








REVIEW

Securing sustainable funding for viral hepatitis elimination plans

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Abbreviations: C-EHRN, Correlation European Harm Reduction Network; DAAs, direct-acting antivirals; EASL, European Association for the Study of the Liver; EEA, European Economic Area; ELPA, European Liver Patients' Association; EU, European Union; HCC, hepatocellular carcinoma; HCV, hepatitis C virus; HepBCPPA, Hepatitis B and C Public Policy Association; MEP, Member of the European Parliament; MSM, men who have sex with men; PROs, patient-reported outcomes; PWID, people who inject drugs; WHO, World Health Organization; WP, work productivity.

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Abstract

The majority of people infected with chronic hepatitis C virus (HCV) in the European Union (EU) remain undiagnosed and untreated. During recent years, immigration to EU has further increased HCV prevalence. It has been estimated that, out of the 4.2 million adults affected by HCV infection in the 31 EU/ European Economic Area (EEA) countries, as many as 580 000 are migrants. Additionally, HCV is highly prevalent and under addressed in Eastern Europe. In 2013, the introduction of highly effective treatments for HCV with direct-acting antivirals created an unprecedented opportunity to cure almost all patients, reduce HCV transmission and eliminate the disease. However, in many settings, HCV elimination poses a serious challenge for countries' health spending. On 6 June 2018, the Hepatitis B and C Public Policy Association held the 2nd EU HCV Policy summit. It was emphasized that key stakeholders should work collaboratively since only a few countries in the EU are on track to achieve HCV elimination by 2030. In particular, more effort is needed for universal screening. The micro-elimination approach in specific populations is less complex and less costly than country-wide elimination programmes and is an important first step in many settings. Preliminary data suggest that implementation of the World Health Organization (WHO) Global Health Sector Strategy on Viral Hepatitis can be cost saving. However, innovative financing mechanisms are needed to raise funds upfront for scaling up screening, treatment and harm reduction interventions that can lead to HCV elimination by 2030, the stated goal of the WHO.

KEYWORDS

burden, care, elimination, health policy, high-risk populations, prevention, surveillance, treatment, viral hepatitis

1 | INTRODUCTION

On 6 June 2018, the Hepatitis B and C Public Policy Association (HepBCPPA)¹ held the 2nd European Union (EU) hepatitis C virus (HCV) Policy summit entitled 'Securing sustainable funding for hepatitis elimination plans' in Brussels, Belgium. This high-level conference represented the next major step towards the elimination of hepatitis C in Europe. The main stakeholders in the field of hepatitis C were gathered together: clinicians, patient associations, representatives of key institutions and regional bodies from across Europe to present the case for a European elimination strategy for hepatitis C in the presence of EU and national policymakers.^{1,2}

¹HepBCPPA is a non-profit organization that brings together a wide range of thought leaders and stakeholders to reflect on recent advances and challenges in understanding, measuring, preventing, diagnosing and treating hepatitis B and C and to develop policy responses that can effectively and measurably address these challenges. Over the past 9 years, HepBCPPA has organized three high-level meetings and two EU HCV Policy summits in cooperation with the EU Presidency of Belgium, the EU Presidency of Cyprus, the EU Presidency of Greece and the European Commission and has initiated and agreed with its partner associations on five Calls to Action addressed to the European Commission and the EU Member States.

Key points

- The majority of people infected with chronic hepatitis C virus (HCV) in the European Union remain undiagnosed and untreated, while migration has become a challenge.
- Hepatitis C virus elimination is feasible since recent studies have shown that resources spent on HCV elimination provide good value for money and will result in cost savings.
- However, HCV elimination represents a serious challenge for countries' health budgets. Thus, innovative financing mechanisms are needed to raise funds upfront that can lead to HCV elimination by 2030, the stated goal of the WHO.

During the Summit, the case was made for the need to ensure that the cost of HCV elimination (ie surveillance, monitoring,

awareness, screening prevention and treatment programs) is cost saving.^{1,2} The European institutions and stakeholders represented were the European Parliament Friends of the Liver MEP group, the European Liver Patients' Association (ELPA), the European Association for the Study of the Liver (EASL), the Correlation European Harm Reduction Network (C-EHRN) & European Civil Society Forum, the Centre for Disease Analysis Foundation and the World Health Organization (WHO). In addition, several members from national parliaments attended the summit. In total, 90 delegates attended the event with 29 different nationalities present.

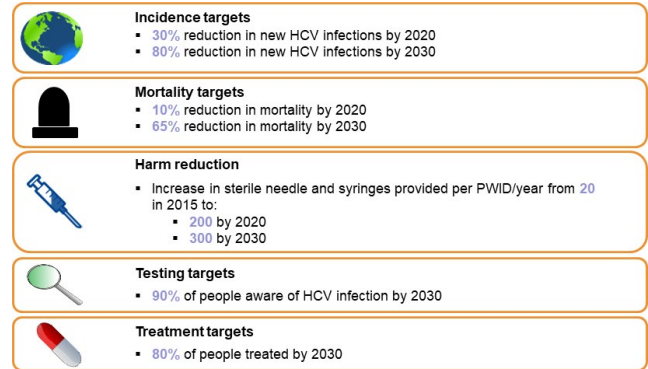
2 | OVERVIEW AND BACKGROUND OF HCV EPIDEMIOLOGY

2.1 | Global burden of HCV: need for action to overcome barriers

Hepatitis C remains a global health problem and it continues to have a large human, social and economic impact.³ According to the most recent WHO global hepatitis report, 71 million people are chronically infected by hepatitis C, and of these, 80% are undiagnosed, mostly because they are asymptomatic and 93% remain untreated.⁴ Even in countries with high levels of hepatitis C awareness, less than 40% of the infected patients have been diagnosed and an even lower proportion received antiviral therapy. Globally, more than 1095 people die from HCV every day and 400 000 people die every year from HCV-related liver diseases even though HCV is curable with the availability of direct-acting antivirals (DAAs).^{5,6}

Although HCV continues to spread as a largely 'silent pandemic', its elimination is made possible through the availability of new, safe and effective treatments for HCV with DAAs and the implementation of prevention practices. However, in the majority of countries, HCV elimination represents a serious challenge for countries' health budgets as they are faced, for the first time in history, with a fast-acting curative high-cost treatment for a widespread, chronic viral disease that offers little risk of resistance or relapse. In addition to treatment costs, the cost of scaling up testing to find the non-identified infected individuals and implementing effective models of care for diverse populations represents additional challenges. On the other hand, the European economic crisis has impacted public health spending more than on any other public life sector with shrinking budgets. On 28 May 2016, WHO published the Global Health Sector Strategy on viral hepatitis, which was endorsed by all member states at the World Health Assembly and called for the elimination of viral hepatitis as a public health threat by 2030 and set the targets at two time points (2020 and 2030) as shown in Figure 1.⁷

However, several barriers and gaps in the cascade of care should be addressed and overcome and solutions need to be found and subsequently funded. All stakeholders and decision makers, such as policymakers, healthcare providers, insurance providers and the industry, should work together and collaborate in order



Source: WHO GHSS. http://apps.who.int/ebwhn/pdf_files/VH169/A69_32-en.pdf?ua=1 (Accessed August 2016).

FIGURE 1 The World Health Organization targets for HCV elimination at two time points (2020 and 2030)

to achieve the necessary scale-up for hepatitis C elimination. This aim is very ambitious and there is an urgent need to improve the services needed to reach and better understand the specific characteristics (culture, language etc) of each subgroup, for example, migrants, men who have sex with men (MSM) and people who inject drugs (PWID).

2.2 | European burden of HCV

It is estimated that 3.0 million people live with chronic hepatitis C virus in the EU, and of these, 68% are undiagnosed and less than 6% have been treated. In addition, despite the availability of DAAs, 16 000 patients were diagnosed with hepatocellular carcinoma (HCC) and 22 500 deaths related to chronic hepatitis C were recorded in 2017, that is, every 25 minutes, an HCV-infected person died of liver complications in the EU in 2017.^{8,9}

Hepatitis C represents a major burden in the EU. The cost of inaction is great—136 000 additional deaths, 90 000 additional HCC cases and 71 000 decompensated cirrhosis cases are estimated between 2017 and 2030. Even EU countries with a high treatment rate will not be able to sustain the treatment without universal screening and political will is the main predictor of whether a country will achieve the 2030 elimination targets.

The understanding of HCV epidemiology in Europe is advancing, during recent years, although migration has become a challenge. In the 31 EU/ European Economic Area (EEA) countries, it has been estimated that, out of the 4.2 million adults affected by HCV infection, as many as 580 000 are migrants, that is, 14% of the total HCV burden.¹⁰ Thus, migrants contribute significantly to the EU/EEA HCV burden, since 79% of them originate from endemic countries.¹⁰ Another challenge is represented by the situation in Eastern Europe, where a hepatitis C epidemic is exploding, driven by injecting drug use. Here, the outlook is worrisome, because of a general lack of awareness, the absence of surveillance systems, the limited national strategies, little or no funding for hepatitis programs, and often obsolete management programmes.¹¹

2.3 | Elimination of HCV in Europe: need for collaboration

Key organizations and associations should collaborate for hepatitis C elimination in Europe by 2030. In this context, the EASL has organized several projects, such as HEPAHEALTH, aiming to better describe the incidence, prevalence and mortality of viral hepatitis across Europe.¹² On the other hand, Friends of the Liver Member of the European Parliament (MEP) Group work to put hepatitis C as an urgent health priority at European and national levels promoting policy action and educational programs to increase screening, diagnosis and eliminate stigmatization.¹³ Correlation—European Harm Reduction Network trains community members and harm reduction workers and informs policymaker to increase access to testing and care.¹⁴ Finally, ELPA has taken action and launched the Hep-CORE Study—which monitors the implementation of hepatitis B and C policy recommendations in Europe in an attempt to shed light on national policies on viral hepatitis.¹⁵ In addition, ELPA, in collaboration with the INTEGRATE European Joint Action, launched a pilot campaign ‘Spring European Hepatitis-HIV Testing Week 2018’ aiming to promote wide-scale testing for hepatitis and HIV and to identify barriers that participants experience when implementing integrated testing in different settings across Europe.^{16,17}

3 | BURDEN OF DISEASE AND PATHWAYS OF ELIMINATION

3.1 | What is the state of play of HCV elimination in the EU?

Currently, few countries in Europe (France, Georgia, Iceland, Italy, Netherlands, Spain, Switzerland and UK) are on track for HCV elimination by 2030.^{6,8} Fortunately, the actual number of treated patients with hepatitis C has increased over the last few years since DAAs have become available. At this rate, the EU only needs to diagnose 160 000 (from today's 90 000) and treat 180 000 (from 160 000 today) annually

to reach the 2030 WHO elimination target (Figure 2).^{6,8} However, the number of people that need to be screened (each year) will have to significantly increase in order to find the remaining undiagnosed individuals: from 5 million people currently screened to 40 million people in 2028 (Figure 2). In addition, in many European countries the initial increase in the treated patients after the implementation of DAAs was followed—or are expected to be followed—by a decline of treated patients (Figure 3).^{6,8} In order to achieve the 2030 elimination targets seven requirements are needed: (a) financing of the national elimination program, (b) implementation of harm reduction programs, (c) expand capacity beyond specialists, (d) remove treatment restrictions, (e) implement monitoring and evaluation, (f) implement awareness and national screening programs and (g) implement national linkage to care program.

3.2 | Eliminating hepatitis C: the impact of the micro-elimination approach

The WHO targets for HCV elimination are challenging, costly and complex. However, the continuum of viral hepatitis services and the retention cascade need simplification similar to those of HIV infection. In addition, it should be recognized that the elimination of hepatitis C is still a daunting task for health systems. However, an idea is to break down this cost by subgroup or population, by year, or region, for example. In fact, formidable obstacles to reaching HCV elimination can best be overcome through a micro-elimination approach, which entails pursuing elimination goals in specific populations. Micro-elimination is less daunting, less complex and less costly than full-scale, country-level initiatives to eliminate HCV, and it can build momentum by producing small victories that inspire more ambitious efforts. The micro-elimination approach encourages stakeholders who are most knowledgeable about specific populations to engage with each other and also promotes the uptake of new models of care.¹⁸

A successful micro-elimination approach should meet the following four criteria, although these criteria may need to be adapted to different epidemiological situations and geographical settings: (a) there should be a plan in order to tailor health resources and services

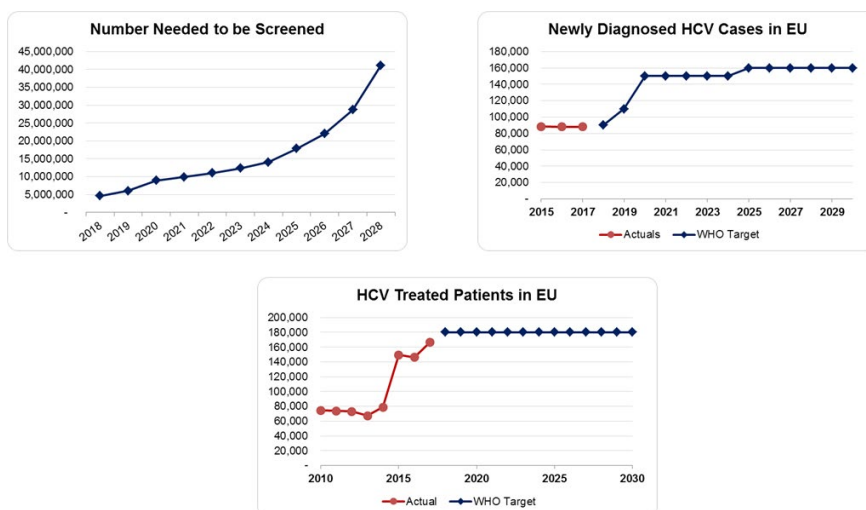
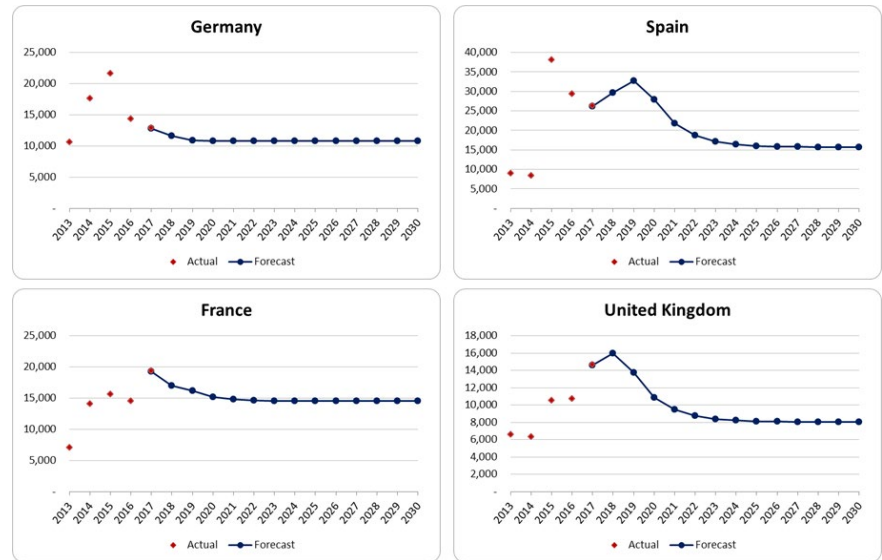


FIGURE 2 The number of people in the European Union (EU) that need to be screened, diagnosed and treated annually to reach the 2030 World Health Organization (WHO) elimination targets. The EU needs to diagnose 160 000 and treat 180 000 annually to reach the 2030 WHO elimination targets. The number of people that need to be screened (each year) will have to increase to find the remaining undiagnosed individuals

FIGURE 3 In many European countries the initial increase in the treated patients after the implementation of direct-acting antivirals (DAAs) was followed by a decline of treated patients indicating that it is difficult to continue to treat the same number of patients



with the aim of overcoming known barriers and achieving the high levels of HCV diagnosis and treatment rates in one or more clearly defined populations of interest within a specified timeframe, which can be faster than in the general population, (b) the plan sets forth achievable annual targets, basing these on mathematical modelling when relevant to determine the levels of diagnosis and treatment required to progress to the plan's ultimate elimination targets, (c) the plan is developed and implemented through a multi-stakeholder process, with essential participants including government officials, health service providers, civil society and community representatives and d) progress and outcomes need to be monitored and publicly reported using indicators selected at the outset of the process.¹⁹

Hepatitis C virus micro-elimination can be feasible in certain populations in the short-to-medium term such as patients with decompensated cirrhosis, veterans/military personnel, patients with haemophilia, transplant patients, HIV/HCV co-infected patients and subgroups of PWID and prisoners. However, candidate populations can be expected to vary greatly in different countries and subnational areas.²⁰ Some of these populations are more challenging than others, but HCV elimination can be facilitated by employing a people-centred health system approach with all key stakeholders engaged, including policymakers, academics, healthcare providers, civil society and industry.

3.3 | Progress report towards elimination by 2030 globally and in Europe

The WHO Global Health Sector Strategy on viral hepatitis, 2016–2021 includes three organizing frameworks: universal health coverage (UHC), continuum of health services and the public health approach.²¹ To reinforce the commitment of the global goal, members of the EU have endorsed the first European action plan in September 2016.²¹ Based on this plan, several regional essential targets should be reached by 2020 regarding prevention, and particularly, testing and treatment. It is encouraging that the number of

European countries with national plans increased from 13 in 2013 to 22 in 2017.²¹ However, several challenges remain especially in low- and middle-income countries, since there is a lack of global donors and commitment in many countries, data are patchy and monitoring systems are nascent, most people living with hepatitis are still undiagnosed, treatment access is limited by regulatory barriers and high prices, particularly for newer antiviral drugs.

3.4 | Cost of HCV elimination: Direct medical cost, patients reported outcomes and productivity loss

Several studies have shown that patient-reported outcomes (PROs) and work productivity (WP), both important components of comprehensive outcomes assessment, are impaired in HCV-infected patients.²² PROs are important surrogate markers of patient experience, and their impairment, especially in the domains of physical functioning and mental health, is the result of the virus replicating itself. Regarding WP, HCV appears to affect absenteeism from work leading to a substantial economic burden to employers.²³ As a result, although in 2011 the total direct cost of HCV-related liver disease had been estimated at USD 6.5 billion in the USA (projected to peak at 9.1 billion in 2014), the indirect economic burden of WP loss in the USA has been estimated to be approximately USD 7.1 billion per year and EUR 2.6 billion per year in five major European countries (France, Germany, Italy, Spain and UK).^{22,24} Importantly, PROs and WP are improved during treatment with antiviral therapy with DAAs, and this improvement is sustainable and durable after successful antiviral therapy with DAAs leading to clinical, PRO and economic gains.²⁵

3.5 | Cost of screening

Many patients have advanced clinical stage of liver disease with or without severe complications at the time of diagnosis. For example,

in France, 12% of patients had cirrhosis and/or hepatocellular carcinoma at the time of referral at hepatology centres.²⁶

Hepatitis C virus screening guidelines still target only people at high risk of infection, but this approach requires reconsideration in the light of treatment with DAAs. In addition, the later can be used as a means of prevention, particularly in high-risk populations, such as MSM and PWIDs. For example, DAA treatment can reverse the HCV epidemic over the next 10 years amongst MSM in the UK, particularly for those with recent HCV diagnosis.²⁷ Similarly, in France and Scotland, treatment with DAAs may have a great impact reducing the prevalence of HCV infection and liver-related morbidity in PWIDs.^{28,29}

Although there is great heterogeneity across European countries, the need to improve HCV screening is widespread (eg in France 100 000 people have chronic hepatitis C and half of them were undiagnosed by 2018). Interestingly, according to five different mathematical models regarding effectiveness, cost and cost-effectiveness in France, showing that universal (100%) screening coverage plus treatment initiation regardless of fibrosis stage (ie from fibrosis F0) can reduce the prevalence of HCV by 94% after 1 year, compared to 40% reduction with 50% screening coverage plus treatment initiation regardless of fibrosis stage. The latter model can reduce the incidence of HCV cirrhosis by 30% (or by 73% with 100% screening coverage) after 10 years. In addition, the model of universal (100%) screening coverage plus treatment initiation regardless of fibrosis stage seems to be cost-effective (31,100 €/QALY), in contrast with when treatment is given only to those with fibrosis ≥F2.^{30,31} Based on these findings, a National Health Strategy was announced in France in 2018 recommending actions in order to strengthen: a) access to hepatitis C treatment for all and b) proximity to screening by rapid diagnostic orientation testing in a combined approach to HIV, HBV and HCV) prevention through innovative ‘go-to-go’ actions to reach priority and bring audiences into the health system.

3.6 | Is hepatitis C elimination cost saving?

While HCV treatment may be cost saving, but still hepatitis C elimination programme may not be cost saving if the cost of diagnosing

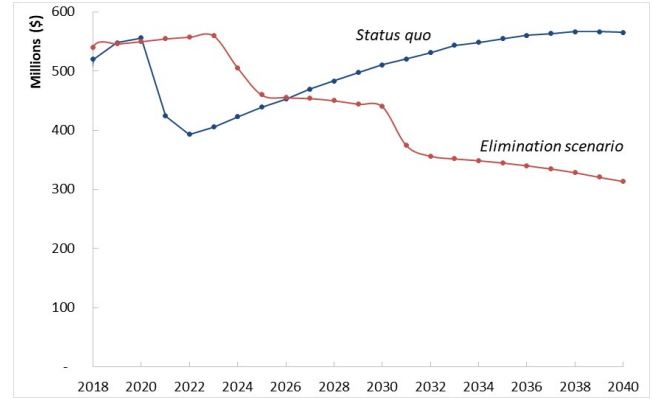


FIGURE 4 Cost of hepatitis C virus Elimination vs Status Quo in the UK over the next 20 years. In the elimination scenario an initial investment is needed, but then a significant reduction in the cost is expected

HCV cases is high. Globally, treatment with DAAs can reduce the burden of HCV-associated disease by 50%-70% between 2015 and 2050; liver-related deaths (from 767 000 without treatment to 317 000); hepatocellular carcinoma (from 407 000 without treatment to 154 000); and liver transplants (from 63 000 without treatment to 31 000).^{32,33}

Data from the UK have shown that in an elimination scenario, compared to the current status quo, an initial investment is needed, but then a significant reduction in the cost is expected over the next few years (Figure 4). Thus, it is estimated that the total cost (natural history, diagnosis and treatment) over the next 20 years is about 11.7 billion dollars with current status quo, compared to 10 billion dollars with elimination scenario (ie saving 1.7 billion dollars) (Figure 5).³¹ Resources spent on HCV elimination provide good value for money and will result in cost savings. Thus, HCV elimination is feasible and will save lives.

Interestingly, the WHO has developed an online cost-effectiveness tool, Hep C Calculator (<http://www.hepccalculator.org/>), for estimation of cost-effectiveness of hepatitis C treatment in 28 countries. The tool also estimates how long will it take for treatment to become cost-effective/saving based on country-specific data.

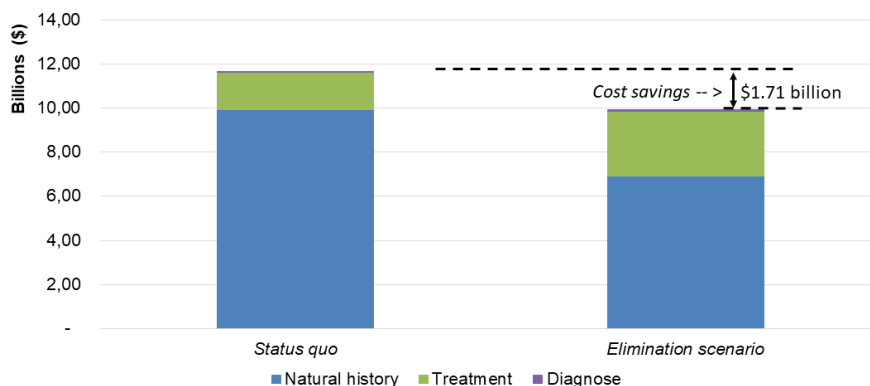


FIGURE 5 Total cost of hepatitis C Elimination vs Status Quo in the UK. With elimination scenario, saving 1.7 billion dollars is estimated

4 | INNOVATIVE FINANCING

Elimination of HCV requires strong collaboration between stakeholders. The plan for HCV elimination should be achievable, sustainable and follow the WHO time frame.³⁴ There is general consensus that one of the crucial factors to achieving this goal is adequate funding for the continuum of care to support the HCV elimination initiative. Financing remains a major barrier and making the treatment affordable is still a major challenge for many European countries.

4.1 | Innovative financing for HCV elimination

New sources of funding will be required for countries to launch, accelerate and sustain public health responses to eliminate viral hepatitis. These resources will need to be substantial to meet elimination targets. It is true that for HCV elimination, investment is needed over a long period of time (eg, providing antiviral treatment until 2030), but since HCV is a slow progressive disease, the return on investment will accrue after a long time. Through bond finance, not only can governments release money for public spending, but the maturity period can be adjusted to the timeframe in which the investment produces the desired social/economic benefit. One option could be commercial bonds, which are widely used in the public sector for funding infrastructure projects, while vaccine bonds were developed by the International Finance Facility for Immunization (IFFIm).³⁶ Another option could be social impact bonds, that is, a contract with the public sector in which a commitment is made to pay for improved social outcomes that result in public sector savings (eg, social bond for rehabilitation of incarcerated people and to reduce recidivism).³⁵ Based on these experiences, it was suggested at the Summit that the establishment of an 'HCV bond' could be an effective and realistic option to finance hepatitis C elimination providing a good return on investment (the more we treat, the more lives saved and more economic savings) (Figure 6).

As George Papandreou, President of the Socialist International, and former Prime Minister of Greece and keynote speaker at the 2nd EU HCV Policy summit mentioned, some European countries

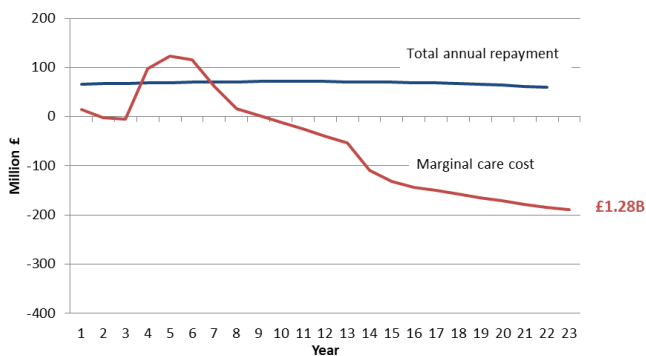


FIGURE 6 An 'HCV bond' could be an effective to finance hepatitis C elimination since after few years the marginal cost is negative resulting in cost saving

have already important experience in creating social bonds and similar financing tools. Other countries may prefer to explore opportunities through cooperation with the European Financial Institutions such as the European Investment Bank. Thus, the EU Commission could prepare the legislative actions, to convincingly motivate the European Investment Bank and other European financial institutions to take this ambitious yet totally realistic project on board.³⁷

4.2 | Financing of viral hepatitis elimination in low- and middle-income countries

Although hepatitis elimination has a positive return on investment—the main problem is the need for upfront investment. An alternative approach could be based on patients who are willing to pay for healthcare expenses (eg in many of the lower middle-income countries, a high proportion of patients of all treatments are currently in the private market) providing that the costs are kept below the catastrophic healthcare expenditure level, while some portion of the population will not be able to pay for their healthcare. This model can be supported by suppliers who are willing to provide price concessions if large volumes are guaranteed, as well as banks and donors who are willing to provide catalytic financing if they have assurances that they can get their investment back at the end of the programme.³⁸

The new model would foresee the use of loans instead of donations to support the hepatitis elimination programs. Thus, although the old model based on donations (donations from the few pay for the needs of the many, including for those who could afford some payment), in the proposed new model, patients fund their treatment (small loan from investor, plus funds from many patients, pay for diagnostics and treatment for all, plus repayment to investor).

Nevertheless, since the cost of treatment is an important issue, a holistic approach is needed, including: (a) pooled procurement of licensed generic DAAs and quality-assured diagnostic tests at volume discount; (b) negotiations for waiving of import duties, taxes and pharmacy markups, to keep prices affordable and (c) enforcement of negotiations with the pharmaceutical industry and producers of diagnostic tools using digital voucher technology, eliminating cash transactions and opportunistic pricing.

5 | CHALLENGES AND OPPORTUNITIES

The economic crisis has led to cuts in funding for harm reduction in many countries. Thus, there is a need to move towards a single-visit hepatitis C diagnosis, instead of the five visits of the interferon era, in order to decrease the time of diagnosis (from 4–6 weeks or more to no delay) and the rates of lost follow-up. The new treatment options give this opportunity, since hospital attendance requirements are evidenced barriers particularly for marginalized populations. In this direction, more efforts are needed to increase screening in risk groups and build capacity for treatment

as well as to raise awareness of viral hepatitis amongst the general population and general practitioners, and to improve the diagnosis of HCV in primary care settings providing sustainable, affordable, universal access to the tools for elimination. Political leadership may play an important role in delivering the message of hepatitis C elimination at the political level by keeping hepatitis C high on the political and media agendas.³⁹ It is important to build on support of the European Parliament and to influence the agenda of the next European Commission and the governments of EU Council Presidencies during the transition in 2019-2020 aimed to improve diagnosis and access to treatment amongst defined key groups, such as PWID.¹⁶

The Correlation European Harm Reduction Network, focused on hepatitis C since 2014, provides models to improve access and quality of health and social services for marginalized groups and more than 220 partners in all European countries participate.³⁹ Finally, an organized network of Parliamentarians is needed, in order to increase their involvement in international-multilateral workgroups and decision processes aiming to reboot the political awareness and action towards the elimination of hepatitis C.⁴⁰

6 | CONCLUSIONS

The Call to Action of the 2nd EU HCV Policy Summit recommends that countries have a comprehensive, costed hepatitis C elimination strategy in place to determine their country-level disease and economic burden of HCV by measuring direct and indirect socio-economic costs to improve the response towards HCV elimination and to develop country and population-specific models, to estimate lifetime costs, quality-adjusted life expectancy, and incremental cost-effectiveness ratios of different screening and treatment strategies in comparison with no action. These are necessary to hepatitis elimination programs as hepatitis investment cases.

Innovative financing tools include social impact bonds, with the aim to raise upfront funds for launching new social services and financing prevention services, including harm reduction, contributing to HCV elimination in a sustainable way.

The European Union should recognize the need to engage in HCV elimination by establishing a clear political roadmap and call for European financial institutions to raise public and/or private funding and use elimination programs as development and health systems strengthening tools, encourage and engage all the stakeholders, including the European Union, to collaborate in the development of innovative financing tools.

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CONFLICT OF INTEREST

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2. Jeffrey V. Lazarus has received grants from AbbVie, Gilead Sciences and MSD outside of the submitted work.
3. Evangelos Cholongitas has served as a speaker, a consultant and an advisory board member for Abbvie, Astellas, Bristol-Myers Squibb, Gilead, Merck Sharp & Dohme and Novartis, and he has received research funding from Gilead.
4. Ricardo Baptista-Leite has nothing to declare.
5. Charles Boucher has received research grants ViiV, Merck, Gilead; Speaker fee Gilead, ViiV; Research grant Gilead sciences and co-owner Virology Education.
6. Cristian-Silviu Busoi has nothing to declare.
7. Sylvie Deuffic-Burban has received grants from ARHEL (2015-2016) and MSD (2017); has served on advisory boards for Abbvie (2015), BMS (2015), Gilead (2015) and MSD (2016-2017); and reports lecture fees for Abbvie (2018), BMS (2015) and Gilead (2017), outside the submitted work.
8. Jagpreet Chhatwal has received research grants and personal fee from Gilead and Merck outside the submitted work.
9. Gamal Esmat has nothing to declare.
10. Sharon Hutchinson has received honoraria for presenting at a conference sponsored by Gilead.
11. Minerva -Melpomeni Malliori has nothing to declare.
12. Mojca Maticic has nothing to declare.
13. Antons Mozalevskis has nothing to declare.
14. Francesco Negro has received research grant funding from Gilead, and is Advisor/Consultant for Gilead, Merck and AbbVie.
15. George A. Papandreou has nothing to declare.
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APPENDIX 1

Call to Action to 'Secure sustainable funding for viral hepatitis C elimination plans'

The hepatitis C virus (HCV) is a global public health threat with significant morbidity and mortality. Because of its asymptomatic nature, it is also a silent epidemic with an estimated 71 million infected globally, but only 20% diagnosed.

In 2013, the introduction of new, safe and effective treatments for HCV created an opportunity to eliminate the disease. However, in some settings, this development represents a serious challenge for countries' health spending as they are faced, for the first time in history, with a fast-acting curative treatment for a widespread chronic viral disease which offers little risk of resistance or relapse. In addition to treatment costs, the cost of scaling up testing to find the non-identified infected individuals and implementing effective models of care for diverse populations, represent an additional challenge.

Greater efforts are needed to ensure that all elements of cost of HCV elimination, which include surveillance, monitoring, awareness, screening, prevention and treatment programs, are affordable. Preliminary data suggest that the WHO HCV elimination strategy may be cost saving for many countries. That is the savings related to preventing and treating HCV may exceed the cost of HCV elimination, providing good value for money given the high initial spending. Strategic Direction 4 of the WHO Global Health Sector Strategy on Viral Hepatitis 2016-2021 'Financing for sustainability' sets out financing recommendations for a sustainable hepatitis response, outlining actions to raise revenue to pay for viral hepatitis interventions and services, set-up financial risk protection, and improve efficiency in the use of health system resources.

On 17 February 2016, the launch of the HCV Elimination Manifesto 'Our vision for a Hepatitis C-free Europe', provided a starting point for action to make HCV and its elimination in Europe an explicit public health priority. With patients, civil society groups and other relevant stakeholders directly involved in developing and implementing HCV elimination strategies, now is the time to take the next step further and make the HCV elimination affordable.

We, the signatories of the Call to Action 'Secure sustainable funding for hepatitis C elimination plans' are committed to HCV elimination in Europe.

In line with the 2015 United Nations' General Assembly Resolution 'Transforming our world: the 2030 Agenda for Sustainable

Development', in line with the Sustainable Goal 3 Good Health and Well-Being and its Target 3.3 to Fight Communicable Diseases, in line with the 2014 World Health Assembly's Resolution 67.6 on hepatitis, in line with the 2016 HCV Elimination Manifesto, in line with the WHO Global Health Sector Strategy on Viral Hepatitis 2016-2021 'Towards ending viral hepatitis', and in order to encourage policymakers to fulfil the Strategic Direction 4 of the WHO Global Health Sector Strategy on Viral Hepatitis 2016-2021, and make HCV elimination affordable, we are calling on the European decision makers to:

1. Ensure that countries have a comprehensive, costed hepatitis C elimination strategy in place, including a comprehensive monitoring along with the cascade of care in line with the criteria developed by ECDC and WHO Europe
2. Determine their country-level disease and economic burden of HCV by measuring direct and indirect socio-economic cost to improve the response towards HCV elimination, paying attention to the close link between HCV and HIV in some populations
3. Develop country and population-specific models, as viral hepatitis investment cases, to estimate lifetime costs, quality-adjusted life expectancy, and incremental cost-effectiveness ratios of different screening and treatment strategies with comparison with no action
4. Allocate sufficient resources for training and research, developing robust models of care for tackling HCV, and urgently and effectively fulfil Strategic Directions 2, 4 and 5 of the WHO Global Health Sector Strategy
5. Recognize the need for the European Union to engage in HCV elimination by establishing a clear political road map and call for European financial institutions to raise public or private funding and use elimination programs as a development tool
6. Encourage and engage all the stakeholders to collaborate in the development of innovative financing tools like social impact bonds and others, with the aim of launching new social services and financing prevention services, including harm reduction, contributing to HCV elimination in a sustainable way
7. Exchange and implement best practices on funding healthcare and HCV elimination, including via micro-elimination approaches, at the national, regional and local levels to meet the WHO elimination goals by 2030 and preferably much earlier

APPENDIX 2

Address to the 2nd EU HCV Summit 'Securing sustainable funding for Hepatitis C Virus elimination plans' by George Papandreou, President of Socialist International and former prime minister of Greece.

I am honoured to address the EU HCV Policy Summits organized by the Hepatitis B and C Public Policy Association, for a second time.

I understand that both hepatitis C virus infection and chronic hepatitis C are a public health hazard. Yet new safe and effective treatments can cure chronic hepatitis C. This represents an historical opportunity, not only to cure those infected but also to eliminate this disease globally.

The World Health Organization has affirmed this possibility by adopting the Global Health Sector Strategy to eliminate HCV by 2030. To succeed, we need both good diagnostic practices and delivery of treatment for those who are infected.

Still, the total cost of surveillance, awareness campaigns, screening, prevention and treatment remains too costly for many around the world. Not surprisingly, the economical burden is especially high for the EU countries.

What is, however, a crucial fact this Summit has highlighted—a fact that policy and decision makers need to seriously consider—is that the cost of elimination is lower than the cost of treating the long-term consequences of HCV, such as chronic hepatitis, cirrhosis and liver cancer.

So, investment towards HCV elimination not only provides cure from suffering but is also the best value for money.

We know of course that the up front investment will be high.

The message is that HCV elimination programs are highly cost-effective, cost saving and life saving.

I had the opportunity in the previous Summit, to outline how European Financing Institutions could be induced to prepare financing tools and support national HCV elimination programs for the European countries.

I am glad to see that a major part of the analytical work has been finalized and the conclusions are presented here during today's Summit.

So I would suggest that the next crucial step now, is for the EU Commission to prepare the legislative actions, to convincingly motivate the European Investment Bank and other European Financial Institutions to take this ambitious yet totally realistic project on board.

I can only conclude by congratulating you all, in this 2nd EU HCV Policy Summit on 'Securing sustainable funding for Hepatitis C Virus elimination plans'.

I offer my wishes, and all my support for the best of success