

Viral Hepatitis in the WHO South-East Asia Region

Know it. Confront it. Hepatitis affects everyone, everywhere.



**World Health
Organization**

Regional Office for South-East Asia

SEA-CD-232
Distribution: General

Viral Hepatitis in the WHO South-East Asia Region

Know it. Confront it. Hepatitis affects everyone, everywhere.

© World Health Organization 2011

All rights reserved.

Requests for publications, or for permission to reproduce or translate WHO publications – whether for sale or for noncommercial distribution – can be obtained from Publishing and Sales, World Health Organization, Regional Office for South-East Asia, Indraprastha Estate, Mahatma Gandhi Marg, New Delhi 110 002, India (fax: +91 11 23370197; e-mail: publications@searo.who.int).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

This publication does not necessarily represent the decisions or policies of the World Health Organization.

Printed in India

Contents

Know it	1
Hepatitis A	2
Hepatitis B	3
Hepatitis C	7
Hepatitis E.....	8
Confront it. Hepatitis affects everyone, everywhere.....	11

Know it

Hepatitis means “inflammation of the liver”. Seven types of viruses can cause viral hepatitis, called hepatitis A to G. Of these, the most common causes of infection are with one of four viruses: hepatitis A,B,C and E. All of these viruses can cause an acute disease with symptoms lasting several weeks, including yellowing of the skin and eyes (jaundice); dark urine; extreme fatigue; nausea; vomiting and abdominal pain. It can take several months to a year to feel fit again. Easily contracted, from drinking water to sexual intercourse, this debilitating disease poses a risk to everyone.

Based on a careful analysis of data on viral hepatitis presented in various national and international symposia, international scientific journals and magazines, WHO documents and publications, the following estimates have been formulated for the current Regional burden of viral hepatitis in SEAR:

- Hepatitis A: 400 000 cases with 800 deaths annually
- Hepatitis B* :1 380 000 cases with 300 000deaths annually
- Hepatitis C* : 500 000 cases with 120 000 deaths annually
- Hepatitis E: 6 500 000 cases with 160 000 deaths and 2700 stillborns annually
- Acute hepatitis of unknown etiology: 200 000 with 5000 deaths.

*includes cirrhosis and liver cancer.

In summary, 8 980 000 cases of viral hepatitis with 585 800 deaths occur annually in the Region. In addition to the loss of more then 0.5 million lives and untold suffering for millions of people, viral hepatitis causes tremendous economic loss to the patients, and their families due to long hospitalization and expensive treatment for chronic patients.

Hepatitis A

- Hepatitis A is a virus that causes a liver disease that can result in mild to severe illness.
- It is spread by faecal-oral (or stool-to-mouth) transmission when a person ingests food or drink contaminated by an infected person's stool.
- The disease is closely associated with poor sanitation and a lack of good personal hygiene habits, such as regular hand-washing.
- An estimated 14 million acute cases of hepatitis A, with 3000 deaths, occur annually worldwide.
- Epidemics can be explosive and cause significant economic losses.
- Improved sanitation and the hepatitis A vaccine are the most effective ways to combat the disease.
- In the WHO South-East Asia Region, the annual number of acute cases of hepatitis A is estimated to be 400 000, with 800 deaths.

In the 1980s, more than 90% of children aged 15 years, and almost everyone above 25 years, had anti-HAV antibodies, indicating they had been infected with hepatitis A, in the WHO South-East Asia Region. However, in the past five years it has become apparent that with the improvement in sanitary conditions in some countries, many children do not get hepatitis A infection in early childhood. Sero-epidemiological studies conducted in Bangladesh, India, Sri Lanka and Thailand indicate a decline in anti-HAV prevalence among schoolchildren, which increases the possibility of an outbreak of hepatitis A virus (HAV) infection among urban schoolchildren. Shifting of an epidemiological pattern from high to intermediate endemicity, paradoxically, leads to higher disease incidence of hepatitis A as infections occur in the older age groups, and reported rates of clinically evident hepatitis A are higher.

It is well known that, in countries where hepatitis A is highly endemic, exposure to HAV is almost universal before the age of 10 years. As a result, children develop immunity. In such countries clinical hepatitis A is usually a minor public health problem, and large-scale immunization efforts against this disease should not be undertaken. In developed countries with low endemicity of hepatitis A and with high rates of disease in specific high-risk populations, vaccination of these populations against hepatitis A may be recommended. The high-risk groups include injection-drug users, men who have sex with men (MSM), persons travelling to high-risk areas, and certain ethnic or religious

groups. However, it should be noted that vaccination programmes targetting specific high-risk groups may have little impact on the overall national incidence of disease.

In areas of intermediate endemicity, where transmission occurs primarily from person to person in the general community (often with periodic outbreaks), control of hepatitis A may be achieved through widespread vaccination programmes.

Recommendations for hepatitis A vaccination in outbreak situations depend on the epidemiology of hepatitis A in the community, and the feasibility of rapidly implementing a widespread vaccination programme. The use of the hepatitis A vaccine to control community-wide outbreaks has been most successful in small, self-contained communities, when vaccination is started early in the course of the outbreak, and when high coverage of multiple-age cohorts is achieved. Vaccination efforts should be supplemented by health education and improved sanitation.

In Member States of the WHO South-East Asia Region, hepatitis A is not a considered a public health priority, since the majority of people have developed immunity through infection with HAV in early childhood when infections are usually asymptomatic. These countries do not at present need to consider universal hepatitis A immunization programmes.

Hepatitis B

- Hepatitis B infection is a viral infection that affects the liver and can cause both acute and chronic disease.
- The virus is transmitted through contact with blood or other bodily fluids of an infected person and not through casual contact.
- About two billion people worldwide have been infected with the virus and about 360 million live with chronic infection. An estimated 600 000 people die each year due to the acute or chronic consequences of hepatitis B.
- About 25% of adults who become chronically infected during childhood later die from liver cancer or cirrhosis (scarring of the liver) caused by the chronic infection.
- The hepatitis B virus is 50 to 100 times more infectious than HIV.
- Hepatitis B virus is an important occupational hazard for health workers.
- Hepatitis B is preventable with a safe and effective vaccine.

A vaccine against hepatitis B has been available since 1982 and is 95% effective in preventing hepatitis B virus (HBV) infection and its chronic consequences. It is the first vaccine that protects against a major human cancer (since infection with HBV can lead to liver cancer).

Approximately 100 million hepatitis B carriers, more than 5.6% of the total population, live in the Member countries of the WHO South-East Asia Region. More than 300 000 people are estimated to die each year due to the chronic consequences of hepatitis B, particularly cirrhosis and liver cancer.

Since 1976, Member States of the Region have identified liver diseases as one of the leading health priorities in the Region and requested WHO to provide technical support in conducting epidemiological studies on viral hepatitis, development of diagnostic reagents and tests as well as development and production of the hepatitis B vaccine.

A hepatitis B control programme is multi-faceted and may involve immunization, blood screening, injection safety, public health awareness and education, sexual health programmes, surveillance, drug and alcohol services, and blood testing and access to treatment. Strategic planning and coordination are therefore essential.

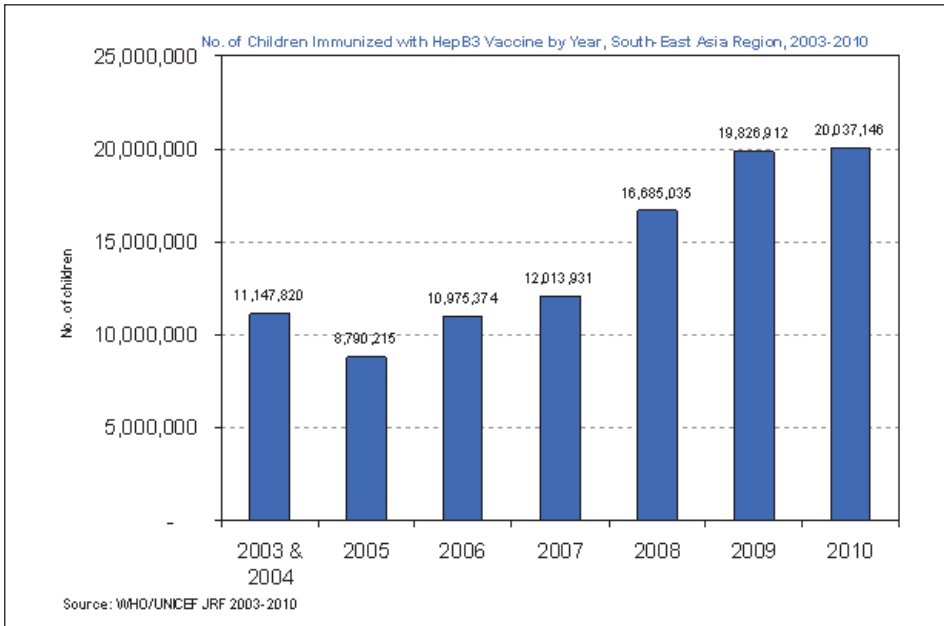
All countries in the WHO South-East Asia Region consider hepatitis B an urgent public health issue and have a policies, goals and plans, but in most countries implementation is not adequate, sometimes following a series of uncoordinated programmes rather than a cohesive strategic approach.

However, in all countries of the Region, much progress has been made in protecting the next generation from hepatitis B, and to date more than 130 million infants have received three doses of the HBV vaccine. The limited availability of the hepatitis B vaccine for national immunization programmes, largely due to cost, has been an obstacle. Following the launch of the Global Alliance for Vaccines and Immunization (GAVI) to intensify national immunization programmes in developing countries worldwide, most countries in this Region have taken advantage of the support it provided to introduce hepatitis B vaccine into their national immunization programmes (NIPs). Currently, all Member States in the Region have introduced the hepatitis B vaccine into their routine NIPs. However, India with the largest birth cohort in the world, is yet to complete the introduction of hepatitis B vaccine coverage to all parts of the country. In all countries where HepB (the hepatitis B vaccine) has been introduced, it has been accepted well both by the community as well as health workers, and coverage is 71.5%. (Table 1-Graph 1).

Table 1: Number of children immunized with HepB3 by country and year

Countries*	2003 & 2004	2005	2006	2007	2008	2009	2010	Total
Bangladesh	547271	2 319 200	3 566 628	3676487	3750099	3469139	3500025	20828849
Bhutan	13355	13710	13400	12674	13072	13382	12625	92218
DPR Korea	527771	367 787	392746	385273	391485	317559	321875	2704496
India	1280000	1570000	1641890	1290959	5825697	9169827	9399985	30178358
Indonesia	7572969	2942140	3494272	4475611	4456263	4530192	4540904	32012351
Maldives	10972	5105	5701	5702	5909	10346	10542	54277
Myanmar	644587	863492	868779	1194772	1255212	1340888	1357203	7524933
Nepal	214982	398751	661584	630718	615267	613167	529310	3663779
Sri Lanka	335913	310030	330374	341735	341579	329870	334153	2323654
Thailand	NA	NA	NA	NA	NA	NA	NA	–
Timor-Leste					30452	32542	30524	93518
SEAR Total	11147820	8790215	10975374	12013931	16685035	19826 912	20037146	99476433

Graph 1



The lack of accurate prevalence data for viral hepatitis is an obstacle which links directly to limited access to testing — more than half the population in the Region lives in countries with no provision for free testing. Further, some countries have not been able to implement the mandatory HBsAg screening of blood and blood products, and blood transfusion without screening is still practiced. Currently, there is no government funding for treatment of chronic hepatitis B patients. In addition to access to testing, improving diagnosis requires awareness of the risks and routes of transmission among those who may have been exposed to the hepatitis B virus. This is also crucial for prevention. However, government-funded public awareness work is not regular and more effort and resources are required.

In addition to the governments' efforts, civil society and non-governmental organizations are involved in promotion of HBV vaccination. Their participation is crucial for the control of hepatitis B infection and spread, and better coordination with the national health authorities is needed.

Hepatitis C

- Hepatitis C infection is a viral infection that attacks the liver and up to 80% of people initially infected with the hepatitis C virus (HCV) may become chronically infected, that is, the infection does not clear up within six months.
- Most people with chronic HCV infection do not have symptoms and lead normal lives. However, in 10 – 25% of people with chronic HCV infection, the disease progresses over a period of 10 – 40 years, and may lead to serious liver damage, cirrhosis and liver cancer.
- HCV is transmitted by direct blood-to-blood contact.
- About 2 – 4.7 million new infections / year, 350 000 deaths annually, 170 million people have been infected with the virus in total.
- Hepatitis C virus is an important occupational hazard for health workers.
- There is currently no vaccine or cure for HCV infection, but various treatments can reduce virus replication and/or help slow or stop disease progression.

HCV is transmitted through blood, mainly via transfusions, shared needles and reused medical supplies. Sexual and mother-to-child transmission is much less likely than for HIV.

The WHO South-East Asia Region has about 30 million hepatitis C carriers, more than 1.6% of the total population. More than 120 000 people in the Region are estimated to die each year due cirrhosis and liver cancer associated with hepatitis C.

This infection, along with hepatitis B, is also considered a growing public health problem in the WHO South-East Asia Region. Transfusion of unsafe blood, use of non-sterile syringes and equipment, injectable drug use and repeated haemodialysis are major known modes of transmission of HCV. Although many blood banks in the Region screen blood for HIV and hepatitis B, they often do not have the resources to screen for HCV.

In countries of the Region, injecting drug use is also widespread. Bangladesh, India, Indonesia, Myanmar, Nepal and Thailand also have a high prevalence of HIV and HCV infection and 50 – 100% of HIV-positive injecting drug users (IDUs) are co-infected with HCV.

All countries in the Region share some common challenges regarding hepatitis C. The most important one is a very low level of awareness about the severity of the problem among the general population as well as public health professionals. In addition, clinical knowledge of HCV worldwide is also inadequate.

When discussing HCV, comparisons with HIV are nearly unavoidable — both appeared on the communicable disease radar around the same time and both have similar modes of transmission. But the HCV problem cannot be solved through the agents developed to fight HIV, given the marked differences in the biology of these viruses. Their differences are greater than their similarities. HCV has been endemic to human populations for centuries. The differences also stretch beyond biology and into public health initiatives. The discovery of HIV led to a large amount of funding for antiviral research and development around the world. With hepatitis C, even screening blood and blood products as well as clinical diagnosis of this infection has lagged far behind HIV.

Hepatitis E

- Hepatitis E infection is a viral liver disease that can cause mild to severe illness.
- It is spread by fecal-oral (or stool to mouth) route when a person ingests food or drink contaminated by an infected person's stool.
- The disease is closely associated with poor sanitation and a lack of personal hygiene habits, such as hand-washing.
- An estimated 14 million symptomatic cases of hepatitis E infection, with 300 000 deaths and 5200 stillborns occur annually in the world.
- Epidemics can show rapid growth and with high mortality among pregnant women.
- There is an evidence of food-borne transition of hepatitis E worldwide.
- Improved sanitation is the most effective way to combat the disease.
- No vaccine is commercially available for this infection.

The hepatitis E virus (HEV) is transmitted via the fecal-oral route. Hepatitis E infection is a waterborne disease, and contaminated water or food supplies have been implicated in major outbreaks. Consumption of faecal-contaminated drinking water has given rise to epidemics, and the ingestion of raw or uncooked shellfish has been the source of sporadic cases in endemic areas. There is a possibility of zoonotic spread of the virus, since several non-human primates, pigs, cows, sheep, goats and rodents are susceptible to infection. The risk factors for HEV infection are related to poor sanitation in large areas of the world, with HEV shedding in faeces.

In Member States of the WHO South-East Asia Region, annual symptomatic cases of hepatitis E are estimated at 6.5 million, with 160 000 deaths and 2700 stillborns. In other words, more than 50% of global hepatitis E deaths occur in the Region.

Hepatitis E outbreaks have been documented in all countries of the Region, except DPR Korea. Most outbreaks of hepatitis E are related to consumption of faecal-contaminated drinking water, and may affect several hundred to several thousand persons. Some outbreaks have occurred in urban areas with leaky water pipes contaminated with sewage; intermittent water supply in these areas leads to a negative pressure in pipes during periods of no flow, permitting inward suction of contaminants.

In comparison, only a few, food-borne outbreaks have been reported. This may be due partly to the difficulty of relating consumption of a particular food to the occurrence of a disease with a relatively long incubation period. Overall attack rates during hepatitis E outbreaks have ranged from 1% – 15%. Disease rates are the highest among young adults. The lower disease rates seen in children are probably due to a higher proportion of asymptomatic infections in them, rather than to lower frequency of infection. Hepatitis E cases in males often outnumber females. Hepatitis E outbreaks are characteristically associated with a high disease attack rate among pregnant women. Further, the affected pregnant women are more likely to develop fulminant hepatitis (15 – 22%) or to have a fatal outcome. Fulminant hepatitis E infection has been reported among 83.3% of pregnant women who were co-infected with chronic hepatitis B. Hepatitis E during pregnancy is also associated with prematurity, low birth weight and an increased risk of perinatal mortality.

In addition to outbreaks, HEV infection accounts for a large proportion of acute sporadic hepatitis in all age groups. For example, in a group of patients with sporadic hepatitis E infection, resembling those of an epidemic of hepatitis E in age distribution, severity and duration of illness, the propensity for worse prognosis is among pregnant women. It is well documented that HEV super-infection can occur in patients with pre-existing chronic liver disease of viral or non-viral etiology, leading to superimposed acute liver injury and clinical presentation with acute or chronic liver disease. In some patients, chronic liver disease had been clinically silent till the time of HEV super-infection. Comparative studies carried out in Bangladesh, India, Indonesia, Nepal and Thailand demonstrated 38-68% of all acute hepatitis has been associated with HEV infection.

The interest in hepatitis E has increased significantly in the last few years due to the realization that HEV infection may be geographically more widespread than was previously believed and the number of papers published annually in peer-reviewed journals on this subject has doubled. However, there is a lack of solid surveillance data on hepatitis E infection due to the absence of routine reporting and laboratory investigation of suspected hepatitis E cases and outbreaks. In addition, currently available laboratory diagnostic kits for hepatitis E produced by different institutions are not standardized, and a panel of referral sera samples for quality control has not been developed.

Updated estimates of the global burden of disease due to the hepatitis E virus must be generated, based on sero-prevalence studies and cases series to estimate case-fatality rate. This information is crucial for evidence-based recommendations for the prioritization of further development of hepatitis E vaccine as well as determining strategies for HEV control.

This increased research activity may be expected to lead in the next few years to developments in prevention of HEV infection and strategies for the use of HEV vaccines. Currently two experimental hepatitis E vaccines are available, which have been demonstrated as safe and highly effective.

However, their effective application requires more detailed population-based studies to assess and estimate the burden of disease caused by HEV infection. Finally, before the vaccine is introduced widely, major emphasis should be given to the improvement of hygienic and sanitary conditions in countries of the Region, with provision of safe water and promotion of good personal hygiene.

Confront it. Hepatitis affects everyone, everywhere

The World Health Organization recognizes that viral hepatitis is a major disease affecting mankind today. In May 2010, the World Health Assembly adopted resolution WHA63.18 which called for comprehensive prevention and control of viral hepatitis. The Assembly also requested the Director-General to establish, in collaboration with Member States, the necessary guidelines, strategies, time-bound goals and tools for the surveillance, prevention and control of viral hepatitis.

The report “Viral Hepatitis: Global Policy 2010” developed by the World Hepatitis Alliance (a nongovernmental organization that represents approximately 280 hepatitis B and hepatitis C patient groups around the world), provides compelling evidence of the need for Member States of the WHO to support this timely initiative. It also shows the crucial role that Member States would like WHO to play in order to be able to effectively deliver the actions called for in the resolution.

On 7-9 June 2010, WHO – SEARO organized an informal consultation on viral hepatitis in New Delhi in the light of resolution WHA63.18. The meeting concluded with the consensus that there is urgent need to raise the profile of hepatitis B and hepatitis C as serious public health problems in all countries of the Region, in spite of it being preventable and treatable.

Although chronic hepatitis B and C virus infection are among the leading causes of preventable deaths in countries of the South- East Asia Region, about 60% of infected individuals are unaware of their diagnosis until they become symptomatic with liver cancer or liver disease. Among high-risk populations, rates of testing for hepatitis infection, or even of receiving information on reducing risk for infection, are very low.

Groups at high risk for hepatitis B virus infection are infants born to women with the disease, sexual contacts of infected persons, and injecting drug users.

Persons at highest risk for hepatitis C virus infection are those who received a blood transfusion and past or current injecting drug users, with prevalence approaching 90% among long-term users. Hepatitis C mortality is increasing and is greatest among middle-aged men.

Further compounding the problem of undiagnosed hepatitis B and C infection is the generally low level of knowledge about these infections among healthcare workers and social service providers. Many providers do not comply with WHO and national guidelines and recommendations for hepatitis B and C screening, prevention, treatment, and follow-up services.

Despite the significant public health burden posed by hepatitis B and C, current resources and efforts to curb this problem are inadequate for chronic viral hepatitis prevention, control, and surveillance programmes and are notably less than those targeting other infectious diseases that have a similar impact on public health.

These discrepancies are particularly striking in light of the observation that there are an estimated 100 million hepatitis B carriers and nearly 30 million hepatitis C carriers, compared to 3.5 million people living with HIV/AIDS in the South-East Asia Region (Table 2). In other words, the estimated number of hepatitis B carriers is 28 times and hepatitis C carriers eight times are higher than the estimated number of people with HIV/AIDS in the Region.

Table 2: *Estimated number of hepatitis and hepatitis C infections in the WHO South-East Asia Region*

Countries of the WHO South-East Asia Region	Population* (millions)	No of Estimated HBs Ag. Carrier** (millions)	%age	HCV Estimated Number*** (millions)	%age	HIV Estimated Number*** (millions)	%age
Total	1784	100	5.6	29,1	1.62	3.51	0.2

* Population data from World Health Statistics 2011, WHO

** Data from various sources (Government report, scientific publications)

*** Data from HIV/AIDS in SEAR progress report 2010, WHO-SEARO

The estimated number of deaths related to hepatitis B, hepatitis C, cirrhosis, liver cancer and selected communicable diseases in the South-East Asia Region based on data from the WHO Global Burden of Diseases 2004 and 2008, is presented in Table 3.

Table 3: *Estimated number of deaths related to hepatitis B, hepatitis C, cirrhosis, liver cancer and selected communicable diseases in the WHO South-East Asia Region*

Disease	2004. Number of estimated deaths	2008. Number of estimated deaths
Hepatitis A	Not included in estimation	Not included in estimation
Hepatitis B	37 017	53 145
Hepatitis C	13 686	19 996
Hepatitis E	Not included in estimation	Not included in estimation
Cirrhosis	210 160	284 292
Liver cancer	58 452	62 491
Dengue	10 627	8 690
Malaria	36 498	50 747
HIV/AIDS	206 086	244 279
TB	490 194	518 717

Source: WHO Global Burden of Diseases, 2004 and 2008.

Approximately 70 – 80 % of cirrhosis and liver cancer cases are associated with hepatitis B and hepatitis C infection. The information presented in this table is noteworthy in that the estimated number of deaths in the Region associated with viral hepatitis and its consequences (cirrhosis and liver cancer) is much higher than the number of estimated deaths caused by malaria, dengue and HIV/AIDS combined. This estimation does not include deaths associated with hepatitis A and Hepatitis E. Deaths associated with viral hepatitis are highest for all communicable diseases except tuberculosis.

In this situation WHO-SEARO recommends all Member States to give adequate attention to the control of viral hepatitis.

To achieve success in the control of viral hepatitis at national level the following actions are required:

- Consider control of viral hepatitis as a national priority.

- Establish a unit in the Ministry of Health to coordinate work on viral hepatitis in the country.
- Establish a national executive board responsible for the development, implementation and monitoring activities on viral hepatitis in the country.
- Identify national and international resources for prevention and treatment of viral hepatitis and launch a public awareness campaign similar to that implemented for HIV/AIDS.
- Increase infant immunization coverage for hepatitis B to greater than 95%.
- Carry out mandatory screening and testing of all blood and blood products for hepatitis B and hepatitis C virus.
- Monitor the quality of hepatitis testing in public and private laboratories.
- Intensify efforts and control measures to drastically reduce/eliminate hepatitis B and hepatitis C transmission associated with unsafe medical interventions.
- Develop and disseminate to all health professionals and social service providers educational programmes and materials describing risk factors for all forms of viral hepatitis and recommendations for vaccination, prevention and proper monitoring of infected persons.
- Review the existing national viral hepatitis surveillance system and develop core surveillance for acute hepatitis A, B, C and E and chronic hepatitis B and C (make hepatitis a notifiable disease).
- Increase community awareness of risk factors and ways to prevent and control hepatitis A and hepatitis E infection.
- Increase community awareness of the risk factors and ways to prevent hepatitis B and C infection, and of management of chronic conditions.

WHO SEARO will support countries to:

- Advocate for obtaining resources for the expansion of community-based programmes that provide hepatitis B and hepatitis C screening, testing, and hepatitis B vaccination services that target populations living in remote areas; laboratory diagnosis of sporadic and epidemic hepatitis E cases.

- Advocate for increased access to inexpensive, safe and effective drugs to treat viral hepatitis.
- Conduct comprehensive evaluation of the national viral hepatitis surveillance system.
- Conduct targeted active surveillance, including serological testing, to monitor incidence and prevalence of viral hepatitis infections in populations not fully captured by core surveillance.
- Develop, coordinate, and evaluate innovative and effective outreach and education programmes to target at-risk populations and to increase awareness in the general population about hepatitis B, hepatitis C and other forms of viral hepatitis.
- Expand services to reduce the harm caused by chronic hepatitis B and hepatitis C infection. The services should include testing to detect infection, counselling to reduce alcohol use and secondary transmission.
- Establish national/Regional referral centres for laboratory diagnosis, surveillance and treatment of viral hepatitis.

In addition, WHO will:

- Develop specific hepatitis protocols/ guidelines to support countries effort to strengthen core surveillance for all viral hepatitis.
- Evaluate regionally available diagnostic test kits for laboratory diagnosis of hepatitis A, hepatitis B, hepatitis C and hepatitis E.
- Formulate Regional and national strategies for prevention and control of viral hepatitis targeting high-risk groups.
- Develop minimal standards for treatment of patients with chronic hepatitis B and hepatitis C infection and management of fulminant manifestations of hepatitis E infection.
- Conduct research for more effective ways to prevent and control viral hepatitis.

The document “Viral hepatitis in the WHO South-East Asia Region” highlights the high burden of viral hepatitis morbidity and mortality in the Region. It advocates for increasing community awareness and providing education on the issue, strengthening surveillance for viral hepatitis. It also emphasizes the importance of preventing viral hepatitis that is associated with injecting-drug use, protecting from infection through vaccination, preventing health-care associated viral hepatitis and improving screening, care and treatment for the disease.



**World Health
Organization**

Regional Office for South-East Asia
World Health House
Indraprastha Estate,
Mahatma Gandhi Marg,
New Delhi-110002, India
Website: www.searo.who.int



SEA-CD-232