Achieving the World Health Organization Global Health Sector Strategies for Hepatitis C in the WHO Western Pacific Region: A Modelling Study

Samantha Brandon*[1], Sarah Blach[1], Chris Estes[1], Helen Nde[1], Sarah Robbins[1], Jonathan Schmelzer[1], Homie Razavi[1]

[1]Polaris Observatory, Lafayette, Colorado, United States

BACKGROUND

The development of direct acting anti-viral (DAA) therapy drastically shifted the treatment paradigm for the hepatitis C virus (HCV) from disease management to elimination. An understanding of the disease burden is necessary to develop evidence-based public health strategies for elimination of HCV. The World Health Organization (WHO) Western Pacific Region (WPRO) accounts for 20% of the burden of HCV globally[1]. In 2016, 13.7 million people were estimated to be living with HCV in the WPRO region[1] and the mortality rate for HCV (24.1 deaths per 100,000) is the highest of any WHO region[1].

OBJECTIVE

We forecast the current and future disease burden of HCV in the WPRO region and developed a strategy to achieve the WHO Global Health Sector Strategy (GHSS) targets for hepatitis by 2030[2]. The targets are: 90% diagnosed, 90% reduction in new infections, & 65% reduction in mortality.

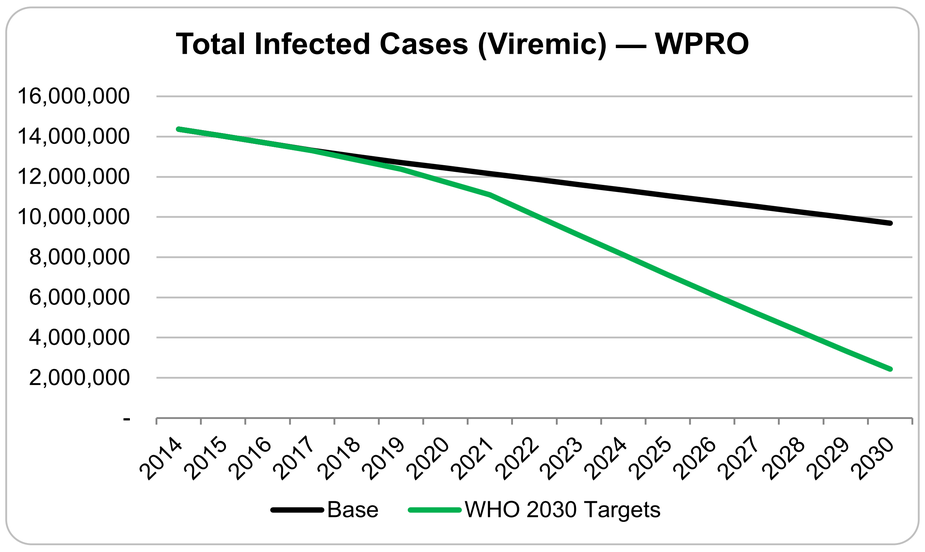
METHODS

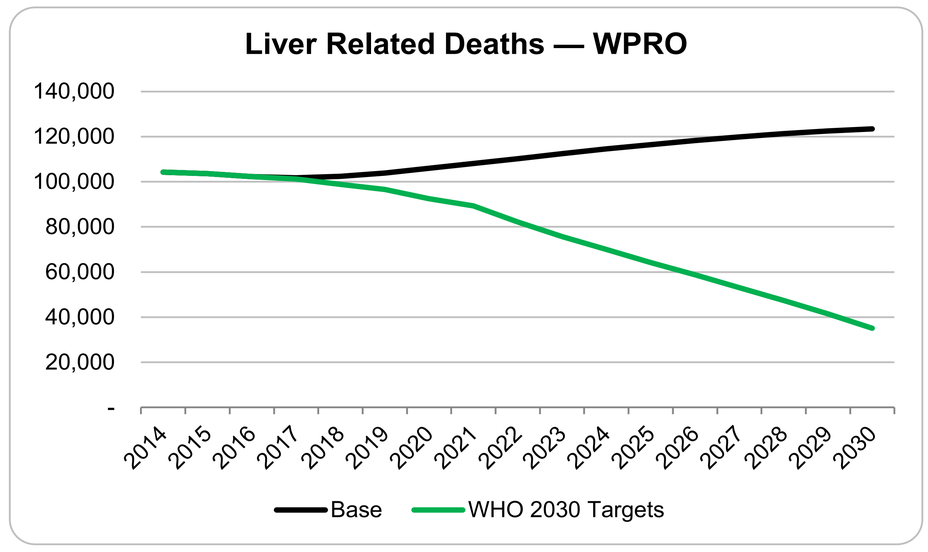
16 WPRO (and Taiwan) country-specific models were built, and regional averages were applied to country populations when country-specific data was not available. Country estimates were then aggregated into a regional disease burden model. This disease progression model was used to quantify the size of the HCV-infected population by HCV sequelae from 2016 through 2030.

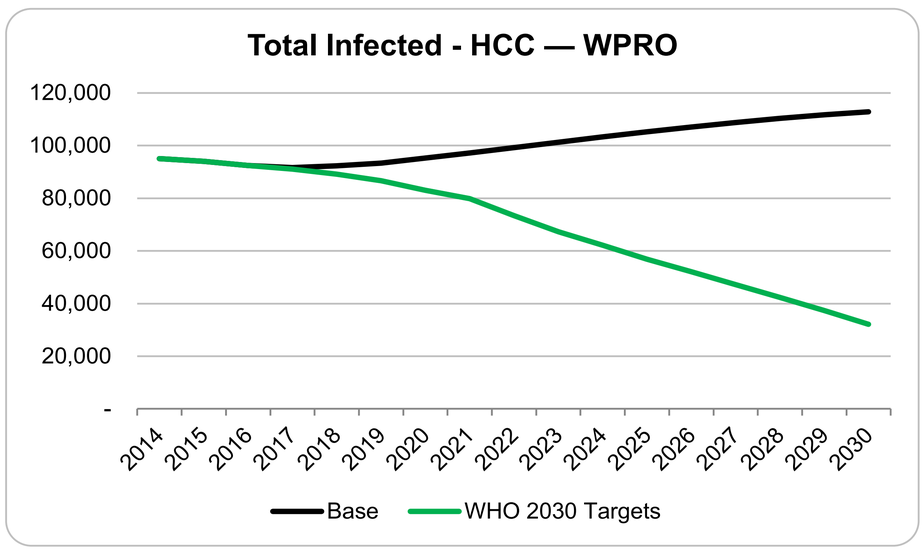
Table 1. 2016 WPRO Model Inputs

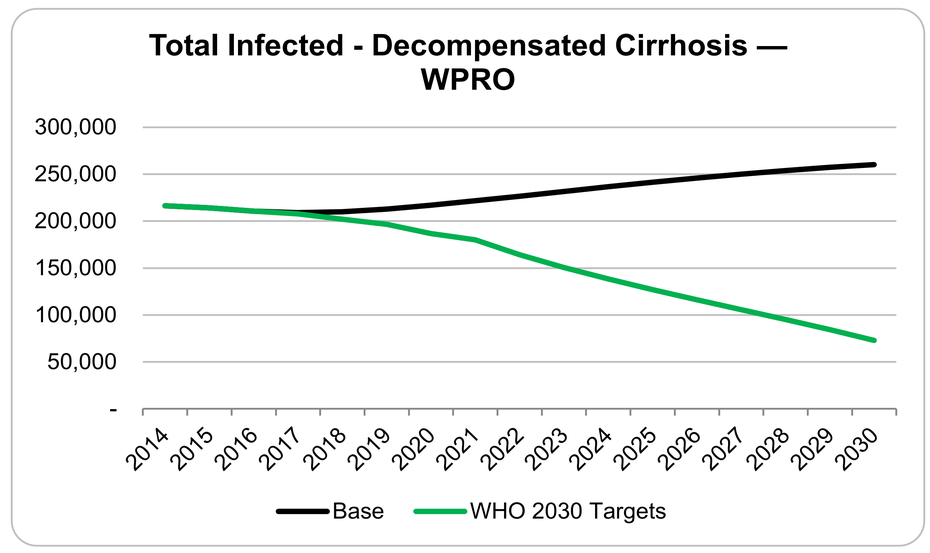
WPRO Model Parameters (2016)	Value
Total Viremic Population	13,665,000
Viremic Prevalence	0.73%
Viremic Diagnosed	2,899,000
Annual Newly Diagnosed	348,000
Number Treated	254,000

RESULTS







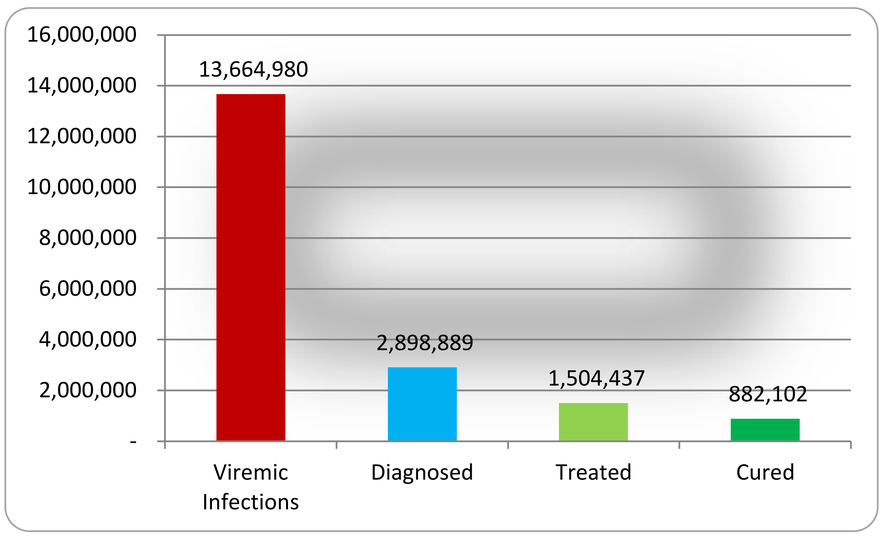


Base Case

- In 2016, there were an estimated 13.7 million viremic infections in the WPRO region, and 85% of all infections were found in those born between 1947 and 1986. Of those, approximately 20% had been diagnosed (2.9 million) and 11% had been linked to care and started on treatment. Of those receiving treatment, more than 59% have been cured (882,000).
- Given the current standard of care over the next 15 years, the total HCV-infected population in the WPRO region is expected to decrease by an estimated 30% by 2030, from 13.7 million infections to 9.7 million. Liver-related morbidity and mortality is forecast to increase 20-25% over the next 15 years.

WHO Targets

- A significant increase in total number of patients screened and linked to care is necessary to achieve the WHO GHSS targets. The number of individuals diagnosed annually would need to increase to 750,000 by 2019 and the number of patients treated annually to 900,000 patients by 2022.
- Under the WHO Targets scenario, significant decreases in HCV-related disease burden are expected. Viremic infections are forecast to decline by 82% by 2030 from to 2.4 million infections. Decompensated cirrhosis cases, hepatocellular carcinoma cases, and liver-related deaths will decline by 65% by the same year. 575,000 lives can be saved by achieving the 2030 targets.



CONCLUSIONS

Total viremic infections are expected to decrease marginally (by 30%) in the WPRO region over the next two decades. The WHO GHSS Targets can be achieved if drastic increases in the number of diagnosed and linked-to-care patients are seen. Targeted screening strategies coupled with increased access to DAA therapy are needed to achieve these targets.

Contact: Samantha Brandon
sbrandon@cdafound.org

This study was funded by the Polaris Observatory through grants from the John C. Martin Foundation and Center for Disease Analysis.

REFERENCES

1. Global Hepatitis Report 2017. Geneva: World Hepatitis Organization; 2017.
2. Global Health Sector Strategy on Viral Hepatitis 2016-2021. Geneva: World Hepatitis Organization; 2017