

# Improving HCV-related morbidity and mortality



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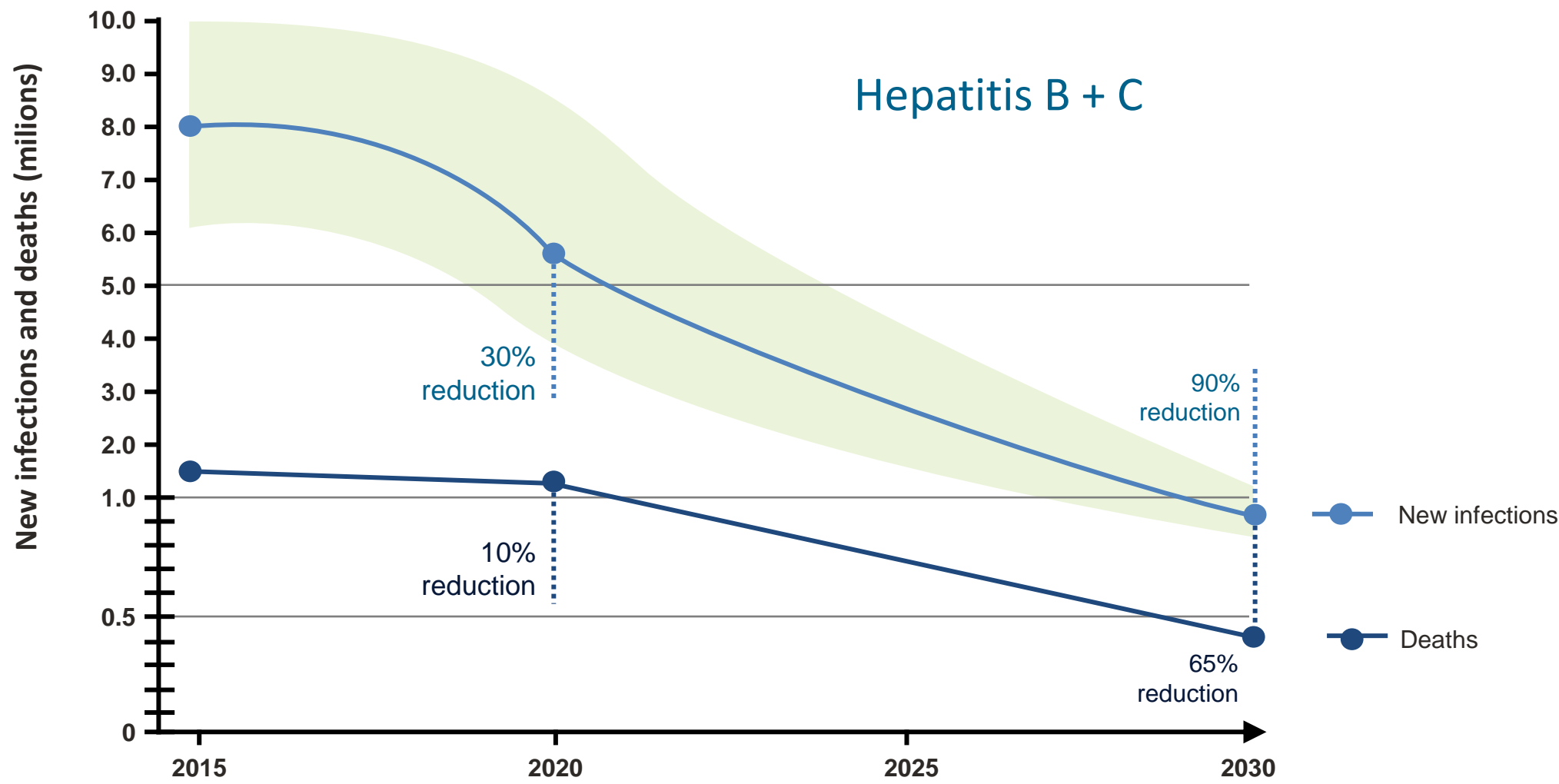
# Disclosures

Grants: AbbVie, Gilead, MSD, Pfizer, Roche.

Advisory: AbbVie, Baush, Gilead, MSD, Moderna, Novo Nordisk, Pfizer.

Honoraria: AbbVie, Baush, Gilead, MSD, Pfizer.

# Reduction in the number of new infections and deaths caused by HBV and HCV expected by WHO between 2015 and 2030



# Estimated HBV and HCV new infections and deaths globally and by region

WHO received officially validated country-provided data from 130 countries or territories

	New HBV infections (thousands)	New HCV infections (thousands)	Deaths caused by HBV (thousands)	Deaths caused by HCV (thousands)
Global	1525.8 (1056.3–2582.2)	1513.5 (1272.8–1832.5)	821.1 (453.0–945.1)	287.7 (226.1–575.2)
African region	990.7 (660.5–1552.1); 64.9%	211.9 (152.2–373.0); 14.0%	80.4 (46.9–113.4); 9.8%	45.2 (23.0–71.8); 15.7%
Region of the Americas	10.2 (5.1–25.5); 0.7%	67.0 (62.8–73.4); 4.4%	14.6 (8.5–23.2); 1.8%	31.4 (19.2–83.9); 10.9%
South-East Asia region	256.7 (183.3–586.7); 16.8%	234.1 (198.2–427.3); 15.5%	179.2 (142.4–296.0); 21.8%	38.3 (36.9–129.3); 13.3%
European region	18.9 (9.4–37.7); 1.2%	297.1 (241.9–317.1); 19.6%	43.1 (34.0–50.8); 5.3%	64.2 (39.4–72.2); 22.3%
Eastern Mediterranean region	104.9 (78.7–137.7); 6.9%	473.6 (240.6–521.0); 31.3%	32.8 (26.0–60.4); 4.0%	31.4 (30.8–74.4); 10.9%
Western Pacific region	144.5 (96.3–208.7); 9.5%	230.0 (215.4–256.8); 15.2%	470.8 (195.2–485.3); 57.3%	77.3 (76.8–143.7); 26.9%

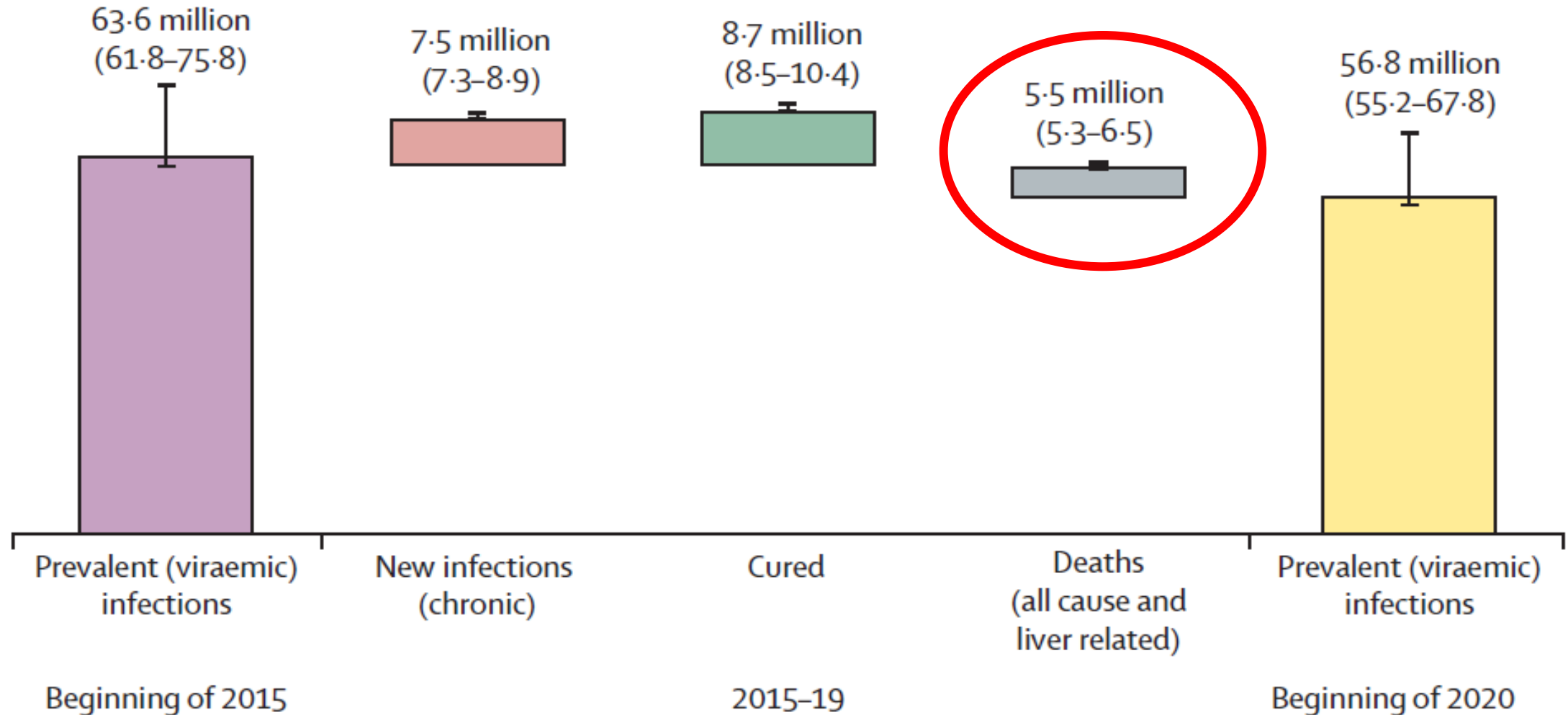
Data are estimate (95% CI) or estimate (95% CI); % of global estimate. HBV=hepatitis B virus. HCV=hepatitis C virus.

**WHO estimates that over 1.5 million people are infected annually and almost 300,000 die from HCV infection; about 20% of them are Europeans.**

# Global change in viraemic HCV infections between 2015 and 2020

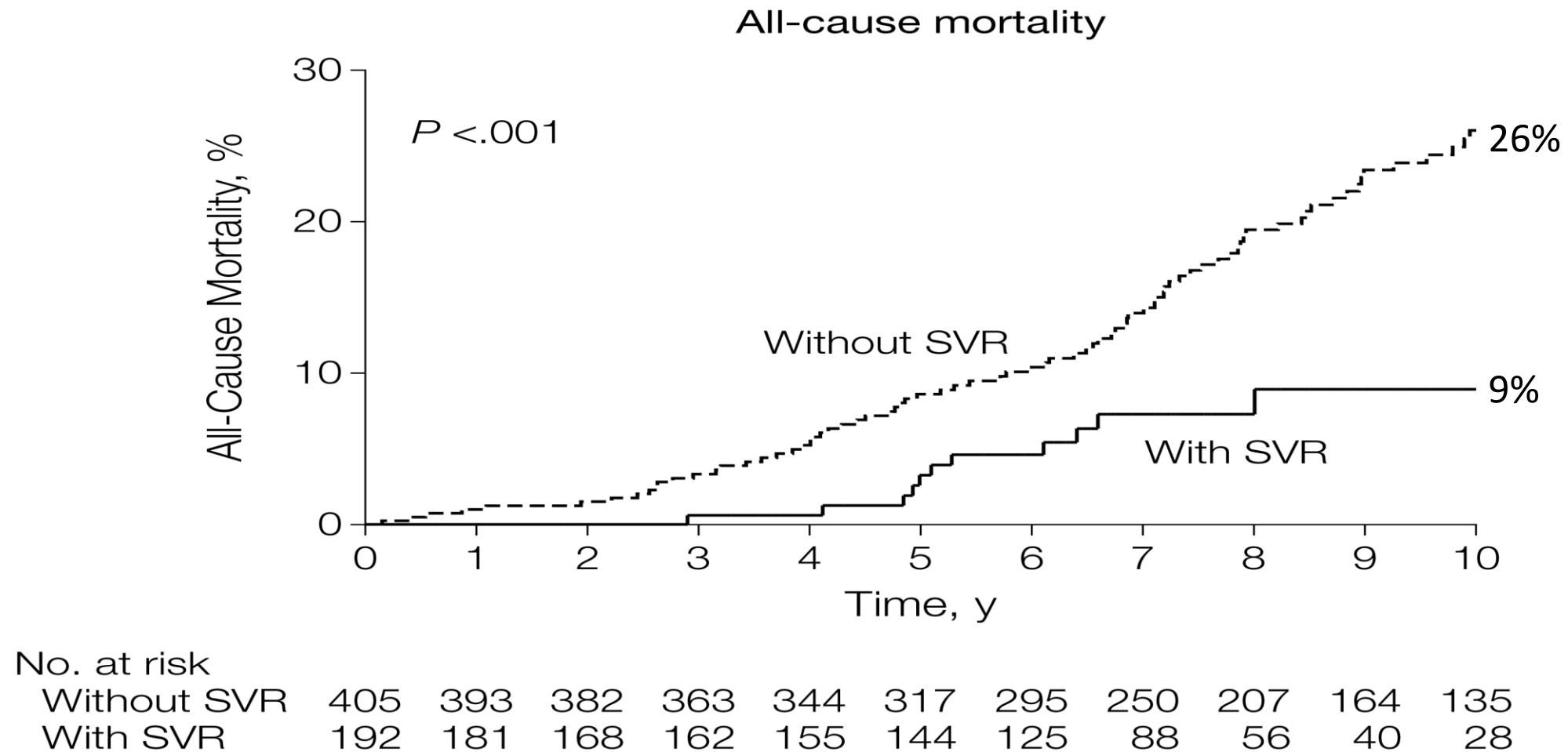
**How we achieve almost 7 million decrease?**

including the number of incident infections, infections treated (cured), and deaths



# The impact of recovery from HCV infection on mortality in the era of interferonotherapy

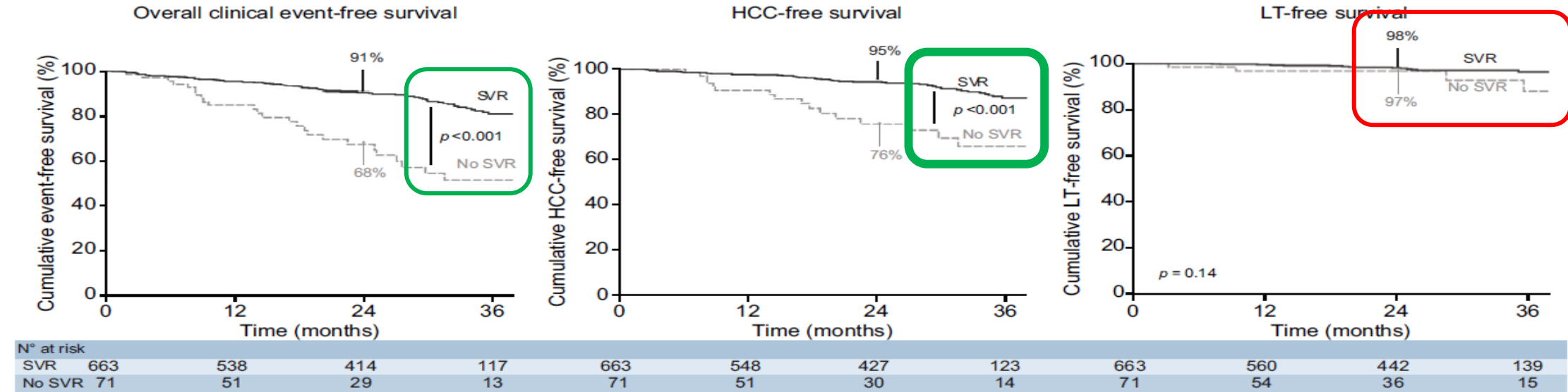
530 patients followed for 8.4 years (median)



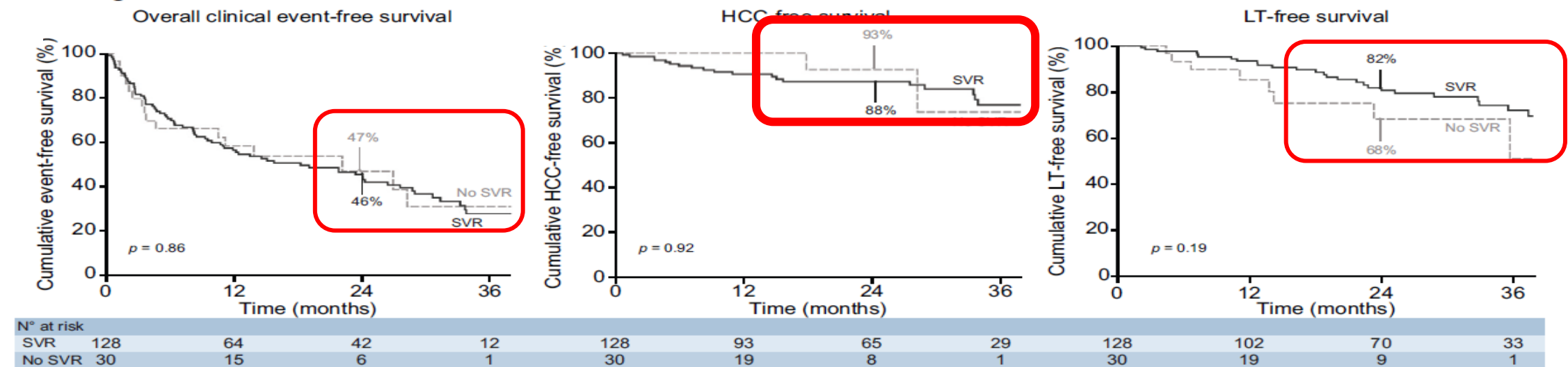
**3-fold reduction in mortality during long-term follow-up after interferon therapy**

# Obtaining SVR after DAA in patients with cirrhosis increases the chance of survival if the therapy is implemented at the stage of compensated liver function (CPA)

## Child Pugh A cirrhosis



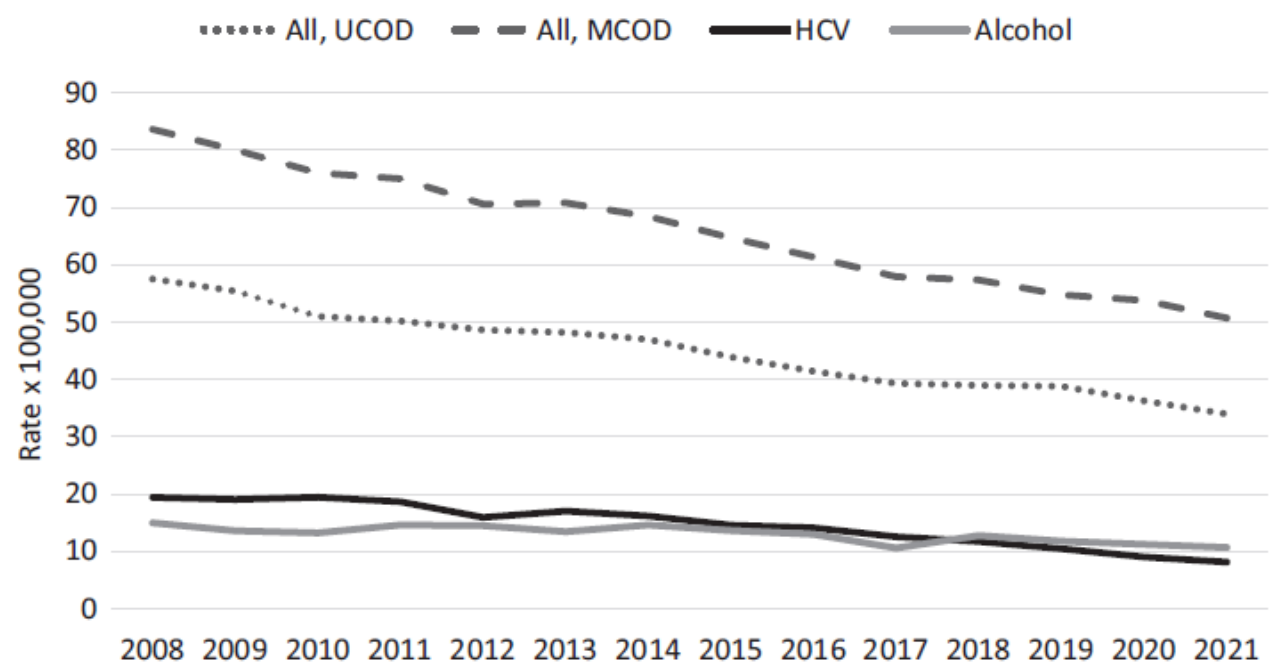
## Child Pugh B/C cirrhosis



Statistical significance was assessed with Log-rank test. HCC, hepatocellular carcinoma; LT, liver transplantation; SVR, sustained virological response

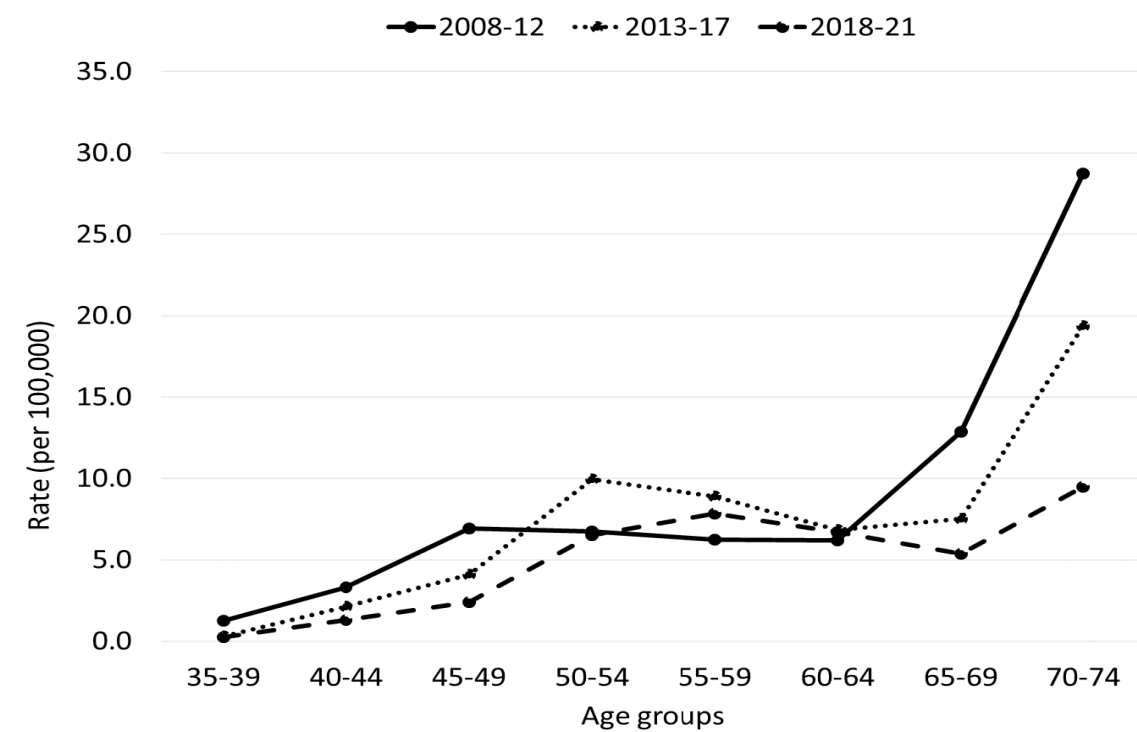
# Changes in mortality trends related to HCV and other chronic liver diseases depending on the observation period and patient age. Veneto (Italy), 2008–2021.

Age-standardized mortality rates from: chronic liver disease underlying cause of death (UCOD), multiple causes of death (MCOD), alcoholic liver disease and HCV-related liver disease



The availability of DAA accelerated the pre-existing decline in HCV-related mortality in the general population.

Age-specific mortality rates due to HCV-related liver disease by period

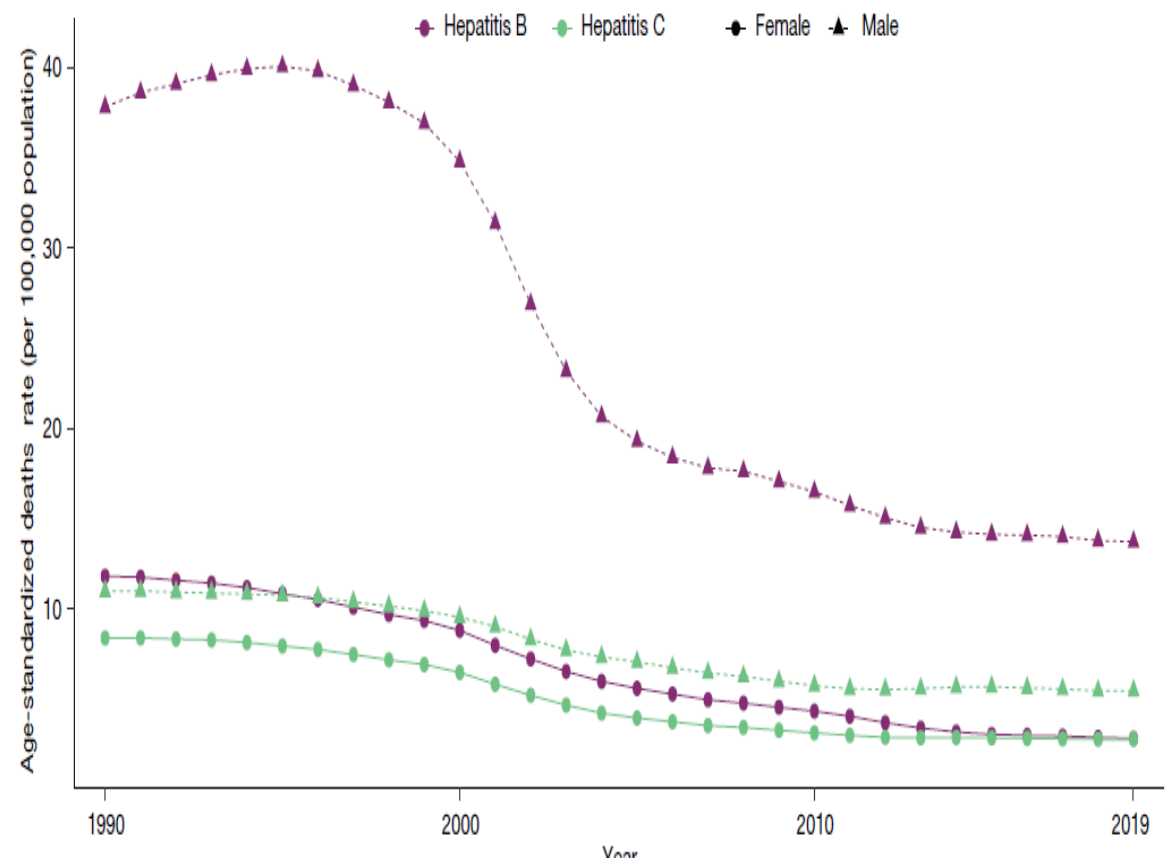


The availability of DAA halted the increase in deaths associated with HCV in elderly patients.



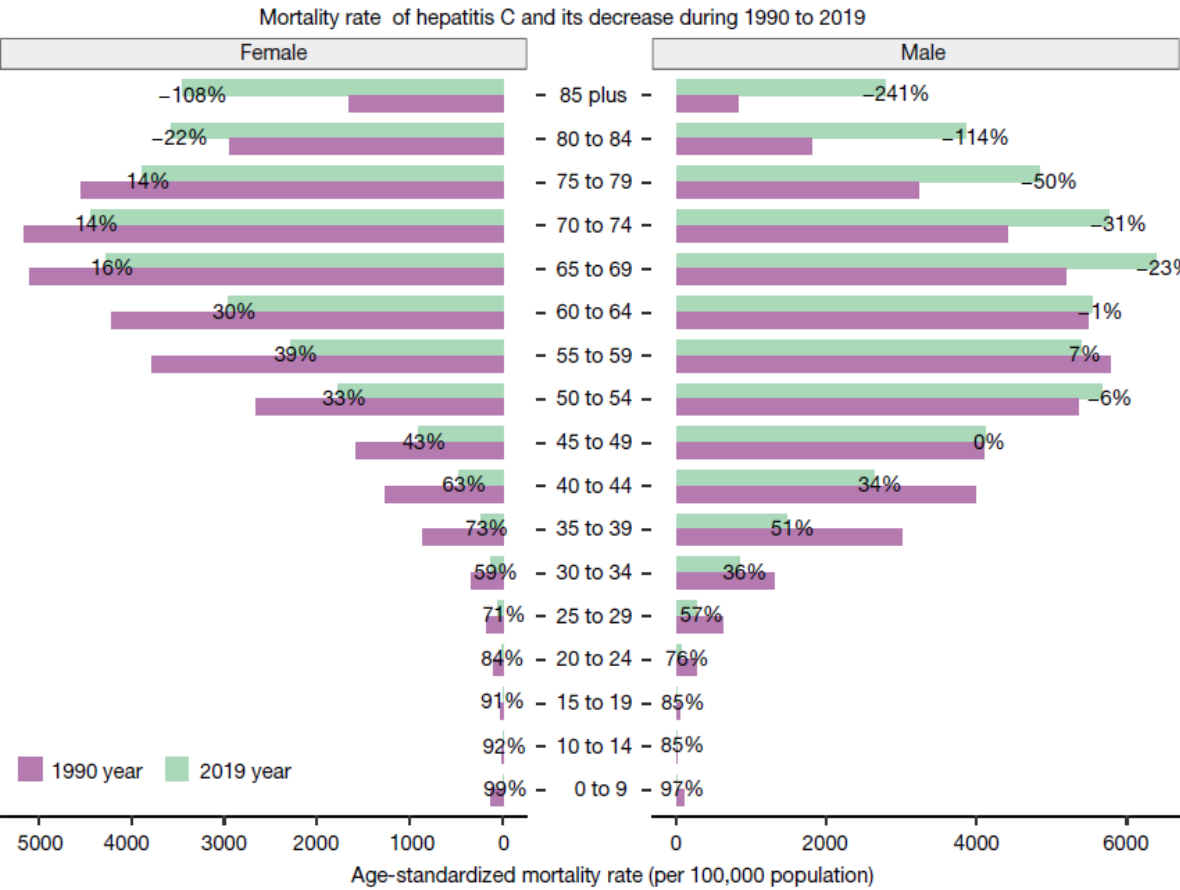
# Hepatitis B and C mortality from 1990 to 2019 in China: a Bayesian age-period-cohort analysis

Age-standardized mortality rates resulting from hepatitis B and C in China from 1990 to 2019



For HCV, the mortality rates declined from 10.99 to 5.49 per 100,000 for males (50%) and from 8.41 to 2.80 per 100,000 for females (67%) respectively

Comparison of age-standardized mortality rates resulting from hepatitis C in 1990 and 2019 stratified by age and gender

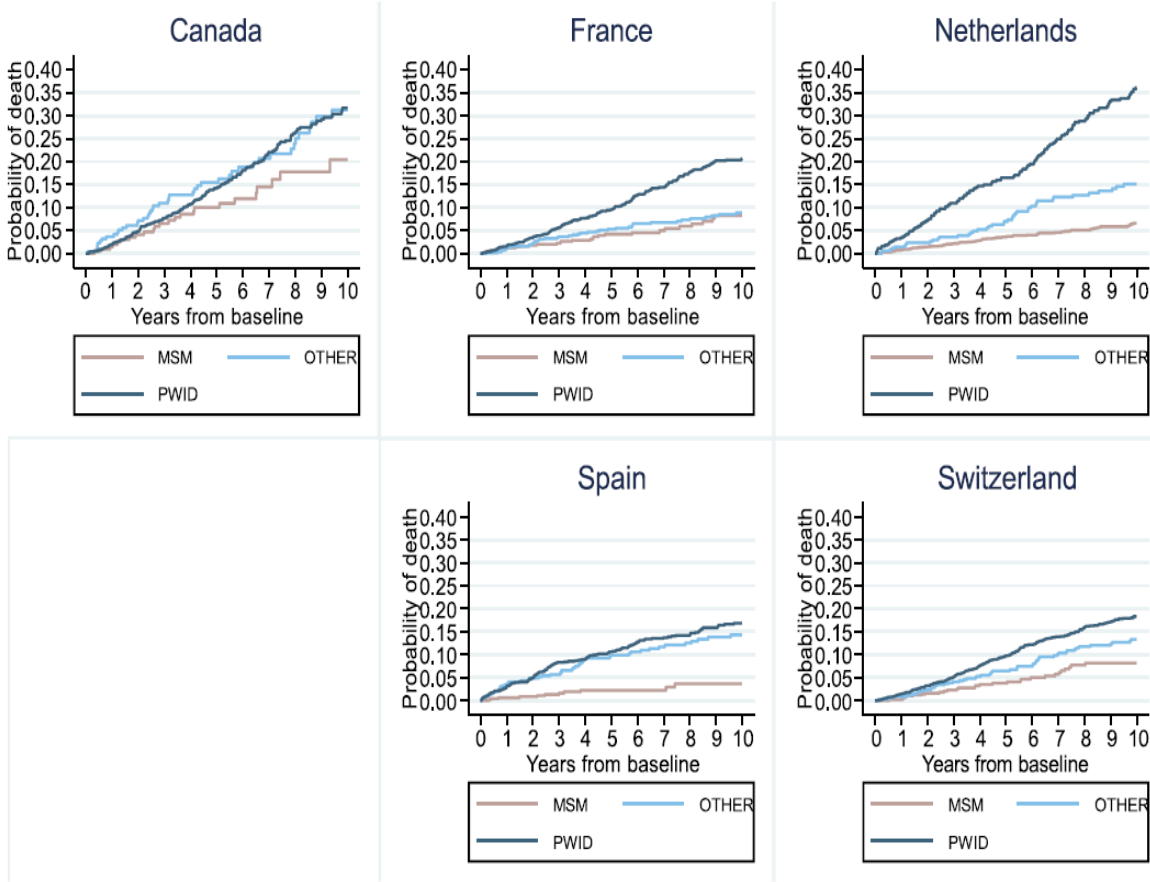


Mortality for HCV declined in the females aged <80 years, and in males aged <50 only, but In older population mortality increased.

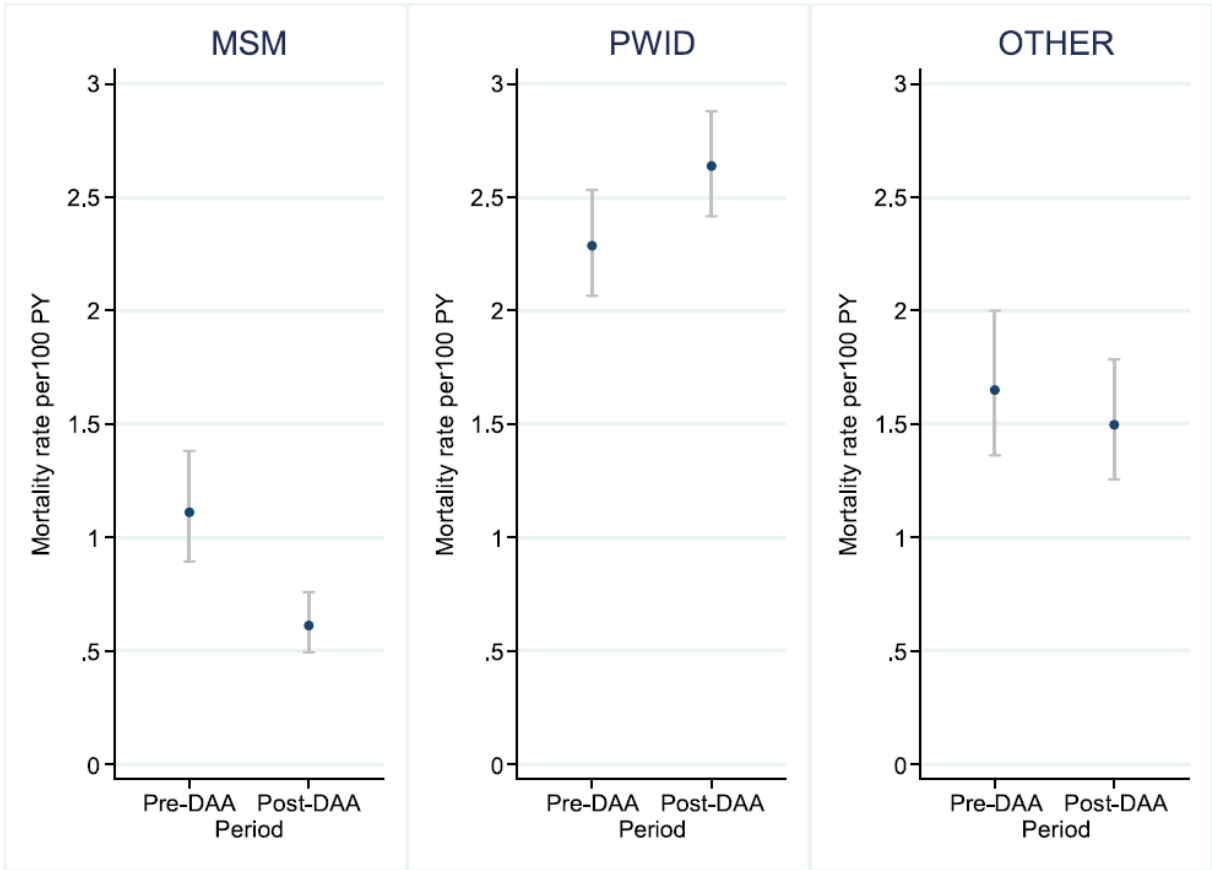
# All-cause mortality did not decrease in HIV/HCV coinfectd Persons Who Inject Drugs (PWID)

An international comparison between 2010 and 2019 among 11,029 participants with HIV/HCV from Canada, France, the Netherlands, Spain, and Switzerland

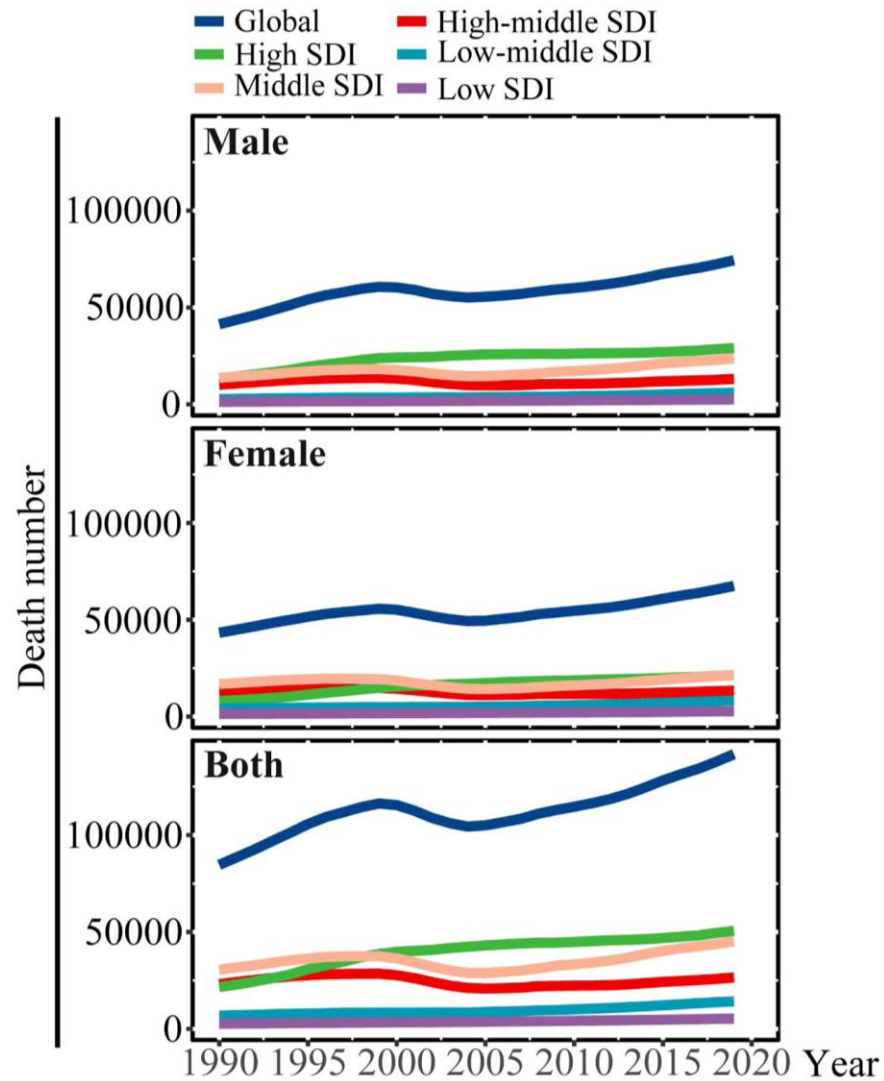
PWID had higher mortality rates than MSM



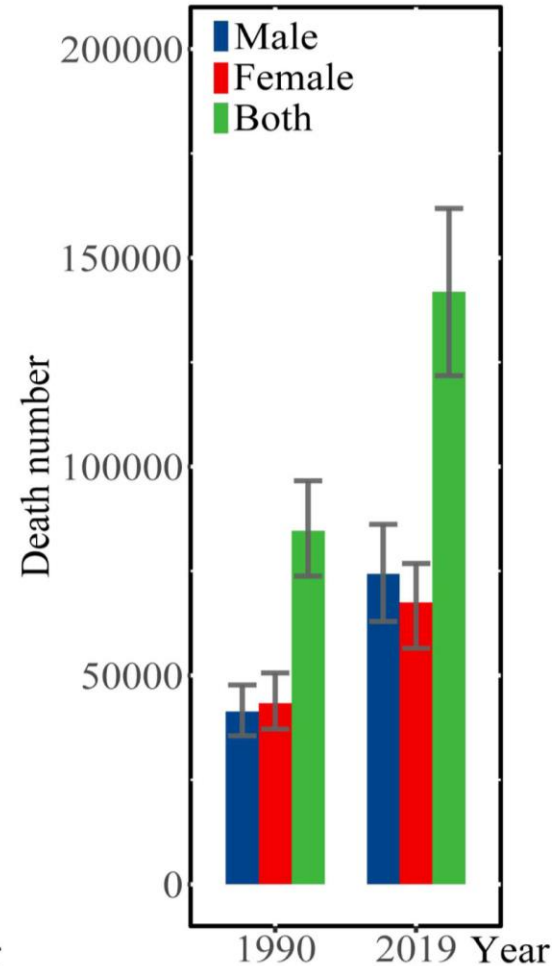
Mortality did not decrease in PWID after availability of DAA



# Deaths related to liver cancer due to hepatitis C from 1990 to 2019 at the global level

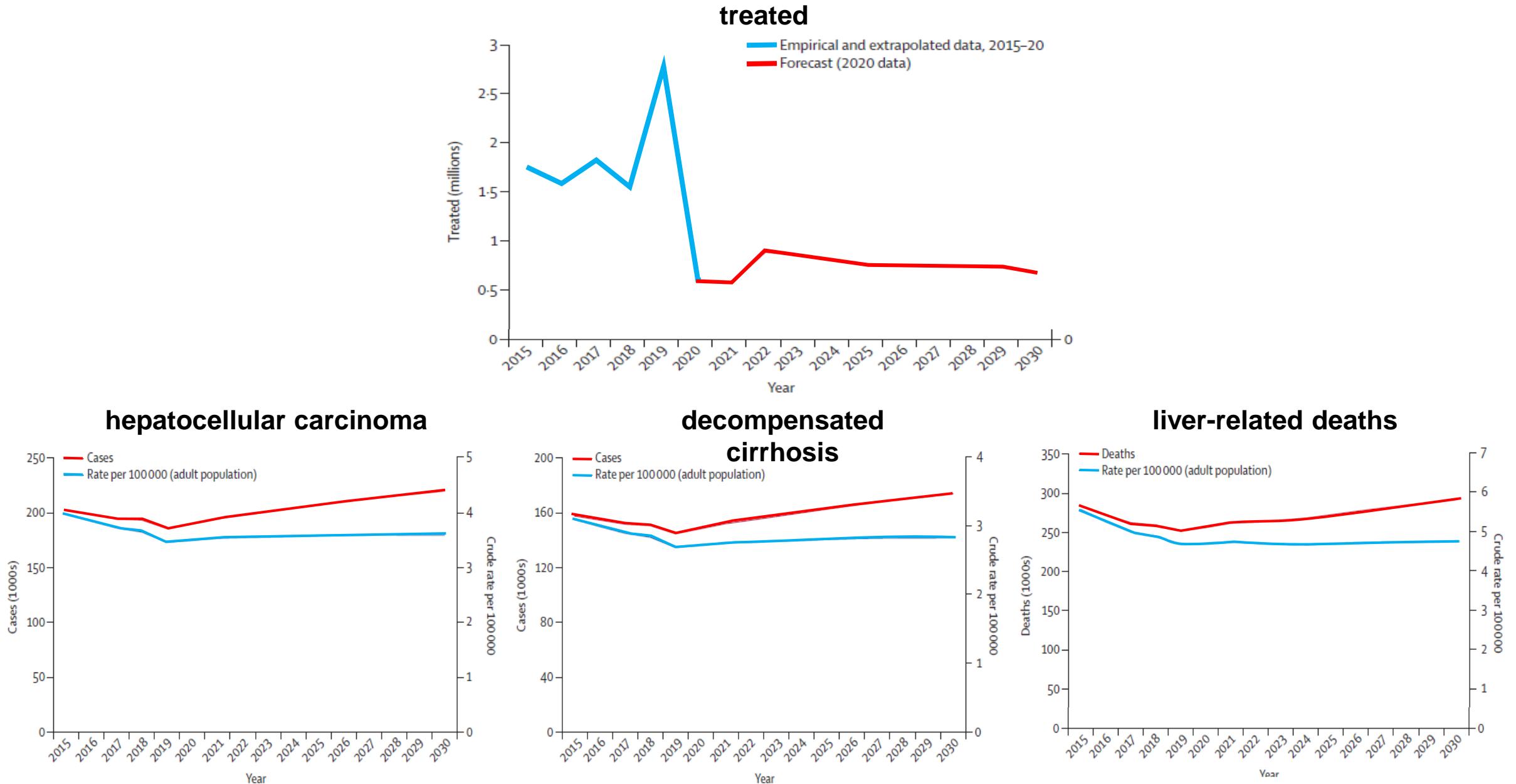


SDI: sociodemographic index



- Globally, in 2019, there were 141,810 deaths due to HCV related liver cancer.
- From 1990 to 2019, the mortality increased by 68%.
- Increase of mortality was irrespective of gender
- It was particularly pronounced in countries with high and middle sociodemographic index.

# Global forecasts of morbidity and mortality, 2015–2030



# Conclusions

1. Mortality is currently the main factor influencing the reduction of HCV infections worldwide.
2. Even in the era of interferon, therapy resulted in significant reductions in mortality.
3. In the era of DAA, this is still true even in patients with liver cirrhosis or extrahepatic manifestations, who were previously classified as "difficult to treat".
4. The availability of DAA accelerated the decline in mortality related to HCV infection, with the exception of people injecting drugs and patients with liver cancer.
5. Forecasts indicate that achieving global goals for reducing morbidity and mortality from HCV infections by 2030 does not seem realistic.