

## **Viral hepatitis**

### **Report by the Secretariat**

#### **THE DISEASES AND BURDEN**

1. The group of viruses that cause acute and/or chronic liver infection and inflammation (hepatitis) is responsible for major public health problems globally. Infection with hepatitis A, B, C, D and E viruses can cause acute liver disease. Hepatitis B and C viruses can also cause chronic infections that remain silent for decades, placing infected persons at risk for premature death from liver cirrhosis (scarring) or primary liver cancer in later life. As all five viruses differ in their global distribution and routes of transmission, tailored prevention strategies will be required. Two forms of viral hepatitis, hepatitis A and hepatitis B, are preventable by vaccines.

2. Hepatitis B and C viruses are the major causes of severe illness and death related to viral hepatitis. About 2000 million people have been infected with hepatitis B virus worldwide, of whom more than 350 million are chronically infected, and between 500 000 and 700 000 people die annually from hepatitis B virus infection. Some 130–170 million people are chronically infected with hepatitis C virus. An estimated 57% of cases of liver cirrhosis and 78% of primary liver cancer result from hepatitis B or C virus infection.

3. Hepatitis B virus infection early in life is associated with the highest risk of chronic infection. People with chronic infection risk progression to cirrhosis and primary liver cancer. About 90% of infants infected around the time of birth, 30% of children infected in early childhood and 6% of those infected after five years of age will develop chronic hepatitis B virus infection. The likelihood of progression to chronic infection is the same whether infection is symptomatic or asymptomatic. People with chronic hepatitis B virus infection have a 15% to 25% risk of dying prematurely from hepatitis B virus-related cirrhosis and liver cancer. People with chronic hepatitis C virus infection are also at high risk for developing cirrhosis and liver cancer. Both superinfection by, and coinfection with, hepatitis D virus in hepatitis B virus-infected patients result in worse outcomes than infection with hepatitis B virus alone; this includes a higher rate of liver failure in acute infections and a greater likelihood of developing liver cancer in chronic infections.

4. Exposure to blood through injections with nonsterile equipment or transfusion of infected blood products is a common and preventable cause of hepatitis B and C virus infections. Unsafe injection practices are estimated to be responsible for 21 million new hepatitis B virus infections and two million new hepatitis C virus infections a year. A significant proportion of the blood supply is either not screened at all for hepatitis B or C virus or not screened properly. The probability of transmission of hepatitis B and C viruses through transfusion of unsafe blood can be as high as about 70% and 92%, respectively, depending on the volume transfused and viral load. Injecting drug use represents the highest risk for hepatitis C virus infection, with prevalence rates in people reporting this behaviour ranging between 30% and 60%.

5. It is estimated that about 1.4 million new hepatitis A virus infections occur globally each year. Infection is usually by the fecal–oral route either through person-to-person contact or ingestion of contaminated food or water. Paradoxically, as water and sanitation systems improve in developing countries, infections occur later in life, when the risk for severe disease from hepatitis A is greatest. This shifting epidemiology is responsible for increased numbers of cases in some countries and the emergence of community-wide outbreaks of hepatitis A.

6. Hepatitis E virus infection occurs sporadically and in epidemics, causing significant morbidity and death, especially in pregnant women. It is estimated that one third of the world’s population has been infected with hepatitis E virus. However, the true burden of hepatitis E is unknown.

7. Foodborne transmission of both hepatitis A and E viruses is common; indeed, hepatitis A virus is among the viruses most frequently involved in foodborne infections. Foodborne contamination may be the result of infected food handlers unknowingly contaminating food. Hepatitis A and E viruses persist in the environment and are able to resist food-production processes routinely used to inactivate and/or control bacterial pathogens.

8. Hepatitis B virus/HIV and hepatitis C virus/HIV coinfections are an increasing problem in countries with concentrated HIV epidemics and among injecting drug users. For those coinfecting persons who are being treated with antiviral medicines, underlying viral hepatitis is becoming a major cause of death.

## **PREVIOUS HEALTH ASSEMBLY ACTION AND SECRETARIAT ACTIVITIES**

9. The Health Assembly has considered specific aspects of hepatitis prevention in past resolutions. First, in 1992, in resolution WHA45.17 on Immunization and vaccine quality it urged Member States to integrate hepatitis B vaccine into national immunization programmes in countries where it is feasible. The Secretariat acted on this resolution by recommending that all countries integrate hepatitis B vaccine into national immunization programmes by 1997. Support from the GAVI Alliance for the introduction of hepatitis B vaccine has resulted in great increases in vaccination coverage in the past decade. As of 2007, more than 88% of Member States have introduced hepatitis B vaccine, overall coverage with three doses of vaccine was 65%, and globally 27% of newborn infants received the birth dose of hepatitis B vaccine. Secondly, in 2005, in resolution WHA58.22 on Cancer prevention and control the Health Assembly called for including reduction in hepatitis B virus infection among the outcome objectives of national cancer control programmes. At the time of writing, implementation of this resolution and its monitoring are still in progress. Thirdly, as part of the Global plan of action on workers’ health 2008–2017, endorsed by the Health Assembly in 2007,<sup>1</sup> the Secretariat’s activities would include working with Member States for immunization of health-care workers against hepatitis B. Little progress has been made in the short time since the resolution endorsing the plan was adopted.

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<sup>1</sup> Resolution WHA60.26.

In addition, the Health Assembly has considered a number of hepatitis prevention issues relating to immunization,<sup>1</sup> safe blood supply,<sup>2</sup> food safety<sup>3</sup> and safe injections.<sup>4</sup>

10. In 1998 the WHO-cosponsored Conference Regarding Disease Elimination and Eradication as Public Health Strategies (Atlanta, Georgia, United States of America, 23–25 February 1998) concluded that hepatitis B is “a primary candidate for elimination or eradication”. In 1999, WHO joined UNICEF and UNFPA to recommend the exclusive use of auto-disable syringes for all immunization injections by the year 2003.<sup>5</sup> Much progress has been made with the support of the GAVI Alliance for the procurement of non-reusable syringes for immunization. WHO has issued position papers for hepatitis B vaccine (2004)<sup>6</sup> and hepatitis A vaccine (2000).<sup>7</sup> In 2005, the Western Pacific Region set a goal of reducing chronic hepatitis B virus infection rates to less than 2% among five-year-old children by 2012. In 2008, WHO together with FAO, convened an expert meeting on viruses in foods to provide scientific advice in support of risk-management activities. Recently, the European Region has developed clinical protocols for the management of hepatitis B virus/HIV coinfection, hepatitis C virus/HIV coinfection, and prevention of hepatitis A, B and C virus infection in people living with HIV. In November 2008, WHO’s Strategic Advisory Group of Experts on immunization recommended that “all regions and associated countries develop goals for hepatitis B control appropriate to their epidemiologic situations” The Regional Committee for the Eastern Mediterranean will consider the issue of hepatitis prevention and control broadly at its fifty-sixth session later in 2009. Several countries have established national goals for the elimination of transmission of hepatitis B virus.

## OPPORTUNITIES FOR PREVENTION AND CONTROL

11. Coordinating programmes for the prevention and control of hepatitis with other related programmes will contribute to the strengthening of health systems in all countries. To date, prevention and control efforts have been successful but fragmented. WHO does not have a comprehensive strategy for viral hepatitis. Thus, the time is right to create new opportunities for prevention, including establishing goals and strategies for disease control, increasing education and promoting screening and treatment of the 500 million people or so already infected with hepatitis B and C viruses. The impact of these efforts on mortality and morbidity will be significant because of the tremendous burden of disease. WHO is in a position to provide coordinated, global leadership and support to preventing and controlling viral hepatitis.

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<sup>1</sup> Resolutions WHA44.33 on World Summit on Children: follow-up action, WHA53.12 on Global Alliance for Vaccines and Immunization, and WHA61.15 on Global immunization strategy.

<sup>2</sup> Resolutions WHA28.72 on Utilization and supply of human blood and blood products and WHA58.13 on Blood safety: proposal to establish World Blood Donor Day.

<sup>3</sup> Resolutions WHA53.15 on Food safety, WHA56.23 on Joint FAO/WHO evaluation of the work of the Codex Alimentarius Commission, and WHA58.32 on Infant and young child nutrition.

<sup>4</sup> Resolution WHA55.18 on Quality of care: patient safety.

<sup>5</sup> Document WHO/V&B/99.25.

<sup>6</sup> *Weekly Epidemiological Record*, 2004; **79**:255–263.

<sup>7</sup> *Weekly Epidemiological Record*, 2000; **75**:38–44.

12. Progress has been made in preventing hepatitis B virus infection through immunization of infants. Despite this, coverage with hepatitis B vaccine has not yet reached the goal set by the Global Immunization Vision and Strategy 2006–2015 of 90% national vaccination coverage by 2010 and lags behind global coverage levels for vaccination against diphtheria, tetanus and pertussis. Vaccination of infants at birth, a safe and effective means of preventing perinatal infections that are associated with the worst health outcomes, remains low and is an important element in strengthening health systems as part of efforts to provide services to mother and child around the time of pregnancy. Health-care workers are still not being vaccinated against hepatitis B in most developing countries and vaccination coverage levels are not monitored. Elimination of hepatitis B virus transmission is feasible for future generations, however, vaccines are too late to protect those 350 million who already have chronic hepatitis B virus infections.

13. Many new and effective treatments that can significantly delay progression of liver disease, prevent the onset of liver cancer, and reduce deaths are available for the more than 500 million people living with hepatitis B and C virus infection. The challenge remains to ensure that these people have timely access to testing, care and effective treatments, especially in resource-limited settings.

14. Demand for hepatitis A vaccine is increasing in large parts of the world that are experiencing an increase in symptomatic cases and more frequent epidemics because of changing epidemiology. Candidate vaccines against hepatitis C and E virus infections should be further developed.

15. Because unsafe health-care practices remain common in many parts of the world, all countries need to make concerted efforts to implement strategies to prevent hepatitis in health-care settings based on safe blood supply and safe injections. Safe injections cause no harm to the recipient, do not expose the provider to any avoidable risk and do not result in any dangerous waste. The primary means of preventing transmission of hepatitis viruses in blood donations is the collection of blood from voluntary, unpaid blood donors who are at low risk of infection. In 2006, only 54 countries reported that they had achieved 100% voluntary blood donation. The second means of prevention in blood product transmission is quality-assured screening of all donated blood for hepatitis B and C virus markers. As of 2006, 55 countries reported not screening all donated blood for hepatitis B virus and 85 countries reported not screening all donated blood for hepatitis C virus. The third strategy is the rational use of blood in order to minimize unnecessary transfusions. Limited data are available on blood utilization, but studies suggest that blood transfusion is widely over-used in both developed and developing countries. Safe injection devices that are not reusable and have features to prevent needlestick injuries need to be used universally, and the training of all health-care providers on best injection practices, including proper sharps waste management, should be strengthened.

16. WHO is in a position to provide coordinated global support and leadership in the development of a comprehensive approach to prevention and control of viral hepatitis with priorities that apply across the health system and include the following.

- Protect all infants from infection with hepatitis B virus through full immunization, beginning as early in life as possible and linked with maternal and child health services.
- Increase coverage of hepatitis B vaccination among health-care workers in order to prevent transmission of hepatitis B virus in the workplace and ensure access to post-exposure prophylaxis for blood-borne pathogens.
- Ensure safe blood supplies by: recruiting only voluntary, unpaid blood donors; introducing effective blood donor selection and screening of all donated blood for markers of hepatitis B

and C virus infection with highly sensitive and specific assays and following basic standardized procedures; and training clinicians and nurses in safe clinical transfusion practices.

- Ensure that all injections are safe through sustainable procurement of sufficient quantities of appropriate syringes, training on safe injection practices and ensuring that sharps waste is properly managed.
- Improve food safety by preparing and introducing international guidelines for the management of viruses and toxins in foods.
- Integrate interventions for the prevention, treatment and care of hepatitis B and C virus infections into services for injecting drug users, including access to sterile needles and syringes, hepatitis B vaccination and antiviral treatment.
- Guide implementation of hepatitis A vaccination to prevent the emergence of hepatitis A in developing countries.
- Support the new preventive strategies including development of vaccines for other causes of viral hepatitis (especially hepatitis C and E).
- Expand care and treatment services for people chronically infected with hepatitis viruses.
- Increase awareness among communities and health-care workers of the opportunities to prevent viral hepatitis.
- Improve technologies for vaccination, screening and health care in order to prevent chronic liver disease and liver cancer.
- Ensure that priority is given to prevention and care of viral hepatitis in moves towards achieving health equity and that the necessary resources are identified.
- Engage multiple programmes in comprehensive approaches to prevent infection and manage disease, and in particular create links with HIV diagnostic and treatment services and with national cancer control programmes. These services and programmes can provide good entry points for both infected and most-at-risk people, and coordination can promote synergies for prevention, therapy and laboratory work.

## **ACTION BY THE HEALTH ASSEMBLY**

17. The Health Assembly is invited to take note of the report and provide further strategic guidance.

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