

# GLOBAL BURDEN AND TREND OF HEPATOCELLULAR CARCINOMA IN WORLD BANK HIGH INCOME COUNTRIES FROM 1990-2021: A GLOBAL BENCHMARKING ANALYSIS

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## Abstract

- Liver cancer (LC) ranks as the seventh leading cause of death and disability, following stomach cancer, in World Bank High-Income Countries (HIC).
- Tracking the burden of disease in HIC is essential for efficiently allocating healthcare resources, informing policy-making, and managing aging populations and chronic diseases.
- Since these countries contribute 60-65% of the global GDP, accurately estimating their disease burden is crucial for understanding and addressing global health challenges and economic impacts.

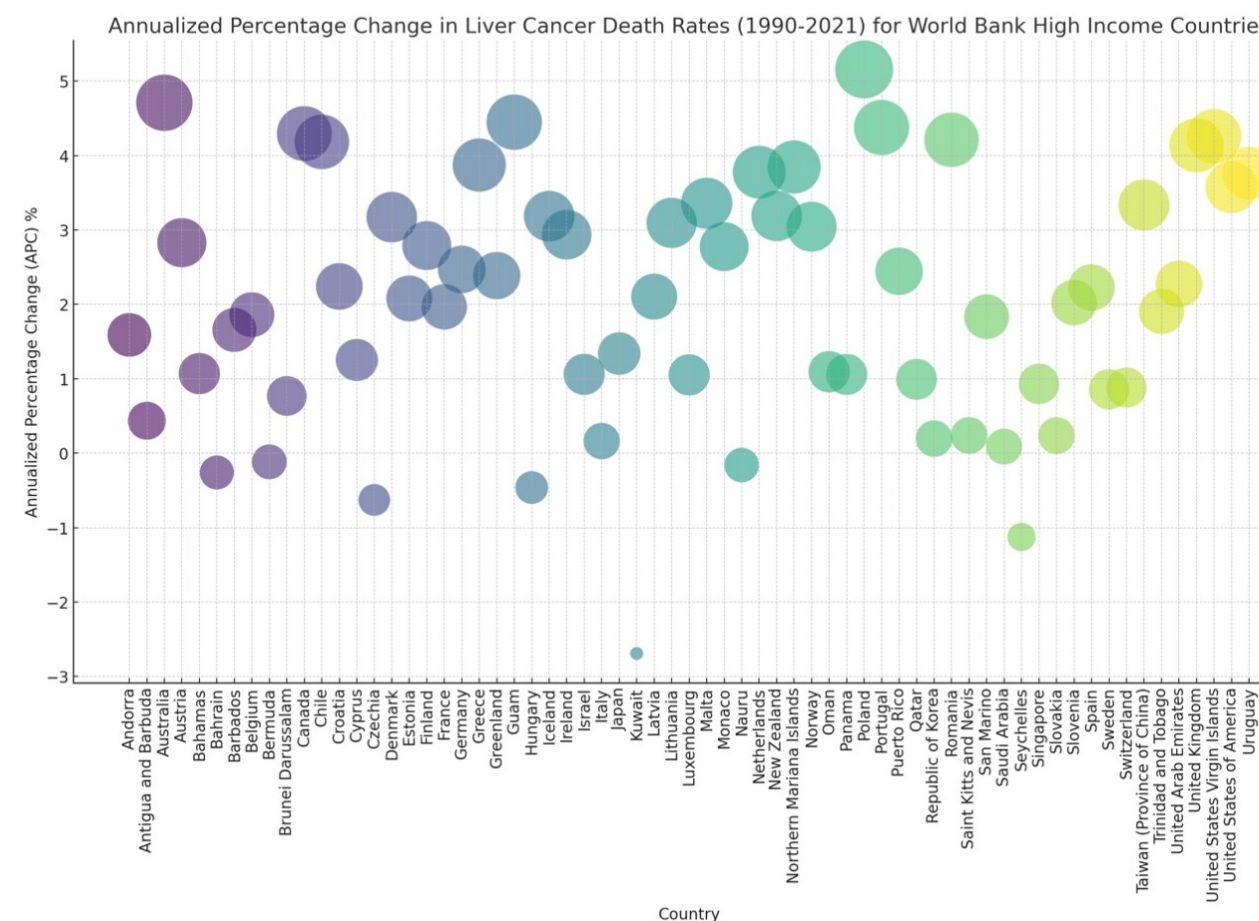
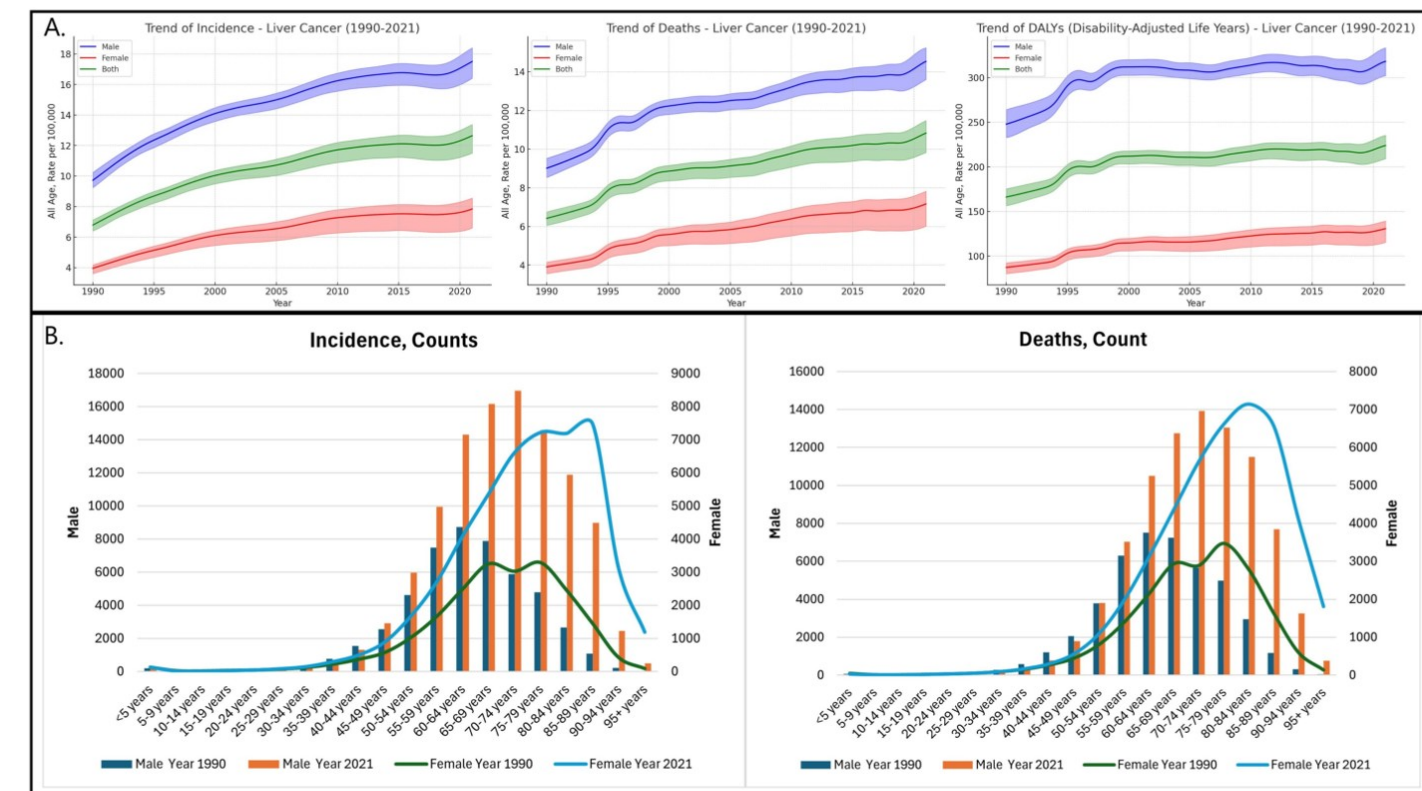
## Methods

- We utilized global burden of disease 2021 framework to estimate the incidence, prevalence, deaths and disability adjusted life years (DALYs) due to LC from 1990-2021 stratified by age, sex, year and location across the HIC.
- Non-fatal health outcomes were estimated using the DISMOD-MR 2.1 meta-regression tool, while fatal outcomes were analyzed using the Cause of Death Ensemble Model (CODEm) in the primary analysis.
- The results are presented in absolute counts and rates per 100,000.

## Results

- From 1990-2021, the annual percentage of change (APC) in total number of Hepatoblastoma incidence decreased slightly by -0.03% and deaths by -1.80%. In contrast, LC due to NASH saw increases of 3.63% in incidence and 3.32% in deaths; due to Alcohol Use, increases of 2.98% in incidence and 2.60% in deaths; due to Hepatitis B, increases of 1.72% in incidence and 1.20% in deaths; and due to Hepatitis C, increases of 2.72% in incidence and 2.53% in deaths.

- Nationally, from 1990-2021, Poland observed the highest APC in death rates due to hepatitis B at 4.38% and alcohol use at 5.99%, followed by Australia with hepatitis C at 5.08% and NASH at 5.69%. Norway recorded a 0.63% increase in death rates due to Hepatoblastoma during the same period.
- From 1990-2021, the incidence of LC in individuals over 70 years showed the highest increases, with NASH at 4.45% and Hepatitis C at 4.22%, Hepatitis B at 3.79%, alcohol use 3.9% highlighting a significant rise in these conditions among the elderly. The highest increases in deaths due to LC were observed in the 70+ years age group, with significant rises for alcohol use (APC = +3.51%), hepatitis B (+3.18%), and other causes (+3.62%). For those under 70 years, the most notable increase was for NASH, with an APC of +2.18%.
- Similarly, the greatest increases in DALYs were also predominantly in the 70+ years group, where NASH (+3.85%), hepatitis C (+3.47%), and other causes (+3.41%) showed significant growth.



## Conclusion

- In 2021, LC represented 4.24% of all neoplastic deaths in HIC.
- Analysis from 1990-2021 shows a slight decline in Hepatoblastoma but significant increases in LC due to NASH, alcohol use, and hepatitis across all ages, especially in the elderly.
- These trends underline the urgent need for targeted public health strategies to address the growing LC burden among older populations.

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