in southeastern India in 1992 and has since spread to other areas of India and parts of Southeast Asia.

27. The Ebola virus was unknown 20 years ago. The Ebola haemorrhagic fever outbreak in Zaire in 1995 was fatal in about 80% of cases. The natural host of the virus remains a mystery.

28. Since hantavirus infections were first recognized in the United States in 1993, they have been detected in more than 20 American states. They can cause a pulmonary syndrome with a fatality rate of over 50%. Cases have also occurred in Canada and in Argentina, Brazil and Paraguay.

29. Recently-recognized organisms such as *Cryptosporidium* or new strains of bacteria such as *Escherichia coli* cause epidemics of foodborne and waterborne diseases in both industrialized and developing countries.

30. Tuberculosis, once regarded as virtually under control, is making a deadly comeback, killing about 3.1 million people a year. Drug-resistant tuberculosis is spreading in many countries.

31. Cholera, absent in South America for decades, struck Peru in 1991 and has since spread throughout the continent. Worldwide it is endemic in at least 80 countries and causes 120,000 deaths a year.

32. Diphtheria epidemics that began in the Russian Federation in 1990 have since struck in 15 eastern European countries. WHO estimates there are 100,000 diphtheria cases and up to 8,000 deaths year worldwide.
33. The biggest epidemic of yellow fever in the Americas since 1950 struck Peru in 1995.
34. More than 2 billion people worldwide are at risk of dengue fever.
35. There were at least 333 million new cases of sexually transmitted diseases worldwide in 1995, excluding HIV infections.
36. WHO aims to have a team of experts on site anywhere in the world within 24 hours of being asked to help control an epidemic.

Disappearing diseases
37. Poliomyelitis is targeted for global eradication by the year 2000. There are now 145 countries completely free of the disease.
38. Leprosy is steadily being defeated and should no longer represent a significant public health problem within the next few years.
39. Guinea-worm disease (dracunculiasis) could be completely eradicated within the next few years. Cases worldwide have fallen from 3.5 million in 1986 to about 120 000 in 1995; only 1-4 cases remained in most endemic villages.
40. River blindness (onchocerciasis) is being eliminated from 11 West African countries.
41. Chagas disease is being eliminated from 6 countries in South America – Argentina, Bolivia, Brazil, Chile, Paraguay and Uruguay.

Infectious diseases and cancer
42. Sexually transmitted human papilloma viruses are responsible for most of the 529 000 cases of cervical cancer a year – 65% of the cases in industrialized countries, and 87% of those in developing countries.
43. About 434 000 cases a year of liver cancer – 82% of the world total – are due to hepatitis B or hepatitis C viruses. Hepatitis B causes 316 000 and hepatitis C causes 118 000 of the cases. The viruses are transmitted in several ways, including through contaminated blood and sexually.
44. Some 550 000 new cases a year of stomach cancer are attributed to the bacterium *Helicobacter pylori*, transmitted in foods. The figure equals about 55% of all cases of this cancer worldwide.

Immunization
45. May 1996 marks the 200th anniversary of the first successful immunization, by Dr Edward Jenner in England, who protected a child against smallpox by innoculating him with cowpox virus.
46. The global eradication of smallpox was officially declared at WHO's World Health Assembly in 1980. The last naturally acquired case of smallpox was reported in Somalia in 1977.
47. About 80% of the world's children have been immunized against six diseases – diphtheria, measles, pertussis (whooping cough), poliomyelitis, tetanus and tuberculosis. But in many African countries, under 50% of children have been immunized.
48. About 300 million children were immunized against poliomyelitis in 1995. India alone immunized 82 million children against the disease in a single day.
49. More than 700 000 deaths from tetanus among newborn babies were prevented in 1995 by immunization of women with tetanus toxoid vaccine.
50. New or improved vaccines are being developed against diarrhoeal diseases, dengue, Japanese encephalitis, measles, bacterial meningitis, neonatal tetanus and tuberculosis.
Map 1. Travellers to developing areas, 1993
(in millions)

From Europe

From USA and Canada

From Japan, Australia and New Zealand

Map 2. New infectious diseases in humans and animals since 1976
Countries where cases first appeared or were first identified

- 1986: Bovine spongiform encephalopathy (United Kingdom)
- 1976: Ebola haemorrhagic fever (Zaire)
- 1982: E. coli O157:H7 (United States)
- 1980: Human T-cell lymphotropic virus 1 (Japan)
- 1989: Hepatitis C (United States)
- 1977: Hantaan virus (Republic of Korea)
- 1991: AIDS (United States)
- 1991: Venezuelan haemorrhagic fever (Venezuela)
- 1994: Venezuelan haemorrhagic fever (Brazil)
- 1994: V. cholerae 0139 (India)
- 1988: Salmoella enteritidis PT4 (United Kingdom)

*Animal cases only.

Map 3. Selected emerging and re-emerging disease outbreaks in 1995

- Cholera
- Diphtheria
- Dengue/ dengue haemorrhagic fever
- Yellow fever
- Others, as indicated
Map 4. Tuberculosis/HIV co-infection, 1994
Estimated prevalence

Map 8. Populations with regular access to essential drugs, 1995 estimates
Map A. Stomach cancer, 1995
Estimated incidence in males

Map B. Cervical cancer, 1995
Estimated incidence

Map C. Liver cancer, 1995
Estimated incidence
Deaths due to selected infectious diseases, 1995 estimates

Total deaths (51.9 million)

Other causes 67% (34.6 million)

Infectious diseases 33% (17.3 million)

By main mode of transmission

Food-, water- and soilborne 22% (3.7 million)
Insect-borne 13% (2.3 million)
Animal-borne 0.3% (0.06 million)
Person to person 65% (11.2 million)

The 10 biggest killers

HIV/ AIDS >1 million
Hepatitis B 1.1 million
Measles >1 million
Tuberculosis 3.1 million
Malaria 2.1 million
Diarrhoeal diseases 3.1 million
Neonatal tetanus 500 000
Whooping cough 355 000
Roundworm and hookworm 165 000
Acute respiratory infections 4.4 million
The report warns that some major infectious diseases, such as cholera, malaria and tuberculosis are making a deadly comeback in many parts of the world, despite being preventable or treatable. At the same time, many new and highly infectious diseases such as HIV/AIDS and the notorious Ebola haemorrhagic fever – both of which are incurable – are emerging to pose additional threats. Fears are growing over a possible food-chain link between bovine spongiform encephalopathy (“mad cow disease”) and a variant of the incurable Creutzfeldt-Jakob disease, due to an infectious agent that attacks the human brain.

Meanwhile, antibiotics and other life-saving drugs used against many diseases are rapidly losing their effectiveness as bacteria and other microbes develop resistance to them. For example, doctors worldwide are losing some of the most useful and affordable antibiotics against the two principal bacteria which cause pneumonia, the major cause of death in children.

The World Health Report 1996 – Fighting disease, fostering development, published by WHO, states that infectious diseases are the world’s leading cause of premature death. Of about 52 million deaths from all causes in 1995, more than 17 million were due to infectious diseases, including about 9 million deaths in young children. Up to half the world’s population of 5.72 billion are at risk of many endemic diseases. In addition, millions of people are developing cancers as a direct result of preventable infections by bacteria and viruses, the report says.

“The optimism of a relatively few years ago that many of these diseases could easily be brought under control has led to a fatal complacency among the international community. This complacency is now costing millions of lives – lives that we have the knowledge and means to save, yet that we are allowing to trickle through our fingers” Dr Nakajima says.

“The socioeconomic development of many nations – their prospect of a better future – is being crippled by the burden of these diseases. Other countries are paying a huge price in lost foreign currency income from food trade and tourism as a result of epidemics of cholera, plague and other diseases.”

“The world has lost sight of its priority to reduce poverty through better health and foster development by fighting disease. Today, infectious diseases are not only a health issue; they have become a social problem with tremendous consequences for the well-being of the individual and the world we live in. We need to recognize them as a common threat that has been ignored, at great cost, for too long, and to build global solidarity to confront them.”

“What is required is the commitment of the international community to help countries most at risk to help themselves. By helping each other, nations united protect the world and protect themselves.”

According to the report, many countries have failed to invest adequately in the control of common infectious diseases. Less prevention is now resulting in rising treatment costs.
About 52 million people died from all causes in 1995, according to the report. Of these, more than 17 million were killed by infectious diseases.

- Acute lower respiratory infections such as pneumonia killed 4.4 million people, about 4 million of whom were children.
- Diarrhoeal diseases, including cholera, typhoid and dysentery, spread chiefly by contaminated water or food, killed 3.1 million, most of them children.
- Tuberculosis killed almost 3.1 million, mostly adults.
- Malaria killed 2.1 million people, including 1 million children.
- Hepatitis B infections killed more than 1.1 million people.
- HIV/AIDS killed more than 1 million people.
- Measles killed more than 1 million children.
- Neonatal tetanus killed almost 460,000 infants.
- Whooping cough (pertussis) killed 355,000 children.
- Intestinal worm diseases killed at least 135,000 people.

The Ten Most Common Infections

- Diarrhoeal diseases – About 4 billion episodes in 1995.
- Tuberculosis – About 1.9 billion carry the tuberculosis bacilli; 8.9 million new cases in 1995.
- Intestinal worms – About 1.4 billion infected at any given time.
- Malaria – Up to 500 million new cases in 1995.
- Hepatitis – About 350 million hepatitis B chronic carriers, and about 100 million hepatitis C chronic carriers.
- Sexually transmitted diseases – At least 330 million new cases in 1995.
- Measles – 42 million total cases in 1995.
- Whooping cough – 40 million total cases in 1995.
- Meningococcal meningitis – About 350,000 new cases in 1995.

New Diseases

Some of the causative agents, and diseases associated with them, include in chronological order of their identification:

1973: Rotavirus, a major cause of infantile diarrhoea worldwide.
1976: *Cryptosporidium parvum*, a parasite which causes acute and chronic diarrhoea.
1977: *Legionella pneumophila*, the bacterium which causes potentially fatal Legionnaires’ disease.
1977: Ebola virus, which causes haemorrhagic fever – fatal in up to 80% of cases.
1977: Hantaan virus, which causes potentially fatal haemorrhagic fever with renal syndrome.
1977: *Campylobacter jejuni*, a bacterium which causes diarrhoea.
1978: Human T-lymphotropic virus I (HTLV-1), which causes lymphoma-leukaemia.
1980: *Escherichia coli* O157:H7 strain of bacteria, which causes bloody diarrhoea.
1982: HTLV-2 virus, which causes hairy cell leukaemia.
1983: *Helicobacter pylori*, the bacterium associated with peptic ulcer disease and stomach cancer.
1983: Human immunodeficiency virus (HIV), which causes AIDS.
1988: Hepatitis E virus, which causes epidemics of jaundice in hot climates.
1988: Human herpesvirus 6, which causes fever and rash.
1989: Hepatitis C virus, which causes liver cancer as well as liver disease.
1991: Guaraná virus, which causes Venezuelan haemorrhagic fever.
1992: *Vibrio cholerae* O139, which causes epidemic cholera.
1994: Sabia virus, which causes Brazilian haemorrhagic fever.
1995: Human herpesvirus 8, associated with Kaposi’s sarcoma in AIDS patients.

**ANTIBIOTIC RESISTANCE**

Drug-resistant strains of microbes are having a deadly impact on the fight against tuberculosis, malaria, cholera, diarrhoea and pneumonia – major diseases which together killed more than 10 million people last year. Some bacteria are resistant to as many as 10 different drugs.

“Disastrously, this is happening at a time when too few new drugs are being developed to replace those that have lost their effectiveness. In the contest for supremacy, the microbes are sprinting ahead. The gap between their ability to mutate into drug-resistant strains and man’s ability to counter them is widening fast”, the report says.

Many of the most powerful antibiotics have been rendered impotent. The two most common bacteria which are the major cause of death in children through acute respiratory infections, particularly pneumonia, are becoming more and more resistant to drugs.

Antibiotic resistance in hospitals worldwide threatens to leave medical and public health workers virtually helpless in the prevention or treatment of many infections. Antibiotic resistant bacteria are responsible for up to 60% of hospital-acquired infections in the United States, for example. Resistance means that people with infections are ill for longer periods, and are at greater risk of dying, and that disease epidemics are prolonged.
“All bacteria possess an inherent flexibility that enables them, sooner or later, to evolve genes that render them resistant to any antimicrobial. The implications are awesome: drugs that cost tens of millions of dollars to produce, and take perhaps 10 years to reach the market, have only a limited life span in which they are effective,” the report says. “As resistance spreads, that life span shrinks; as fewer new drugs appear, the gulf widens between infection and control.”

A major cause of the antibiotic resistance crisis is the uncontrolled and inappropriate use of antibiotics globally. They are used by too many people to treat the wrong kind of infections at the wrong dosage and for the wrong period of time.

Antibiotics and other antimicrobial agents are used in enormous amounts worldwide for the production of animal meat for human consumption. Some 170 billion tons of animal meat is produced every year. Drug resistant bacteria and other microbes are passed through the food chain to the consumer, where they may cause disease, or transfer the resistance to human pathogens.

### WHY DISEASES ARE SPREADING

WHO says that thanks to concerted international action, some infectious diseases are close to being eliminated or eradicated completely, among them poliomyelitis, leprosy, neonatal tetanus, guinea-worm infection and Chagas disease. Other targeted diseases such as onchocerciasis (river blindness) will soon follow. Extra resources must be mobilized to ensure that the campaigns against all of them continue – otherwise, progress already made will be compromised.

About 8 out of 10 of all the world’s children have been immunized against six infectious diseases – diphtheria, measles, neonatal tetanus, pertussis (whooping cough), poliomyelitis and tuberculosis.

But the outlook for many others is that they will continue to spread and become increasingly difficult to control, for a combination of reasons. These factors include:

- Population growth combined with rapid urbanization means that many millions of city dwellers live in overcrowded and unhygienic conditions that are breeding grounds for infectious diseases.
- Wars, civil turmoil and natural disasters mean that millions of migrants or refugees are on the move in conditions that are also fertile for infectious diseases.
- Rapid increases in international air travel and the growing traffic in trade, particularly food trade, mean that disease-producing organisms can be transported within hours from one continent to another.
- Expanding areas of human habitation place additional millions of people at risk from pathogens previously rare or unknown as causes of human disease.
- Social changes including the clustering of young children in day-care centres and growing numbers of the elderly in nursing homes place these age groups at higher risk of infections.
- Diseases formerly under control are re-emerging because of complacency towards them in
the public health sector – tuberculosis is one example – and a revival of others, such as diphtheria, has been triggered by the collapse of public health systems because of economic or social crises.

EPIDEMICS OF 1995

The report covers the state of world health in 1995, with a special focus on infectious diseases, many of which caused lethal epidemics during the year. These included:

An epidemic of dengue fever in 14 countries or territories of central and south America, which struck more than 200 000 people. Dengue haemorrhagic fever, a complication of the initial infection, killed 24 000 people worldwide, with almost 600 000 cases.

Epidemics of cholera in south America, Africa and eastern Europe caused at least 11 000 deaths, with about 384 000 cases worldwide.

The biggest epidemic of yellow fever in the Americas since 1950 struck in Peru; other epidemics of the disease hit western Africa, causing thousands of cases in Liberia.

The Ebola haemorrhagic fever outbreak in Zaire killed 245 people, or about 80% of the 316 cases.

Diphtheria epidemics that began in the Russian Federation in 1990, have since spread to a total of 15 countries in eastern Europe, causing tens of thousands of cases and many hundreds of deaths. WHO estimates that there were about 8 000 diphtheria deaths and 100 000 cases worldwide last year.

INFECTIONIOUS DISEASES AND CANCER

Viruses, bacteria and parasites emerge as the “secret agents” causing millions of cases of cancer, according to the report. WHO estimates that over 1.5 million of the total of 10 million new cancer cases a year could be avoided by preventing the infection associated with them. About 6.6 million people died from all types of cancer last year. Three main cancers are linked to infections.

Stomach cancer: About 550 000 new cases a year of stomach cancer – about 55% of the worldwide total – are attributable to a bacterium, Helicobacter pylori. The bacterium also causes duodenal and gastric ulcers and gastritis.

Cervical cancer: Sexually transmitted infection of the cervix with human papilloma viruses types 16 and 18 involves a very high risk of developing cervical cancer. Of the 529 000 reported cases a year, the viruses are held responsible for an estimated 65% of those occurring in industrialized countries, and 87% of those in developing countries – a total of 436 000 cases.

Liver cancer: About 434 000 cases a year of liver cancer, or 82% of the world total, are attributable to hepatitis B and C viruses. The viruses are transmitted in a number of ways, including through contaminated blood or blood products and through sexual intercourse. Hepatitis B causes 316 000 of the cases, and hepatitis C a further 118 000 cases. Some cases are the result of infection with both viruses.
The report identifies priorities for action in three categories. These are “old diseases – old problems”; “old diseases – new problems” and “new diseases – new problems”. It says that by applying existing technology and expertise, many infectious diseases can be controlled, eliminated or eradicated. What is required is the political and professional commitment to finance and sustain well-planned, cost-effective disease control measures.

In the “old diseases – old problems” category, cost-effective interventions already exist, the report says. These include:

- Immunization of children against diphtheria, pertussis (whooping cough), tetanus, poliomyelitis, measles and tuberculosis, with the addition of hepatitis B and yellow fever vaccine for selected countries, and vitamin A and iodine supplements in others. The cost: about $14.60 per child.
- An integrated approach to the management of sick children to prevent them dying from acute respiratory infections and diarrhoeal diseases. The cost: about $1.60 per capita in low-income countries.
- Provision of adequate and clean drinking-water, basic sanitation and waste disposal, together with simple personal hygiene measures can prevent diseases ranging from poliomyelitis and hepatitis to cholera and typhoid.
- School health programmes to treat worm infections and micronutrient deficiencies, and school health education programmes. The cost: about 50 cents per capita in poor countries.
- Simple standard procedures for improved diagnosis and treatment of sexually transmitted diseases. The cost: $11 per case in poor countries.

In the second category of “old diseases – new problems”, are tuberculosis and insect-borne diseases including malaria and dengue. The report says the strategy for controlling them largely involves cost-effective interventions, which also exist for many of them. But the development of antimicrobial drug resistance or of pesticide resistance, poses a greater threat to public health.

- The main components of WHO’s global malaria strategy are providing early diagnosis and prompt treatment, prevention measures including vector control, and the early detection, containment or prevention of epidemics.
- Tuberculosis control depends on DOTS – directly observed treatment, short-course, which is already showing itself to be a successful and cost-effective intervention.
- New research initiatives are needed in treatment and improved diagnostics, drugs and vaccines related to all diseases in this group.
- Strengthened epidemiological surveillance systems nationally and internationally are required to detect and combat all diseases in this category, particularly their drug-resistant forms.

The “new diseases – new problems” category is probably the most frightening, says the
The natural history of diseases such as Ebola and other viral haemorrhagic fevers is unknown, and there is incomplete understanding of the factors behind their emergence. The need therefore is for expanding research on the agents of such diseases, their evolution, the vectors that spread them, methods of controlling them, and vaccines and drug development. The report points out that much of this approach has already been applied to HIV/AIDS, one of the most serious diseases to emerge in recent decades.

The priority requirements in this category of diseases are:

- Improving national and international epidemiological surveillance.
- Developing prevention strategies to fight new and re-emerging infectious diseases.
- Responding more rapidly to outbreaks and epidemics.
- Integrating laboratory science and epidemiology to optimize public health practice.

In confronting infectious diseases as a whole, the first priority is to complete “unfinished business” of eradicating or eliminating certain targeted diseases – poliomyelitis, guinea-worm infection, leprosy, neonatal tetanus and Chagas disease, to be closely followed by measles and onchocerciasis – while simultaneously addressing other major diseases. “Relatively small financial resources are needed for this final stage. If they cannot be found, eradication or elimination will not be achieved; these diseases will exploit any easing of the campaign against them, and return with a vengeance,” the report says.

“The eradication of smallpox shows the way forward. The lessons of malaria and tuberculosis must not be ignored, or the efforts and resources already invested will have been wasted. This must not be allowed to happen.”