

## The Lebanese LSICDM

# Hepatitis C in Lebanon: burden of the disease and value of comprehensive screening and treatment

Antoine Abou Rached<sup>1</sup>, Selim Abou Kheir<sup>1</sup>, Jowana Saba<sup>1</sup>, Salwa Assaf<sup>2</sup>, Georges Kassis<sup>3</sup>, Yuri Sanchez Gonzalez<sup>4</sup>, Olivier Ethgen<sup>5,6</sup>

<sup>1</sup> School of Medicine, Lebanese University, Hadath, Lebanon

<sup>2</sup> AbbVie Biopharmaceuticals GmbH, Beirut, Lebanon

<sup>3</sup> AbbVie BioPharmaceuticals, Paris, France

<sup>4</sup> AbbVie Inc., North Chicago, Illinois, United States

<sup>5</sup> SERFAN innovation, Namur, Belgium

<sup>6</sup> University of Liège, Liège, Belgium

### Abstract

**Introduction:** As few reliable data on the burden of hepatitis C virus (HCV) are available from the Middle East, we analyzed HCV burden in the Lebanese population and the value of comprehensive screening and treatment at different age groups and fibrosis stages.

**Methodology:** A multi-cohort, health-state-transition model was developed to project the number of HCV patients achieving a sustained virologic response 12 weeks after treatment (SVR<sub>12</sub>) or progressing to compensated cirrhosis (CC), decompensated cirrhosis (DCC), hepatocellular carcinoma (HCC), and liver-related death (LrD) from 2016 to 2036. Epidemiology and mortality data were extracted from the Ministry of Health bulletin while costs were collected from insurance claims. The proportion of patients screened for HCV was projected to increase to 60%/85%/99% (low/medium/high screening scenarios) in 2036, with a new cohort being diagnosed each year. SVR<sub>12</sub> rates were extracted from clinical trials. Separate models were used for 18-39 and 40-80 age groups to account for different prevalence and screening rates.

**Results:** Low, medium and high HCV screening scenarios showed that 3,838, 5,665 and 7,669 individuals would be diagnosed with HCV infection from 2016 to 2036, 40% aged 18-39 and 60% aged 40-80. In the absence of treatment, the projected number of patients reaching CC, DCC, HCC and LrD in 2036 was 899, 147, 131 and 147 respectively for the 18-39 age groups. In the 40-80 age groups, these projections were substantially greater: 2,828 CC, 736 DCC, 668 HCC and 958 LrD. The overall economic burden of these complications would reach 150 million €. However, introducing direct-acting antivirals (DAAs) for F0-F4 patients would increase by 43% and 62% the proportion of remaining life-years (LYs) spent in SVR<sub>12</sub> compared to DAAs given to F2-F4 or to F3-F4 only, respectively. Although DAAs for F0-F4 increase the cost of HCV treatment, they also provide the greatest health benefit and lowest cost per LY gained in SVR<sub>12</sub>. Compared to no treatment and screening, adopting the high screening variant and DAAs access to F0-F4 would cost an additional 1,957 € for every LY gained in SVR<sub>12</sub> for patients aged 18-39 and -168 € for the 40-80 age group.

**Conclusion:** An enhanced screening policy coupled with broader access to DAAs will diminish the future burden of HCV in the Lebanese population and provide the greatest health benefits among middle-aged and elder adults with net cost savings.

**Key words:** hepatitis C; epidemiology; burden of disease; screening; Lebanon.

*J Infect Dev Ctries* 2018; 12(2S):27S. doi:10.3855/jidc.10029

(Received 08 December 2017 – Accepted 28 December 2017)

Copyright © 2018 Abou Rached *et al.* This is an open-access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### Corresponding author

Antoine Abou Rached, MD

Department of gastroenterology and hepatology, Lebanese

University, School of Medicine

Old Saida Road, Post code: 1003, Baabda, Lebanon;

Phone: +9613746317;

Email: abourachedantoine@gmail.com

**Conflict of interests:** No conflict of interests is declared.