

Abstract

Cost of Viral Hepatitis B in the Republic of Korea, 2002-2015

Baik Dahye, Kim Byung-Woo, O Jin-Kyoungh, Ki Moran
Graduate School of Cancer Science and Policy, National Cancer Center
Kim Kyung-Ah
Department of Internal Medicine, Inje University Ilsan Paik Hospital

In Korea, the positive rate of hepatitis B surface antigen (HBsAg) gradually decreased due to the national hepatitis B vaccination program introduced in the 1990s, but has remained at 3% in recent decades. Despite the high prevalence of HBsAg there have been no cost burden studies conducted to analyze the recent trends of hepatitis B virus (HBV) infection following the revision of clinical practice guidelines regarding chronic hepatitis B management (2011 and 2014). Therefore, the objective of this study was to estimate the cost burden of viral hepatitis B and determine the trends in the changes in its costs between 2002 and 2015. This study was conducted using the health insurance claims data of patients diagnosed with hepatitis B as a columnar disease from the Korean National Health Insurance Service (NHIS) from 2002 to 2015. The cost of hepatitis B was analyzed not only in direct costs but also, from a socio-economic perspective, in indirect costs incurred by society. This study found that the number of patients with viral hepatitis B increased from 213,758 in 2002 to 342,672 in 2015. The total costs increased from 141,000 million KRW in 2002 to 509,700 million KRW in 2015. This is mainly due to the increase in pharmaceutical costs. Outpatient prescription drug costs amounted to 244,800 million KRW in 2015, an increase of approximately 15 times from 16.5 million won in 2002. The healthcare costs for viral hepatitis B compared to the total medical costs of Korea accounted for 0.13% of the national health expenditure in 2002 and increased to 0.31% in 2015. In conclusion, the hepatitis B surface antigen positivity rate in Korea remains unchanged. However, the number of patients is increasing along with the socio-economic and healthcare burden. It is critical that steps be taken to reduce the costs of HBV infection by establishing effective management policies.

Keywords: hepatitis B, cost analysis, antiviral drugs, national health insurance

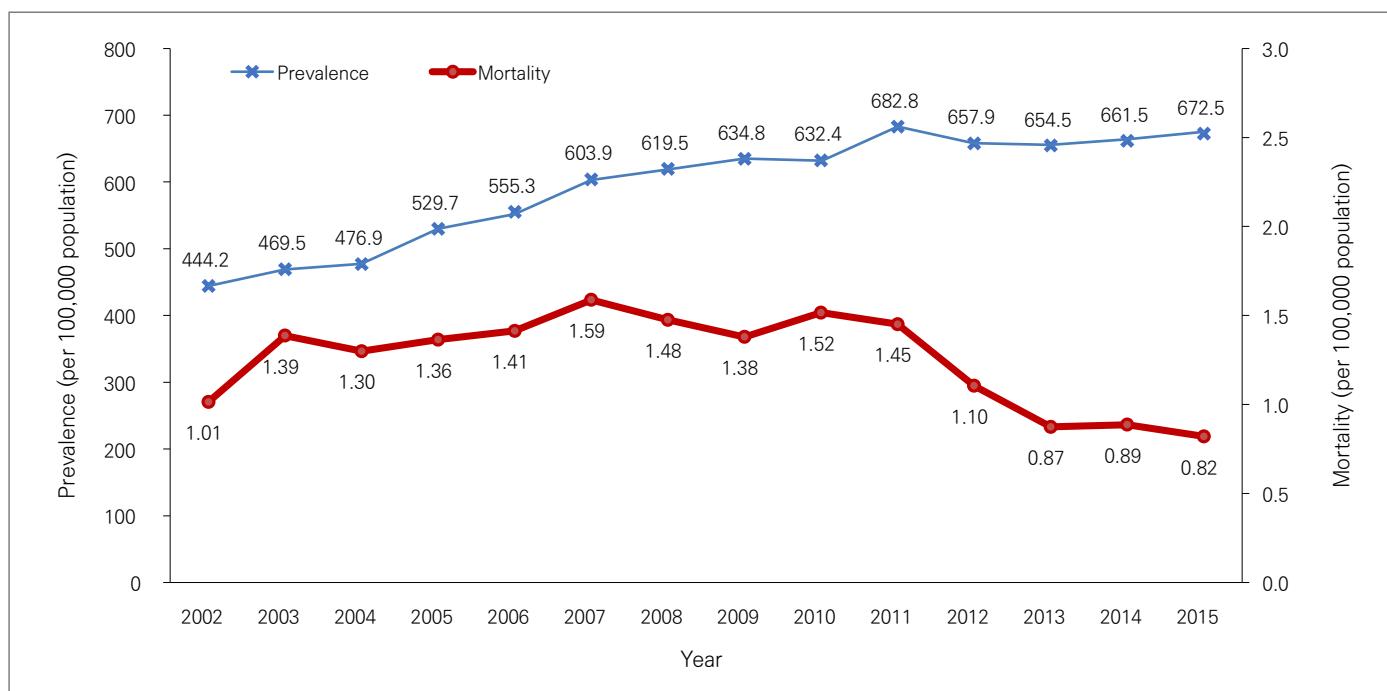


Figure 1. Prevalence and mortality rate of viral hepatitis B, 2002–2015

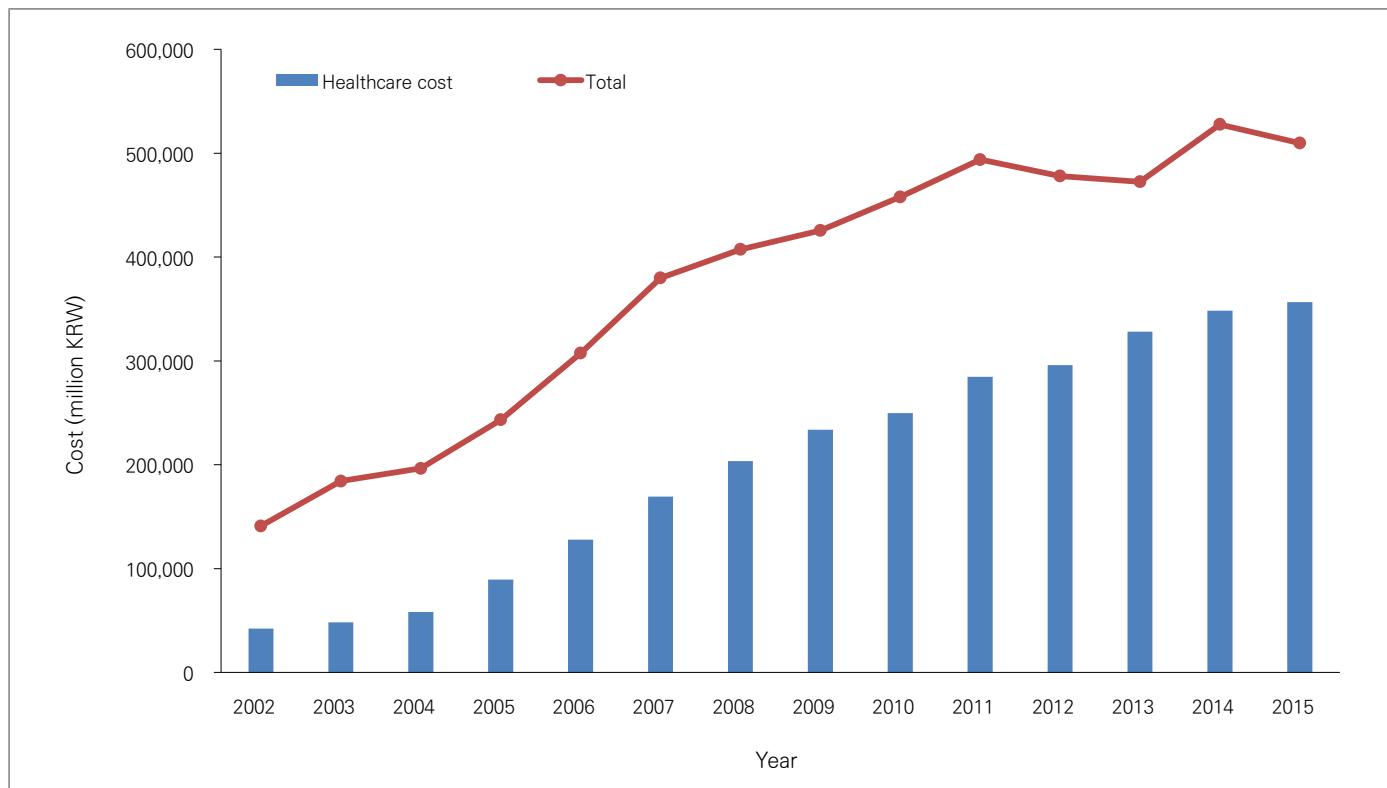


Figure 2. Annual total costs and healthcare costs covered by the national health insurance for viral hepatitis B, 2002–2015

Table 1. Annual socioeconomic costs for viral hepatitis B, 2002–2015

Year	No. of patients	Direct costs				Indirect costs (Productivity loss)				Total cost (million KRW)	Inflation-adjusted total cost (million KRW)	Cost per Patient (KRW)			
		Healthcare costs		Nonhealthcare costs		Caregiver		Disease morbidity							
		Hospital (million KRW)	Extra-hospital pharmaceutical (%)	Transportation (million KRW)	(%)	(million KRW)	(%)	(million KRW)	(%)						
2002	213,758	25,693	18.2	16,540	11.7	5,310	3.8	2,750	1.9	13,801	9.8	77,005			
2003	226,785	30,209	16.4	18,009	9.8	6,183	3.4	3,308	1.8	16,920	9.2	109,659			
2004	231,225	34,376	17.5	23,848	12.1	6,822	3.5	3,690	1.9	18,840	9.6	108,929			
2005	257,882	43,283	17.8	46,111	19.0	8,559	3.5	4,219	1.7	24,523	10.1	116,627			
2006	271,446	58,201	18.9	69,724	22.7	10,569	3.4	4,925	1.6	30,922	10.1	133,163			
2007	296,701	71,843	18.9	97,390	25.6	12,242	3.2	5,215	1.4	37,475	9.9	155,655			
2008	306,082	81,384	20.0	122,045	30.0	13,807	3.4	5,599	1.4	41,356	10.2	143,159			
2009	315,198	90,675	21.3	142,979	33.6	14,580	3.4	5,472	1.3	40,712	9.6	131,136			
2010	315,456	95,139	20.8	154,658	33.8	15,877	3.5	5,627	1.2	43,326	9.5	143,241			
2011	342,154	105,338	21.3	179,380	36.3	17,978	3.6	4,709	1.0	46,542	9.4	139,917			
2012	331,242	106,701	22.3	189,172	39.6	18,394	3.8	4,183	0.9	48,714	10.2	110,869			
2013	330,930	108,002	22.9	220,223	46.6	18,347	3.9	4,307	0.9	52,625	11.1	69,056			
2014	335,819	108,570	20.6	239,886	45.5	17,789	3.4	4,092	0.8	55,089	10.4	102,234			
2015	342,672	111,732	21.9	244,866	48.0	16,685	3.3	4,095	0.8	51,973	10.2	80,363			

※Index definition

Inflation-adjusted costs were adjusted using a consumer price index.

Cost per patient = total cost of the 2002–2015 period / number of patients who received treatment for HBV infection in the 2002–2015 period

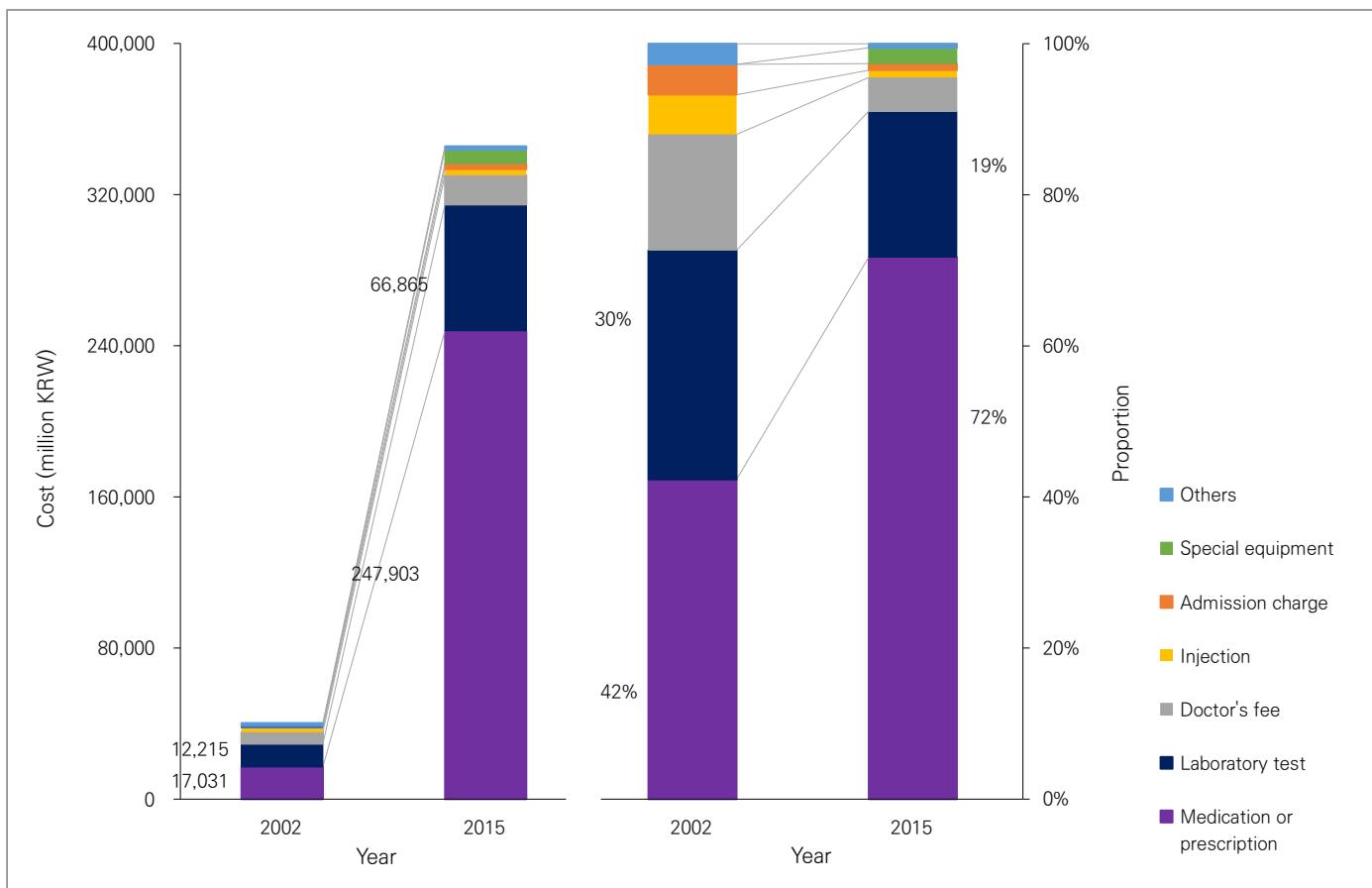


Figure 3. The healthcare costs and proportion of the costs by service category for viral hepatitis B, 2002 and 2015

* index definition

Others: Anesthesia, operation, diagnostic imaging or radiation therapy, physical therapy, psychotherapy, fixed cost for nursing home, etc.

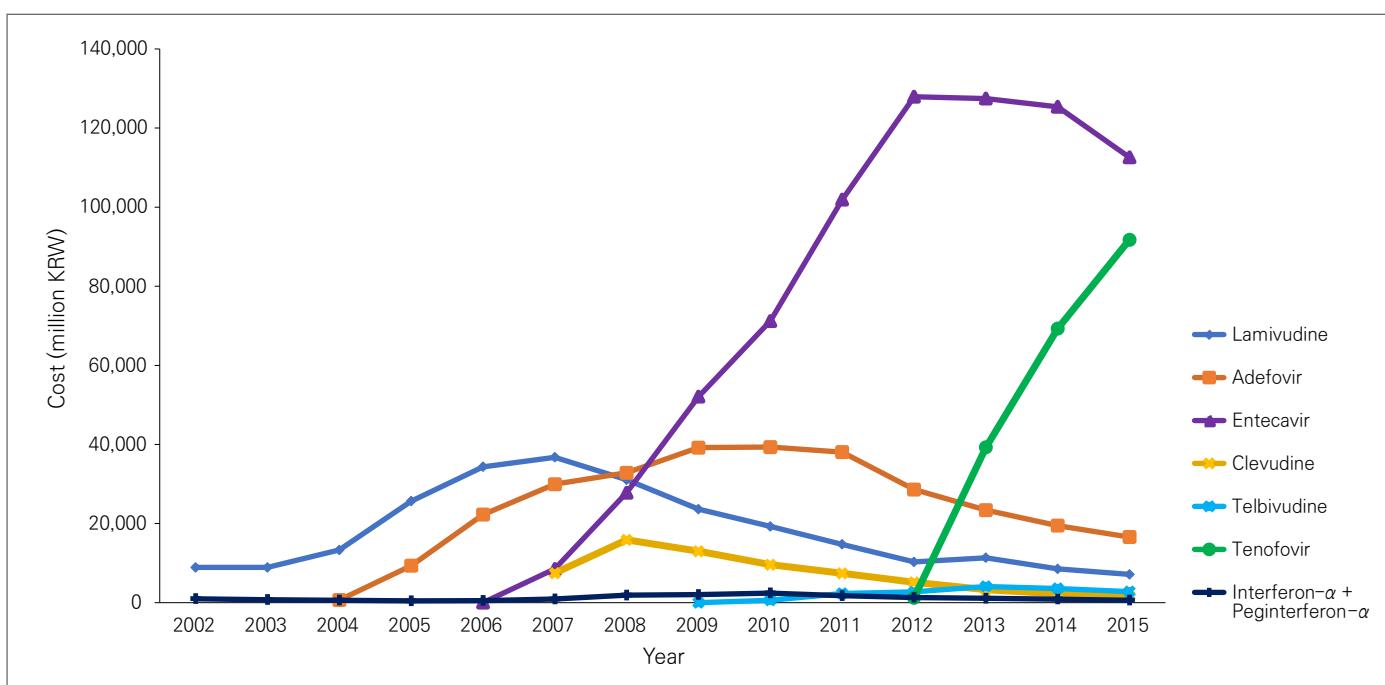


Figure 4. Annual costs of each antiviral drug for viral hepatitis B, 2002–2015

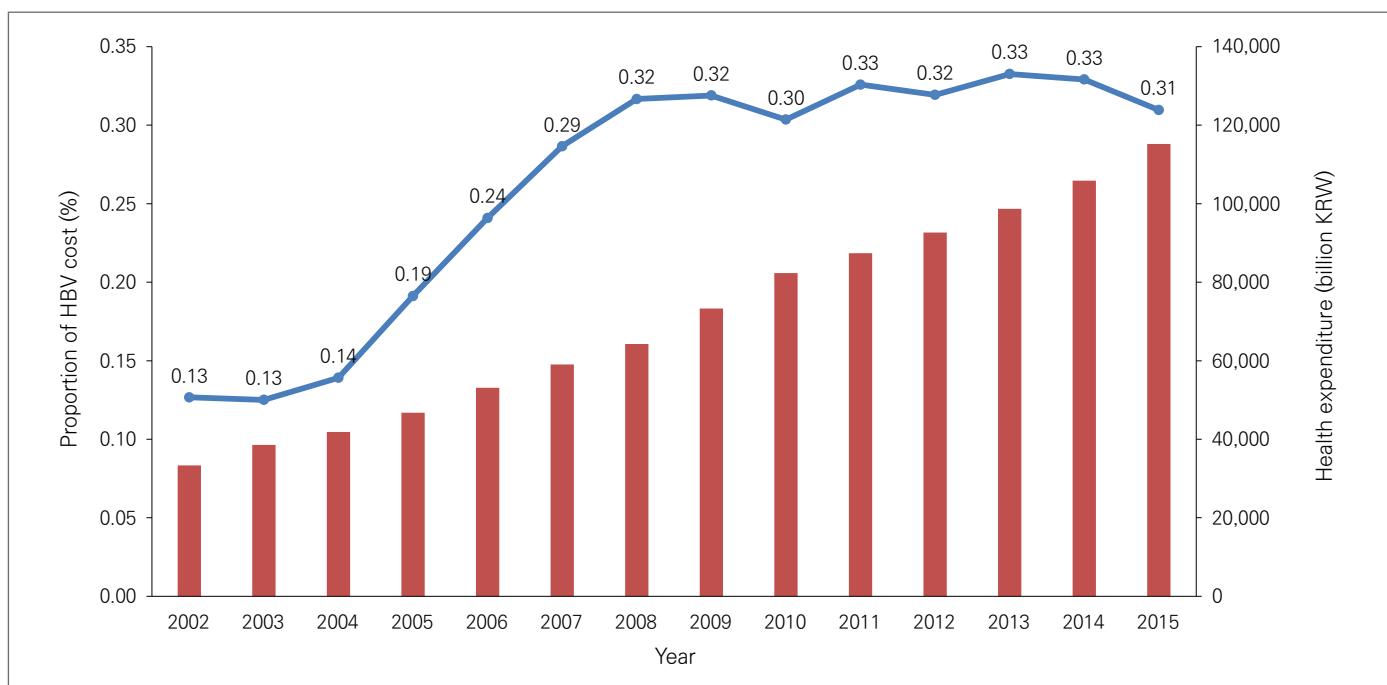


Figure 5. Healthcare costs for viral hepatitis B as a percentage of the current overall health expenditure, 2002–2015