Objective: To prevent reactivation of hepatitis B virus (HBV) following chemotherapy or immunosuppressive therapy, clinical management including HBV screening and antiviral prophylaxis for patients at risk of reactivation is essential. Cost information of managing HBV reactivation is needed to evaluate cost-effectiveness of HBV prevention strategies in Japan.

Methods: Annual number of patients who receive cancer chemotherapy, biologic therapy for rheumatoid arthritis, or stem-cell / organ transplantation was estimated using information of national statistics and expert opinions. Costs of HBV screening and antiviral prophylaxis were calculated by following the HBV reactivation management guideline and reimbursement prices. A Markov model was created to compare two vaccination strategies of HBV infections (current selective vaccine program vs. new universal vaccine program) by considering risk of receiving chemotherapy or immunosuppressive therapy, management costs of HBV reactivation, and disease-specific mortality, during 90 years of follow-up.

Discussions: Costs for HBV reactivation management were estimated 688 yen per person in selective vaccination strategy compared with 350 yen per person in universal vaccination strategy, with annual discount rate of 3%. On-one way sensitivity analysis, estimated costs were sensitive to annual discount rates and risks of HBV infections. Absolute difference in the HBV management costs was relatively small compared with vaccine program costs. Since the management of HBV reactivation was not always provided for all patients at risk, a further cost analysis should be conducted by reflecting real-world clinical practice.