# Strengthening HBV Care: Expanding Viral Load Testing and Treatment for Universal Coverage Scheme in Thailand

## What we found today….


- Hepatitis B virus (HBV) is the leading cause of hepatocellular carcinoma (HCC).
- According to the Thai national guideline, HBsAg and HBV viral load testing should be conducted in all infected patients.
- Unfortunately, the high cost of HBV viral load testing limits hospital affordability and reduces patient access to treatment, especially among Universal Coverage Scheme (UCS) members.
- Only 7% of HBsAg-positive patients receive HBV viral load testing, limiting treatment.
- If the National Health Security Office (NHSO) incentivizes viral load testing, such as using top-up payment, more patients are likely to receive treatment!

## Problem Statement

- Liver cancer, primarily hepatocellular carcinoma (HCC), is the leading cancer in Thailand, accounting for 15.2% of new cases (27,936 annually).[1] Chronic hepatitis B virus (HBV) infection is the major underlying cause, responsible for up to 48.9% of HCC cases.[2]
- Prevalence of HBV infection is significantly higher among individuals born before 1992 (4.5%) compared with those born after (0.6%), as the older cohort was not covered by childhood vaccination.[3,4] Since April 1, 2023, Thailand has offered free one-time HBsAg screening to all citizens born before 1992, targeting 42 million people.[4]
- According to the Thai National Hepatitis Guideline, all HBsAg-positive individuals require HBV viral load (VL) testing to determine eligibility for antiviral treatment, which can reduce HCC risk by 40–60%.[5] However, only 7% of HBsAg-positive individuals receive VL testing, creating a major gap in the care cascade.[6] The existing HBV VL testing relied on capitation which may not incentivize the providers enough to execute large-scale testings. Thus, the re-orientation of the financing mechanism of the National Health Security Office (NHSO) to enhance HBV VL testing is imperative.

- Expanding access to HBV VL testing through NHSO incentivization—or providing antiviral treatment to all HBsAg-positive individuals without requiring VL testing—will be critical to reducing HBV-related HCC and mortality in Thailand.

## Policy Options

To reduce HBV-related HCC and mortality in Thailand, it is essential to increase both the proportion of HBsAg-positive patients receiving HBV VL testing and the initiation of antiviral treatment. The policy options included as follows.

1. **Status quo**

   **What:** Antiviral treatment is initiated only for individuals with high HBV VL but HBV VL testing coverage remains low at just 7%.

   **Why:** According to the Thai National Hepatitis Guideline, all HBsAg-positive individuals require HBV viral load (VL) testing to determine eligibility for antiviral treatment.

   **Feasibility:** Medium—already implemented in most hospitals, but high testing costs limits political support for additional funding.

2. **VL testing incentivization e.g. top-up payment**

   **What:** Adding HBV VL testing incentivization such as top-up payment by NHSO service, assuming 100% VL testing.

   **Why:** Incentivizing HBV VL testing would greatly increase testing uptake, reduce hospital financial burden, and enable earlier treatment and improve health equity.

   **Feasibility:** Medium. Implementation depends on decision and support of the NHSO/Ministry of public health (MOPH) and requires sufficient time and budget.

3. **Treat-all**

   **What:** Providing antiviral treatment to all individuals who test HBsAg-positive without VL testing.

   **Why:** A treat-all approach ensures full treatment coverage, removes dependence on VL testing, and closes care-cascade gaps by guaranteeing no eligible patient is missed.

   **Feasibility:** Low. Easy to implement but contradicts clinical and WHO guidelines and requires major expansion in drug procurement and monitoring capacity, with adherence concerns—making political and financial support unlikely.

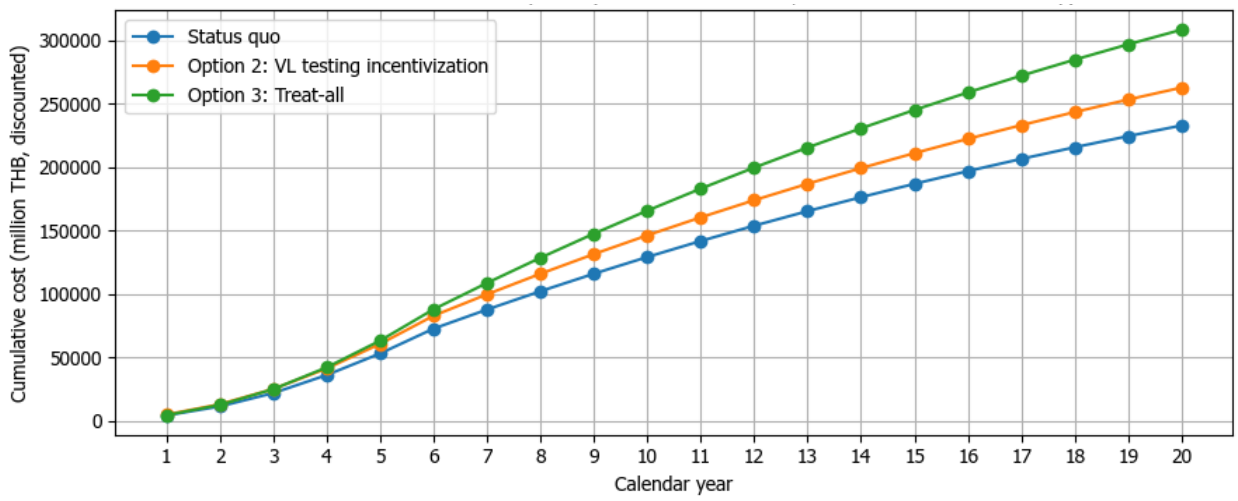


**Figure 1:** 20-year summary of costs for each policy option by calendar year accounted for 3% discount rate

**Table 1:** 20-year summary of costs, HCC cases, deaths, differences in cost, HCC cases averted, deaths averted, and ICER for each policy option

| Policy options | Status Quo | NHSO incentivizes VL cost | Treat-all |
|---|---|---|---|
| Cost (THB) | 232,918,245,488 | 262,826,086,540 | 308,486,471,922 |
| HCC cases | 543,908 | 493,792 | 432,123 |
| Deaths | 4,796,032 | 4,750,636 | 4,694,729 |
| ΔCost (THB) | - | 29,907,841,052 | 75,568,226,435 |
| ΔHCC cases averted | - | 50,117 | 111,785 |
| ΔDeaths averted | - | 45,396 | 101,303 |
| ICER* HCC (THB per HCC averted) | - | 596,765 | 676,015 |
| ICER* Death (THB per death averted) | - | 658,820 | 745,963 |

*ICER = Incremental cost-effectiveness ratio

**Table 2:** Policy and operational feasibility for each policy option

| Policy options | Status Quo | NHSO incentivizes VL cost | Treat-all |
|---|---|---|---|
| Policy feasibility | | | |
| Operational feasibility | | | |

=Highly feasible =Somewhat feasible =Not very feasible

## Recommendations and next steps

Expanding HBV VL testing incentivization through NHSO to achieve full testing coverage is both feasible and more cost-effective than a treat-all option. Implementation requires securing policy approval from the NHSO and MOPH, along with allocating necessary funding.

Once approved, the MOPH should actively communicate and raise awareness among patients and healthcare providers to ensure broad access to HBV VL testing. In addition, MOPH should ensure HBV VL testing capacity is adequate in healthcare facilities. This will support the timely initiation of antiviral treatment, thereby reducing HBV-related HCC incidence and mortality.

## References


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