Hepatitis C infection in the Pan American Health Organization Region: The current burden of disease and a road map for achieving the World Health Organization Global Health Sector Strategy Goals

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INTRODUCTION

- The development of direct acting anti-virals (DAA) significantly expanded the possibilities for managing the hepatitis C virus (HCV) among populations, and the 69th World Health Assembly recognized this by passing a resolution to eliminate HCV by 2030.
- Epidemiological assessment and predictive modeling are needed at the national and regional levels to develop strategies to achieve this goal in the World Health Organization (WHO) Pan American Health Organization Region (PAHO).

AIM

- This study quantifies the current HCV disease burden in the PAHO region and proposes a strategy for achieving the WHO Global Health Sector Strategy (GHSS) targets for hepatitis C – diagnose 90% of infections, reduce new infections by 90%, reduce mortality by 65% – by 2030 [1].

METHOD

- 24 PAHO country-specific disease progression models were aggregated into a regional model, and regional averages were applied to country populations when country-specific data were not available.
- An intervention scenario was developed within the model to achieve projected outcomes that meet the GHSS targets.

Table 1. 2016 PAHO Model Inputs

PAHO-Specific Parameters in Model (2016)	Value
Total Viremic Population	5,752,000
Viremic Prevalence	0.62%
Viremic Diagnosed	2,048,000
Annual Newly Diagnosed	163,000
Number Treated	286,000
Cured	257,000

RESULTS

Figure 1. HCV Infected Population by Age Group – PAHO, 2016

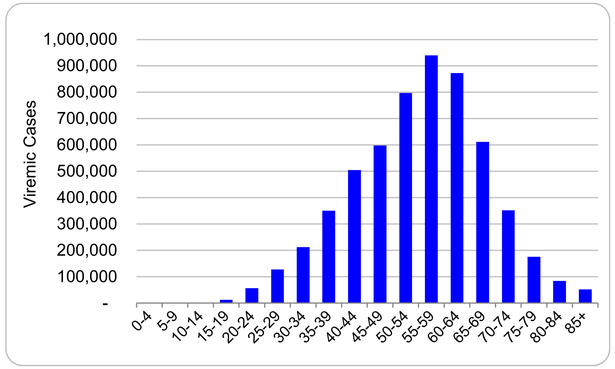
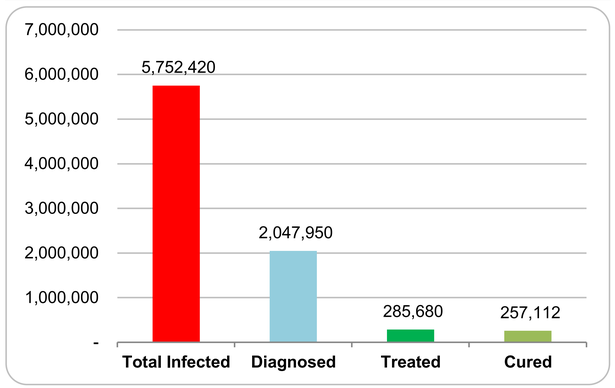


Figure 2. HCV Cascade of Care, 2016



Disease Burden – Base Case

- In 2016, there were an estimated 5.8 million viremic infections in the PAHO region, equating to a 0.6% prevalence. Of these, >65% of all infections were found in those born between 1953 and 1983. More than 35% of all infections have been diagnosed, or approximately 2.0 million cases. Less than 5% of the infected population (286,000) was treated in 2016, and of these, 90% (258,000) were cured.
- Given the current standard of care, the total HCV-infected population in the PAHO region is expected to decrease by 53% from 2015 to 2030. Liver-related morbidity and mortality is forecast to decrease 5%-9% over that time.

Disease Burden – WHO Targets

- To achieve the WHO targets, annual treatment rates would not need to exceed 2016, however the number of patients linked to care would need to increase. The average sustained virological response (SVR) would need to increase from 90% to 95%, and age restrictions would need to be eased to ≥80 years.
- Under the WHO Targets scenario, significant decreases in HCV-related disease burden are expected. Total viremic infections are projected to decline by 81%, while decompensated cirrhosis cases, hepatocellular carcinoma (HCC) cases, and liver-related deaths will decline by 65%-67% from 2015 to 2030. By achieving the WHO targets, more than 179,000 lives can be saved.

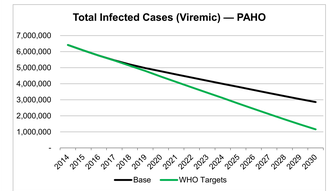
Table 2a. Inputs of the Base Case Scenario

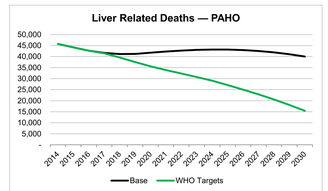
	2016	2017	2018	2019	2020	≥2025
Treated (000)	285	250	214	179	143	143
Newly Diagnosed (000)	163	163	163	163	163	163

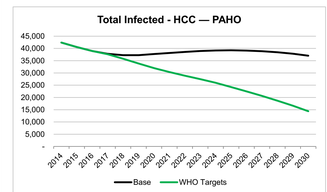
Table 2b. Inputs of the WHO Targets Scenario

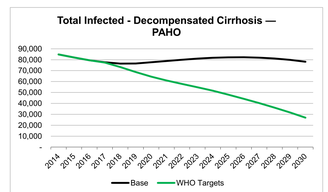
	2016	2017	2018	2019	2020	≥2025
Treated (000)	285	250	260	260	270	282
Newly Diagnosed (000)	163	163	200	220	240	262

Figure 3. HCV-related Morbidity and Mortality, 2016-2030









CONCLUSIONS

- HCV-related liver disease and mortality are only expected to slightly decline in the PAHO region even though total viremic prevalence is projected to decrease 53% by 2030.
- To significantly reduce the disease burden and achieve the WHO targets, a focus should be placed on maintaining high treatment rates by identifying and linking more patients to care and expanding treatment eligibility and access to high SVR therapies.

REFERENCES

1. WHO. Global Health Sector Strategy on Viral Hepatitis, 2016–2021 Towards Ending Viral Hepatitis: World Health Organization, 2016.

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CONTACT INFORMATION

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