Global and regional burden of hepatitis C virus (HCV) mortality and disability-adjusted life years (DALYs), 1990-2019: an analysis of the Global Burden of Disease Study 2019

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INTRODUCTION

In 2016, WHO set an HCV elimination goal for 2030. One elimination target is defined as a 65% reduction in HCV related-mortality by 2030. Hepatitis burden of disease data are needed to monitor progress towards this target. One source of monitoring data is the Global Burden of Disease Study, which quantifies the mortality and morbidity of more than 100 diseases and injuries [1].

AIM

To estimate global and regional trends in HCV-related mortality and DALYs for 2015-2019 and 1990-2019, adjusting for treatment data when available.

MATERIAL & METHODS

For the 2019 GBD study, the HCV-related all-age mortality rate from acute HCV, cirrhosis and other chronic liver diseases and primary liver cancer was aggregated globally and for IHME super-regions for 1990-2019. DALYs were calculated as previously described [1]. Estimates were adjusted for numbers treated for HCV in Egypt (3.2M), Australia (83,100), and Japan (535,000).

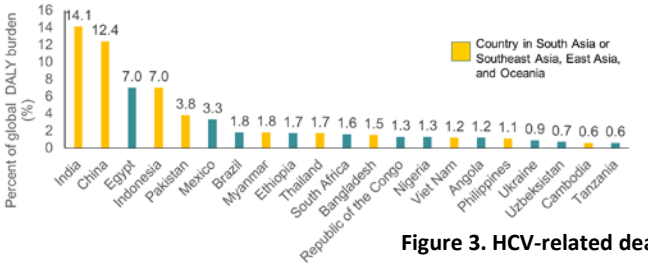
RESULTS

From 2015-2019, the global HCV-related mortality rate for all ages increased by 5% from 6.7 to 7.0 (6.1-8.0) per 100,0000, and by 11% from 1990-2019. From 2015-2019, HCV mortality increased more than the global rate in Southeast Asia, East Asia and Oceania (8%) and South Asia (10%). The majority of regions have seen an increase in the HCV mortality rate since 1990. The most substantial increase was in Central Europe, Eastern Europe, and Central Asia (+94%).

Figure 1. Mortality-rate per 100,000 related to hepatitis C, 2019, Percent change 2015-2019 and 1990-2019, and DALYS due to hepatitis C, 2019, by IHME super-regions

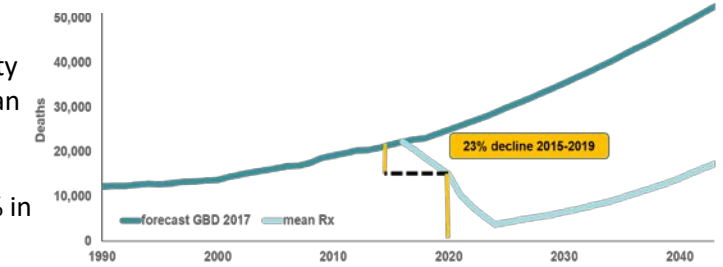
IHME super-region	Mortality rate related to hepatitis C (per 100,000), 2019	Percent change in mortality rate (%)		DALYs to hepatitis C, 2019
		2015-2019	1990-2019	
Global	7.0 (6.1 – 8.0)	+5%	+11%	14.8M (12.8 – 16.9M)
Southeast Asia, East Asia, & Oceania	6.7 (5.8 – 7.7)	+8%	-1%	4.0M (3.4 – 4.6M)
Central Europe, Eastern Europe, and Central Asia	7.4 (6.1 – 8.9)	-4%	+94%	0.9M (0.8 – 1.1M)
High-Income	11.5 (10.1 – 12.9)	+5%	+38%	2.5M (2.2 – 2.8M)
Latin America and Caribbean	6.5 (5.5 – 7.7)	+19%	+31%	1.1M (0.9 – 1.3M)
North Africa and Middle East	11.1 (8.3 – 13.9)	+3%	+12%	1.7M (1.2 – 2.1M)
South Asia	4.8 (4.0 – 5.7)	+10%	+9%	2.9M (2.3 – 3.5M)
Sub-Saharan Africa	4.5 (3.6 – 5.5)	+2%	-23%	1.6M (1.3 – 2.0M)

Figure 2. Top 21 LMIC countries for HCV DALY burden, 2019



In all, 21 low- and middle-income (LMIC) countries represent 66% of the global DALY burden for 2019. Ten LMIC Asian countries represent 45% of the global DALY burden.

Figure 3. HCV-related deaths Egypt 1990-2019 and forecast to 2050



In contrast to global and regional increases, mortality in Egypt, Australia and Japan declined from 2015-2019 after adjustment for treatment, as much as 23% in Egypt.

CONCLUSION

GBD estimation process is limited by availability of large-scale population surveys of HBV seroprevalence. HCV mortality is increasing globally. Egypt, Japan, and Australia demonstrate how HCV testing and treatment scale-up leads to mortality declines. Similar scale-up is needed in high burden Asian countries. With the inclusion of treatment data, the GBD study can monitor progress towards elimination.

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DISCLOSURES

Authors have no disclosures to report.

REFERENCES

[1] GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*. 8 Nov 2018;392:1789–858. doi: http://dx.doi.org/10.1016/S0140-6736(18)32279-7.

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