

# Hepatitis B in South Asia: Prevalence and Way Forward to Elimination

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## Abstract

Hepatitis B virus (HBV) infection is a global epidemic. Chronic HBV infection continues to pose a serious global health problem. The World Health Organization (WHO) estimates that 296 million people were living with chronic hepatitis B infection in 2019, with 1.5 million new infections each year. The WHO has adopted a goal of eliminating HBV infection as a public health threat by 2030, defined as a 90% decrease in incidence and a 65% decrease in mortality compared to 2015 baseline estimates. Universal infant vaccination with a timely birth dose and peripartum antiviral prophylaxis for eligible mothers can effectively prevent mother-to-child transmission. Universal safe health care practices and strict screening of blood donors could reduce HBV transmission. Under the guidance of the 75<sup>th</sup> World Health Assembly's (May 2022) integrated global health sector strategies, a broad range of Member States have developed comprehensive national hepatitis programs and elimination strategies. Translating scientific evidence into community practice can make HBV elimination programs successful in South Asian countries.

**Key words:** Hepatitis B, South Asia, Elimination, Future Strategy

## INTRODUCTION

Hepatitis B virus (hepatitis B virus) infection is a global epidemic. Chronic HBV infection continues to pose a serious global health threat in many areas of the world, particularly in sub-Saharan Africa, the Western Pacific Region, and areas of Eastern Europe. Endemicity is heterogeneous within and across regions owing to variable implementation of childhood and birth-dose vaccination programs, inconsistent screening of blood products, injection drug use, and poor education initiatives. The World Health Organization (WHO) estimates that 296 million people were living with chronic hepatitis<sup>[1]</sup> B infection in 2019, with 1.5 million new infections each year [Figure 1].

In May 2016, the World Health Assembly endorsed the Global Health Sector Strategy (GHSS) on viral hepatitis for the elimination of viral hepatitis as a public

health threat by 2030 (reducing new infections by 90% and mortality by 65%). Countries differ in their policy responses to HBV. Common challenges to elimination include limited availability of reliable epidemiological data; insufficient public awareness of risk factors and modes of transmission, leading to underdiagnosis; high rates of transmission through infected blood products, including in medical settings; limited access to care for people who inject drugs; prevailing stigma and discrimination against people infected with viral hepatitis; and financial barriers to treatment and care. Despite these challenges, promising examples of effective programs, public-private initiatives, and other innovative approaches are evident in all countries.

## GLOBAL PREVALENCE OF HEPATITIS B

Globally, approximately 296 million people are currently living with HBV, and the burden disproportionately affects sub-Saharan Africa and East Asia. Substantial disparities in HBV burden exist not only between countries and regions but also within a country or region, with disparities by state or province, income, race or ethnicity, and other social and cultural factors.

HBV-related cirrhosis resulted in an estimated 331,000 deaths in 2019, and it is estimated that the number of

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deaths from HBV-related liver cancer in 2019 was 192,000, an increase from 156,000 in 2010.

Meanwhile, HBV remains severely underdiagnosed, and effective measures that can prevent infection and disease progression are underutilized. Despite the goal of the WHO to eliminate viral hepatitis as a public health problem by 2030, the annual global deaths from HBV are projected to increase by 39% from 2015 to 2030 if the status quo remains.

## GEOGRAPHY OF SOUTH ASIA

South Asia consists of eight countries. These are:

Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

## HEPATITIS B PREVALENCE IN SOUTH ASIA

### HBV in India

India is the largest nation in the region, and its sheer population bears the bulk of the HBV burden in South Asia and accounts for 10–15% of the entire pool of HBV patients in the world. The overall rate of HBsAg positivity has been reported to range between 2% and 4.7%. A meta-analysis found the point prevalence of HBV to be 2.4% in non-tribal populations and 15.9% among tribal populations.

### HBV in Bangladesh

The prevalence of HBV in Bangladesh has been reported to vary from 3% to 7.5%. HBV prevalence in the healthy

adult population in Bangladesh is 5.5%, according to recent data. Recent (2022) data shows that the pooled estimated prevalence of HBV infection in the general population of Bangladesh from 1995 to 2017 was 4.0%.

### HBV in Nepal

The prevalence of HBV in Nepal is 0.9%.

There is a high prevalence of HBV in the migrant Tibetan population.

### HBV in Bhutan

There is only limited data available [Figure 2]. HBsAg was found in 5.9% of the samples from the general population (5.2% in children, 5.6% in young people, and 6.3% in adults) and in 5.4% of pregnant women.

### HBV in Pakistan

It has been estimated to have carrier rate of 2.6–5% in Pakistan.<sup>[2]</sup> A prevalence of 5–7% HBsAg positivity has been reported in Sindh. A high HBsAg positivity of 9.8% has been detected in Balochistan.

### HBV in Afghanistan

There has been a paucity of community-based epidemiologic data about the actual prevalence rate of HBV in Afghanistan. The limited data available from Afghanistan show a HBV prevalence of 1.9%. The prevalence of HBV in IV drug users has been reported at 5.8–6.5%.

### HBV in Sri Lanka

There are no published data on the island-wide prevalence of hepatitis B infection in Sri Lanka. Studies conducted

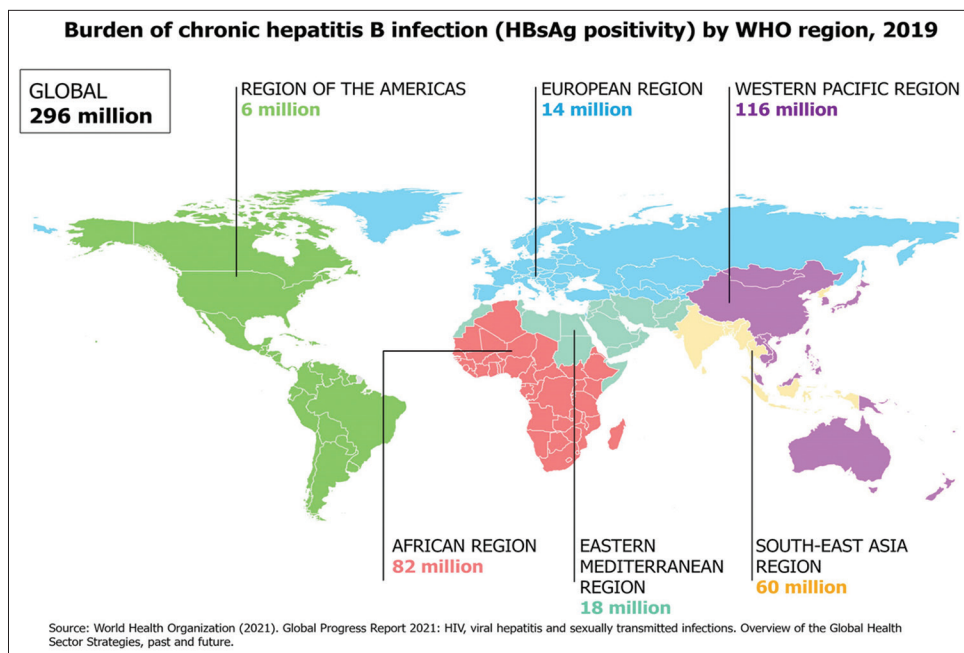


Figure 1: Global burden of hepatitis B

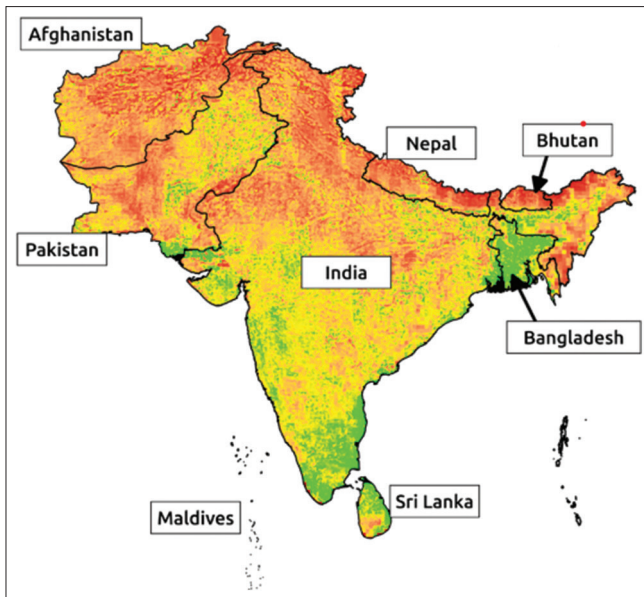


Figure 2: South Asian Countries

**Table 1: Epidemiology of Chronic hepatitis B in South Asia**

	Overall prevalence of HBV	High prevalence regions	Prevalence of HBV in pregnancy	Genotypes
Afghanistan*	1.9%			D>C>A>B
Bangladesh*	5.5%		Rural: 0.4%, Urban: 3.5%	
Bhutan	5.9%		5.4% (HBsAg +ve: 29.1%)	- C2
India	2.96%	- Tribals (Arunachal Pradesh, Andaman & Nicobar) - IVDU* Manipur	0.9-6.3 % (HBsAg +ve: 12 - 57%)	- D >A - Eastern India: C - Isolated reports: E, F, G
Nepal	0.9%	- Tibetan community	0.5% (HBsAg +ve: 0 %)	- D >A-Rare: C
Pakistan	2.5%	- Balochistan - Afghan Refugees	2.9% (range 1.8-12.6%) (HBsAg +ve: 22.9 %)	- D >A>C (*Commonest genotype C) - Rare: E, F

\* Limited data  
# IVDU: Intravenous drug users

**Table 2: WHO targets to eliminate HBV infection as a public health threat by 2030**

WHO targets Intervention	2030 target
<b>Prevention</b>	
1. Three-dose hepatitis B vaccine for infants (coverage %)	90%
2. Prevention of mother-to-child-transmission of HBV: Hepatitis B birth dose vaccination or other approaches (coverage %)	90%
3. Blood and injection safety (coverage %)	
Blood safety: Donations with quality assurance	100%
Injection safety: Use of engineered devices in health-care contexts	90%
4. Harm reduction (sterile syringe/needle sets distributed per person per year for people who inject drugs)	300
<b>Treatment</b>	
5. Diagnosis and treatment (coverage %)	
Diagnosis of HBV	90%
Treatment of HBV	80% of eligible

HBV: Hepatitis B virus, WHO: World Health Organization

on different population groups, including blood donors, pregnant mothers, and prison inmates, have shown the prevalence of hepatitis B is <2%.

**HBV in the Maldives**

In 2019, data on HBV prevalence were 2.86% (2.37–3.39), which was 3.05% (2.51–3.59) in 2015.

**HISTORICAL APPROACH TO HEPATITIS B PREVENTION**

- 1965: Hepatitis B virus discovered.
- 1982: Hepatitis B vaccine first became available.
- 1984: Taiwan launches the first universal vaccination against hepatitis B.
- In 1987, a recombinant DNA vaccine became available.
- 1992: WHO recommended that all countries integrate the hepatitis B (Hep B) vaccine into national immunization programs by 1997.
- 1998: WHO Conference Regarding Disease Elimination and Eradication as Public Health Strategies concludes hepatitis B is a primary candidate for elimination or eradication”.

**2007**

Over 88% of member states (171 out of 193) have introduced Hep B at birth vaccination in an expanded program of immunization. 2007: Hep B-birth dose global coverage 27%.

**2010**

WHO declared “28<sup>th</sup> July” as World Hepatitis Day, and in 2011, WHO advised all countries to observe World Hepatitis Day.

**CURRENT GLOBAL STRATEGY OF HEPATITIS B ELIMINATION<sup>[3]</sup>**

**2015**

The Sustainable Development Goals (SDGs) were adopted by the United Nations Development Program in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. Goal 3 is good health and well-being.

SDG: 3.3 describes “By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, waterborne diseases, and other communicable disease.”

In 2016, the World Health Assembly adopted the *GHSS* on viral hepatitis to eliminate hepatitis by 2030.

**2016–2021**

WHO GHSS on viral hepatitis: target of achieving hepatitis B surface antigen (HBsAg) seroprevalence of ≤1% among children aged ≥5 years by 2020.

**2022 (May)**

The 75<sup>th</sup> World Health Assembly noted a new set of<sup>[4]</sup> integrated global health sector strategies on HIV, viral hepatitis, and sexually transmitted infections for the period of 2022–2030.

Based on these previous and now new strategies, a broad range of member states have developed comprehensive national hepatitis programs and elimination strategies guided by the GHSS.

**DEFINITION OF HBV ELIMINATION**

The WHO has adopted a goal of eliminating HBV infection as a public health threat by 2030, defined as a 90% decrease in incidence and a 65% decrease in mortality compared to 2015 baseline estimates. Using mathematical modeling, the WHO established targets for key interventions identified as sufficient to achieve the elimination goal.

**PREVENTION TARGET ACHIEVED IN SOUTH ASIA<sup>[5]</sup>**

Most of the available reports and data are about South-east Asia, and there is a scarcity of separate data of South Asia as the WHO maintains a separate zone only for South-east Asia. The South-east Asia Region consists of 11 countries with a total population of approximately 2 billion, including Bangladesh, Bhutan, Burma, India, Indonesia, the Maldives, Nepal, North Korea, Sri Lanka, Thailand, and Timor-Leste.

In 2019, an estimated 60 million people in the WHO South-east Asia Region (SEAR) had chronic hepatitis B virus infection, but only 10.5% of all people estimated to be living with hepatitis B were aware of their infection, while 22% of the people diagnosed were on treatment.

During 2016–2019, regional hepatitis B vaccine (HepB) birth dose (HepB BD) and third dose (HepB3) coverage increased from 34% to 54% and from 89% to 91%, respectively.

In 2019, nine of 11 countries in the region achieved  $\geq 90\%$  HepB3 coverage nationally, and three of eight countries that provide HepB-BD achieved  $\geq 90\%$  HepB-BD coverage.

By 2019, four countries in the SEA that is Bangladesh, Bhutan, Nepal, and Thailand had achieved the regional hepatitis B control target. (HBsAg seroprevalence of  $\leq 1\%$  among children aged  $\geq 5$  years).

**HBV ELIMINATION IN SOUTH ASIA: WAY FORWARD<sup>[6]</sup>**

The prevalence of HBV is  $<5\%$  in most of the South Asian countries (intermediate zone of prevalence). However, some of the adjoining countries with higher prevalence, like Taiwan and China, could reduce the burden substantially. HBV infection acquired during early childhood and from mother-to-child transmission (MTCT) plays a critical role in the chronicity and high prevalence of hepatitis B. Further, it is debated that, apart from vertical transmission, horizontal transmission plays an important role in spreading this disease in this South Asian region.

The major strategies for achieving hepatitis B control are:

1. Achieving  $\geq 90\%$  coverage with three doses of HepB.
2. Prevention of MTCT. Screening of all pregnant mothers and treating all eligible HBV-positive mothers.
3. Hepatitis B immunoglobulin to the baby of a positive mother.
4. Providing timely vaccination with a HepB birth dose.
5. Achieving total coverage of infant vaccination.
6. Providing catch-up vaccinations for older children.
7. Screening and treating of all high-risk adult populations with a special target toward intravenous drug users and health care providers.
8. Safe injection practice, proper universal protection in health-care set up and other settings with potential exposure to blood products, including strict screening of blood donors.
9. Vaccinating adult populations at high risk and health-care providers.
10. Development of community awareness to raise awareness, promote partnerships, and mobilize resources.
11. Involvement of non-government organizations.
12. Generating scientific data and regional coordination.
13. Political and administrative commitment.
14. Enhanced coordination among maternal, new-born, and child health services and immunization services.
15. Scale up screening, care, and treatment services.
16. Close the gaps in HBV prevention, screening, diagnosis, linkage to care, antiviral treatment, and liver cancer surveillance.

**CONCLUSION**

The history of hepatitis B disease is very much interesting. Discovered in 1965, had a very high global burden of mortality and morbidity, but most countries have not given due importance to disease awareness development, screening, diagnosis, treatment, and prevention.

The global strategy for the elimination of hepatitis B taken in 2016 is highly impressive. Most countries are

now serious about preventing and eliminating hepatitis B by 2030. The initial success of the vaccination program and the reduction in prevalence in a number of countries is encouraging.

Translating scientific evidence into community practice can only make the HBV elimination program successful.

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