WINNING THE RACE TO ELIMINATE HEPATITIS C

Accelerating efforts together to reach the World Health Organization’s 2030 elimination targets

BCG

2020
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Foreword

Since the publication of Boston Consulting Group’s (BCG) report “Road to elimination: barriers and best practices in Hepatitis C management” in 2017, the 29 countries studied in this report have taken various actions towards eliminating the hepatitis C virus (HCV). This included implementing national plans and guidelines, setting up expert groups, eliminating fibrosis-level treatment reimbursement restrictions, and decentralizing HCV testing.

Despite these efforts, little overall progress has been made towards reaching the World Health Organization (WHO) goal to eliminate viral hepatitis as a major public health threat by 2030. Currently, only 10 of the 29 countries considered in the scope of this report are on track to meet the WHO targets, with most countries seeing little real progress since 2017. As such, countries must urgently step up their elimination efforts starting now.

We are very aware of and sensitive to the global health crisis caused by COVID-19, which has undoubtedly made the fight against other diseases more challenging. However, this current crisis should not impede progress in other diseases, especially one such as HCV, which can be eliminated.

We are grateful to BCG for again analyzing HCV elimination and what it will take for countries, indeed the world, to be successful. Importantly, combatting viral hepatitis is included among the United Nations Sustainable Development Goals, and the WHO has set out recommendations to achieve these goals. If countries follow these recommendations, which they committed to in 2014 and again in 2016, and facilitate multi-stakeholder efforts, we are confident that in less than a decade the vast majority of the 71 million people affected by HCV infection will be diagnosed and subsequently cured. We do note, however, that further work will be required beyond 2030 to embed progress and continue the path to full elimination and maybe one day even eradication.

Cary James
Jeffrey V. Lazarus
Andrew Ustianowski
HCV elimination will not occur without prioritizing this matter, committing the needed resources, and accelerating efforts.

Countries must utilize a variety of initiatives to overcome multiple obstacles and achieve elimination.

First, countries must ensure that all diagnosed individuals receive treatment without incurring substantial, or preferably any, costs. Countries must also establish a national HCV elimination plan based on reliable, local data to guide all domestic elimination efforts.

Second, countries should scale up HCV healthcare strategies by raising awareness of the disease and dedicating more screening resources to increase the number of diagnosed individuals and prevent new cases.

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6 Denmark, England, Germany and Portugal.
Finally, countries must reach marginalized and less accessible patients by reducing referral times, simplifying patient pathways and ensuring care is integrated, coordinated, and decentralized to be closer to patients. By 2030, a goal established by the WHO in 2016. However, measures may vary depending on the characteristics of each country, namely, their progress to date, populations at risk (i.e. groups more susceptible to acquiring and transmitting HCV), and models of care.

This report identifies several measures to eliminate viral hepatitis as a major public health threat. Despite the cost-effectiveness of HCV screening and treatment as well as the high rates of sustained virologic response, limited efforts have constrained progress in testing, linkage to care, and treatment for HCV. For example, about 80% of individuals with HCV are still unaware of their condition globally. Further, certain populations at risk still encounter substantial barriers in accessing care.

Just four out of the 11 countries included in our past report (2017) have made substantial progress in terms of putting a HCV-specific strategy in place, eliminating treatment restrictions, and achieving improved diagnosis levels. In addition, of the 29 countries within the scope of this report, only 10 are currently on track to meet the WHO 2030 HCV elimination goal. Given that data are not regularly and consistently collected across countries, some discrepancies have been identified across sources regarding which countries are on track to reaching the WHO 2030 elimination goal.
However, we must acknowledge that countries have made different degrees of progress so far and will face distinct levels of complexity in their effort to eliminate HCV. The following country archetypes are indicative, and there are also other studies about how countries are progressing towards achieving the WHO elimination targets.

Elimination strategy approach depending on country archetype

1. Leaders
Focus on less accessible patients
• Simplify patient pathway
• Decentralize care services

2. Followers
Scale up healthcare strategies
• Raise awareness
• Launch screening campaigns

3. Late starters
Improve treatment access
• Eliminate treatment restrictions
• Cover treatment cost

‘Leader’ countries, which are on track to achieve the WHO targets by 2030, or even earlier, must focus on reaching the least accessible individuals. To facilitate a complete treatment process for this population, they should strongly consider developing diagnosis and linkage-to-care solutions that simplify the care pathway and are located closer to patients’ communities.

‘Follower’ countries can achieve elimination by 2030 but still need to overcome relevant barriers, as many easily accessible patients who have not been diagnosed remain. Therefore, they should invest dedicated resources to rapidly increase diagnosis rates and assess patients for treatment. Thus, key initiatives to establish include scaling-up screening campaigns, increasing knowledge among healthcare providers, and developing awareness campaigns that decrease social isolation, mistrust, and stigma.

‘Late-starter’ countries need to make radical changes to reach the WHO targets. At the bare minimum, they should consider focusing on treatment, eliminating restrictions in access (e.g. provide access regardless of the stage of liver damage, socioeconomic conditions, etc.), and adequately covering treatment costs.

Elimination strategy approach depending on population at risk

- **PWID**
  Put effort into linkage to care
  • Streamline patient pathway
  • Decentralize and integrate care services

- **MSM**
  Invest in awareness and prevention
  • Create information campaigns to battle stigma and encourage prevention
  • Increase screening efforts

- **Migrants**
  Expand healthcare access
  • Provide free and universal access to the health system
  • Raise awareness and offer screening at country arrival

- **Selected birth cohorts**
  Focus on diagnosis
  • Deploy awareness and screening campaigns
  • Reach innovative pricing agreements

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15 ECDC (2018). Public health guidance on screening and vaccination for infectious diseases in newly arrive migrants within the EU/EEA.
However, one size does not fit all. To achieve elimination efficiently, countries must consider their current progress and adapt their strategy based on two aspects: at-risk groups and models of care.

Firstly, governments should develop people-centered programs\textsuperscript{12}. These programs must be adjusted depending on the primary sources of infection as well as the demographics and relative size of each population at risk. In this report we will cover four key populations at risk: people who inject drugs (PWID), men who have sex with men (MSM), migrants, and selected birth cohorts.

For **PWID**, the effort should emphasize linkage to care. Drop-out rates for this group are particularly high, and some PWID may need extra support to secure an appointment and follow-up with the healthcare professional\textsuperscript{13}. Therefore, simplified care pathways and coordinated, decentralized care providers are paramount.

For **MSM**, the resources should be dedicated to awareness and prevention by creating educational campaigns to remove HCV-related stigma and encourage preventative behaviors. In addition, establishing screening campaigns adapted to their needs (e.g. developing actions led by peers or making available kits for anonymous at-home testing) and testing for multiple blood-borne diseases (e.g. HCV, hepatitis B (HBV), human immunodeficiency virus (HIV), syphilis) can result in higher cost-effectiveness\textsuperscript{14}.

For **migrants**, the focus should be on granting them healthcare access in their host countries. Since some migrants do not enter through official immigration channels, they cannot access public health services or lack financial coverage for HCV diagnosis or treatment. Furthermore, this group is hard to track once in the host country, so they should be offered integrated screening (e.g. HCV, HBV, HIV, tuberculosis) shortly upon arrival, followed by linkage to care, access to treatment, as well as monitoring and evaluation\textsuperscript{15}.

For **selected birth cohorts** of individuals potentially living with HCV, the key is cost-effectively maximizing diagnosis rates\textsuperscript{16}. Cost pressure intensifies when the country has a low disease prevalence (e.g. Denmark\textsuperscript{17}). Thus, reaching better pricing agreements with diagnostic and pharmaceutical companies is even more critical for these individuals.

Countries also need to create **models of care** adapted to their local circumstances\textsuperscript{18,19}. The availability of a highly effective and safe oral therapeutic, almost devoid of side-effects, enables the implementation of simpler models of care closer to where patients actually are.

Models of care also require adequate integration of diagnostic, treatment, and prevention services, ideally in a ‘one-stop-shop’ approach. A test-and-treat model is desirable as the model uses simple, quick diagnostic tests, like dried blood spot testing, and provides results and guidance to start treatment as soon as possible.

To reach more patients and improve the adherence of the most vulnerable populations, like PWID and migrants, countries should aim for decentralization of services. It is crucial to move from specialized services at central hospitals and primary care facilities to community centers (e.g. addiction centers, harm reduction centers, prisons, community centers, pharmacies, etc.) and support the availability of multidisciplinary teams, including trained medical and non-medical staff and peer support whenever possible.

There is no universal solution for models of care. Countries consider those that best suit their unique health system, epidemiology, and patient populations.

\textsuperscript{14} Lazarus, J. V., et al. We know DAAs work, so now what? Simplifying models of care to enhance the hepatitis C cascade. J Intern Med. 2019; 286: 596.
Case for elimination

Chronic HCV infection is mostly asymptomatic and can progressively damage the liver over the course of 20 to 30 years with some patients developing irreversible liver damage much earlier. In 2015, an estimated 71 million people had chronic HCV globally and approximately 399,000 people died from HCV in 2016, mostly from developing cirrhosis and primary liver cancer (hepatocellular carcinoma).

Before 2014, the available treatment was interferon-based. This had cure rates of around 50%, multiple side-effects, and restrictions for certain medical conditions, limiting its use in many individuals. Fortunately, all-oral direct-acting antiviral (DAA) medication introduced in 2014 has cure rates

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Context

Chronic HCV infection is mostly asymptomatic and can progressively damage the liver over the course of 20 to 30 years with some patients developing irreversible liver damage much earlier. In 2015, an estimated 71 million people had chronic HCV globally and approximately 399,000 people died from HCV in 2016, mostly from developing cirrhosis and primary liver cancer (hepatocellular carcinoma).

Before 2014, the available treatment was interferon-based. This had cure rates of around 50%, multiple side-effects, and restrictions for certain medical conditions, limiting its use in many individuals. Fortunately, all-oral direct-acting antiviral (DAA) medication introduced in 2014 has cure rates

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over 95%, is well tolerated, and simple to take. This had both a push effect, with more doctors prescribing it, and a pull effect, with more patients willing to receive treatment. Moreover, it has allowed a change in models of healthcare. In particular, care management can now be delocalized from hospitals and primary care facilities into community settings to better reach high-risk populations.

Treatment access is a key area to focus on, given that some countries still need to remove reimbursement restrictions and adequately cover the costs of the treatment for everyone.

However, the annual rate of treated individuals living with HCV has dropped since 2016 as the number of new cases diagnosed has slowed down. This is because although many countries have expanded HCV treatment coverage, few have nationwide screening programs that can maintain a sufficient number of individuals to treat in the future.

Currently, the main challenges lie in diagnosis, driven by a lack of awareness of one’s status, as HCV is still widely misunderstood and stigmatized. It is estimated that globally only 20% of those living with HCV are aware of their status, and in high-income countries such as the US, this indicator only reaches up to 50%. As a consequence, there is still a large number of people being diagnosed at a more advanced stage of their infection (i.e. people who have ≥ F3 fibrosis stage at the time of diagnosis).

Prevention is also a sensible and cost-effective solution that should be prioritized.

Few countries have advanced significantly during the past few years to a high likelihood of reaching the WHO goal. Most countries have to take immediate action to avoid lagging behind. As 2030 approaches, the need for countries to speed up hepatitis diagnosis and treatment becomes stronger, with many remaining tasks to accelerate efforts towards the elimination goal.

There is a clear case for HCV elimination, supported by three main rationales. The first relates to public health because without increased investment in testing and treatment of HCV, the virus will continue to spread globally, reaching an estimated 13 million avoidable new cases and 1.1 million preventable deaths by 2030. The second is purely economic, given the long-term cost-savings entailed by investing now. The third refers to preventing liver disease progression, morbidity and mortality for those who live with HCV.

Furthermore, in 2016, the WHO member states unanimously adopted the Global Health Sector Strategy (GHSS), setting the formal objective of eliminating viral hepatitis (including hepatitis B and C) as a public threat by 2030. The established targets are:

- 90% reduction in incidence
- 90% of individuals living with HCV diagnosed
- 80% of eligible HCV population treated
- 65% reduction in liver-related deaths

To support these objectives, recommendations on the diagnosis and treatment of HCV aimed at different countries were published. Also, a worldwide movement, “NOhep”, launched to raise awareness of the disease and pressure national health authorities to commit to elimination. Other initiatives include the “Know hepatitis – Act now” campaign and “World Hepatitis Day”, on the 28th of July, which is an official WHO annual global event.

HCV elimination requires strong political commitment to ensure that resources are put in place through sufficient funding. It also requires the involvement of all key stakeholders, civil society, the scientific community, hospitals, as well as pharmaceutical and medical companies, which all play an important role in promoting change.

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29 The World Health Organization Europe (2005). What is the evidence for the effectiveness of interventions to reduce hepatitis C infection and the associated morbidity?
30 World Hepatitis Summit 2015 meeting report: Building Momentum, Making the Case.
32 Available at https://www.nohep.org/ [accessed January 20, 2020].
Moreover, there is a need for countries to improve surveillance, monitoring, and measuring progress towards elimination\textsuperscript{31}. Many countries lack reliable epidemiological data, which challenges measuring progress towards specific targets for 2030 and the effectiveness of the healthcare strategies.

Since our past report was published in 2017, there has been little progress, as reflected in the country scorecard (page 15). When comparing the 11 countries included in the past document, only four (i.e. Denmark, England, Germany and Portugal) have significantly advanced towards the goal of eliminating HCV. The main reason behind this is the lack of effort by national governments.

In 2020, of the 29 countries within the scope of this report only 10 are on track to meet the WHO 2030 HCV elimination goal. These countries have removed treatment restrictions, giving access to all individuals regardless of their degree of liver damage, and have a current treatment rate sufficient to achieve elimination by 2030.
### Assessment of 29 country national plans scorecard

**Plan status and elimination objective**

<table>
<thead>
<tr>
<th>Country</th>
<th>Strategic plan in place</th>
<th>Year of the latest plan</th>
<th>Eliminate HCV by 2030 (or before)</th>
<th>Monitoring and evaluation of impact of each of the initiatives</th>
<th>HCV national patient registry</th>
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<tbody>
<tr>
<td>Australia</td>
<td></td>
<td>2018</td>
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<tr>
<td>Austria</td>
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<td>Belgium</td>
<td>Previous plan expired in 2019</td>
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<td>Bulgaria</td>
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<td>Canada</td>
<td></td>
<td>2019</td>
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<td>Czech Republic</td>
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<tr>
<td>Denmark</td>
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<td>2019</td>
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<td>England</td>
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<tr>
<td>Finland</td>
<td></td>
<td>2019</td>
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<tr>
<td>France</td>
<td></td>
<td>2016</td>
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<td>Germany</td>
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<td>2017</td>
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<td>Greece</td>
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<td>2016</td>
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<tr>
<td>Iceland</td>
<td></td>
<td>2016</td>
<td>Achievable by 2030</td>
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<tr>
<td>Ireland</td>
<td></td>
<td>2016</td>
<td></td>
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<tr>
<td>Israel</td>
<td></td>
<td>2016</td>
<td>Target to reach elimination by 2024</td>
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<td>Italy</td>
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<td>2015</td>
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<td>Luxembourg</td>
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<td>2018</td>
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<tr>
<td>Netherlands</td>
<td></td>
<td>2016</td>
<td></td>
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<tr>
<td>Norway</td>
<td></td>
<td>2016</td>
<td>Target to reach elimination by 2024</td>
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<td>Poland</td>
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<td>Portugal</td>
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<td>2019</td>
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<td>Romania</td>
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<td>2019</td>
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<td>Russia</td>
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<tr>
<td>Scotland</td>
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<td>2019</td>
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<td>Slovakia</td>
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<td>2019</td>
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<tr>
<td>Spain</td>
<td>Updated plan expired in 2017</td>
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<tr>
<td>Sweden</td>
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<td>2018</td>
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<td>Switzerland</td>
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<td>2018</td>
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<tr>
<td>Turkey</td>
<td></td>
<td>2018</td>
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**Monitoring and evaluation**

- **Monitoring of impact of each of the initiatives**
  - Research registries
  - Basic data on treated patients
  - All treated incl. known HCV patients & the national health registry
  - All treated
  - Initiative is not a national plan
  - All diagnosed
  - Only those under treatment
  - Set of initiatives set towards HCV elimination; plan to be launched in 2Q'20
  - Work in progress
  - Large registry
  - All diagnosed
  - Plan developed in 2019 but not implemented
  - Health fund representatives report progress periodically
  - All treated with DAA, work in progress to expand registry scope
  - Document development ongoing
  - National plan available but not an elimination plan
  - National plan available but not an elimination plan
  - Published commitment to reach elimination by 2030
  - Updated plan expired in 2019
  - Plan included in the Sexually Transmitted Infections national plan (work in progress)

However, some countries which used to be at the forefront have recently fallen behind. In these settings, a large share of those with HCV remain unidentified and those who are aware of their condition encounter many obstacles to access treatment. There is growing concern that this could also happen to other leading countries\textsuperscript{35}. Comparing where countries were three years ago with where they are currently shows that this effort should be seen as a marathon rather than a sprint.

Currently, around \textbf{40\% (n=12) of the countries covered by this report still lack a national strategic plan\textsuperscript{36}}, a measure which, in many of the leading countries, has been integral in elimination achievements. Beyond the importance of having such a plan to guide elimination efforts, it also highlights HCV elimination as a public health priority.

In the absence of a national plan, other stakeholders, such as regional bodies, together with private and scientific organizations (e.g. Swiss Hepatitis in Switzerland), have developed \textbf{micro-elimination strategies} to provide an alternative solution for those living with HCV. Micro-elimination is a way of moving towards elimination which alleviates the burden of large nationwide elimination efforts through targeting key populations involving multi-stakeholder initiatives and monitoring and evaluation plans\textsuperscript{37}. Although, this approach can create a bias in the scorecard, as some regions within countries might be ahead of the nation as a whole, which is the score reflected in the indicators.

Among those countries with a national plan, only \textbf{30\% have three or more indicators} regarding the inclusion of the elimination target year (2030 or before) in their plan, adequate monitoring of initiatives, and a national patient registry (indicated as ‘Yes/Well addressed’ in the country scorecard on page 15). Generally, the initiatives in the plan are \textbf{not adequately monitored} due to the difficulties in obtaining reliable data.

In terms of resources, most experts interviewed (see ‘Further information’ section) highlight inefficient allocation as the main issue hindering progress. Although in most countries DAA treatment is reimbursed without restrictions, additional resources are needed to drive prevention and awareness and to increase the number of people being diagnosed. Having a more integrated system of existing services is key to reach a more efficient allocation of resources.

When looking into the future, leading countries must tackle elimination through a health system perspective and aspire to cover the six core components of the WHO health systems framework: service delivery, health workforce, health information systems, medical procurement, health systems financing, and leadership and governance\textsuperscript{38}. As the components are inherently interdependent, they must be addressed together to support sustainable improvement of the provision of care.

In this report, we acknowledge that accelerating the pace is not easy for countries and each has its own specific circumstances. Thus, we aim to provide a toolbox with which each country can develop its own tailored solution. Therefore, we analyze HCV through three different lenses:

- Countries’ progress to date, to learn from others’ experiences.
- Populations at risk, to adapt to the specific epidemiology and demography.
- Models of care, to adjust to the available resources and healthcare structure.

Each country should review where it best fits among the three lenses in order to develop a more effective strategy that meets its particular needs.


\textsuperscript{36} Refer to the ‘Further information’ section for the methodology used.


HCV treatment uptake increased rapidly during 2014-15 after the introduction of highly effective DAAs. This was driven by patients who had previously delayed treatment due to the toxicity of earlier drugs\(^9\).

Despite the initial surge, treatment rates have been sluggish in recent years. Most policymakers have not promoted large scale measures to increase the number of people living with HCV being diagnosed and treated. Currently, assuming they maintain their current levels of diagnosis and treatment, **76% of high-income countries and territories are not on track** to meet the WHO goal of eliminating HCV by 2030, and 62% are off-track by at least 20 years\(^9\).
When looking at the care cascade, there are still significant gaps. Overall, in the countries analyzed\textsuperscript{40}, less than 40% of individuals with HCV have been tested, and despite having a backlog of diagnosed individuals, current treatment rates would be insufficient to reach the WHO targets, only curing ~55% by 2030 vs the 80% intended. For instance, to achieve the WHO targets, diagnosed cases would need to increase by 7% annually over 2015’s baseline, while the number of people treated annually would need to increase by 25% in the next 10 years\textsuperscript{41}.

Countries must focus on developing different strategies based on their progress to date, the key at-risk groups they need to address, and their models of care.

### Country archetypes and key elements to consider for their approach to HCV elimination

<table>
<thead>
<tr>
<th>Description</th>
<th>Key elements of their approach</th>
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</table>
| Expect to reach WHO targets by 2030 (if not earlier) | Target less accessible patients  
- Simplify patient pathway  
- Decentralize and integrate care services |
| Set HCV as one of their main health system priorities | Leaders |
| Can reach elimination but still need to overcome relevant barriers | Scale up HCV healthcare strategies  
- Raise awareness and battle stigma  
- Launch screening campaigns |
| Have made progress by eliminating treatment restrictions | Followers |
| Need to make radical changes to be able to reach WHO’s targets | Focus on treatment access  
- Provide free and universal treatment access to all patients  
- Develop a national HCV plan |
| HCV not acknowledged as a public health priority | Late starters |

Note: The infographic does not show exclusively the only measures that countries can focus on, rather a pattern of the initiatives that countries that are more advanced in HCV elimination share.
‘Leader’ countries

Leaders expect to reach the WHO goal by 2030, if not earlier. They have set HCV as one of their top health system priorities, committing substantial resources to leverage the development of DAAs and screening campaigns to eliminate the disease. Thus, they have high diagnosis rates and high levels of awareness among physicians.

Nevertheless, they still need to focus on reaching less accessible patients, who are harder to find and to link to care. The most relevant barriers are:

- Complex pathways with long referral times and multiple appointments.
- HCV healthcare services centralized in hospitals, which limits access for high-risk populations and people living in rural areas.
- Lack of sufficient level of coordination among care stakeholders (e.g. hospitals, clinics, prisons, etc.) and low integration within the health system structure.

The overall strategy that leaders are following to overcome the remaining obstacles and reach the most vulnerable patients is based on three pillars:

- **Pathway shortening**, aiming towards a ‘one-stop test and treat’ for HCV.
- **Decentralization of HCV services**, from large referral hospitals to local level care, enabling care providers to share diagnosis and treatment tasks.
- **Integration of HCV treatment**, including HCV management in primary care and prevention programs.

### Specific actions for ‘leader’ countries

1) **Shorten pathway**

1. Use rapid antibody screening and a single reflex viral load test to reduce waiting times
2. Promote the use of pan-genotypic DAAs to avoid genotypic testing
3. Improve prison inmates’ transfer protocols to outside medical facilities
4. Invest in the development of screening technologies (e.g. HCV self-test)

2) **Decentralize HCV services**

5. Allow primary care physicians to diagnose and treat uncomplicated cases of HCV
6. Develop innovative solutions such as mobile street units or pop-up clinics
7. Provide non-invasive screening toolkits that can be used remotely or in non-specialist settings
8. Create specific referral pathways for each patient segment to address their needs

3) **Integrate HCV treatment**

9. Leverage current care structures for other diseases (e.g. HIV, HBV)
10. Develop trainings and communication campaigns for healthcare staff
11. Use counselling and behavioral therapies to cover other issues that the individual might have
12. Create transition programs for inmates still being treated when leaving prison

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42 AASLD, EASL, APASL, ALEH (2019). Call to Action for Liver Associations to Advance Progress Towards Viral Hepatitis Elimination: A Focus on Simplified Approaches to HCV Testing and Cure.
‘Follower’ countries

These countries can achieve elimination by 2030 but still need to overcome relevant barriers, as many accessible patients who have not yet been diagnosed remain.

So far, they have made progress by eliminating treatment restrictions. These changes have largely been driven by public pressure on governments and by a decrease in drug prices. In addition, private scientific or patient organizations have proactively promoted the development of guidelines for elimination.

However, most nations have been wary of promoting targeted awareness campaigns, which is also reflected in the current insufficient diagnosis levels. This is due to the fear that this would become a large investment in terms of treatment costs and to the stress it could cause to the healthcare network. For this reason, countries face a stagnation risk, as people unaware that they are living with HCV are not being found and linked to care.

The main barriers that hinder progress are:

- Limited non-drug resources (e.g. healthcare workers, medical equipment) to conduct screening and treatment.
- Lack of awareness by care providers and patients.
- Stigmatization of individuals who live with HCV by associating HCV with other stigmatizing issues like drug use and HIV infection.

The overall strategy that ‘follower’ countries should consider developing to step up their game is threefold:

- Commit necessary amounts of resources to develop national screening campaigns and to absorb new waves of patients.
- Raise awareness and de-stigmatize HCV among the targeted population, stressing the importance of prevention.
- Overcome stigma in healthcare settings.

### Specific actions for ‘follower’ countries

1) **Commit relevant amounts of resources**

1. Dedicate specific HCV government budgets, covering treatment expenses and the rest of complementary resources
2. Scale up screening strategies adapted to the country’s disease epidemiology
3. Reach innovative pricing agreements with pharmaceutical companies and laboratories
4. Provide medical equipment and staff to develop testing campaigns within prisons and in community settings

2) **Raise awareness and prevention**

5. Deploy general population awareness campaigns to inform individuals about the virus
6. Promote a network-based approach to raise awareness among peers
7. Create alert mechanisms to remind healthcare workers to screen individuals who belong to populations at risk
8. Inform individuals on protection measures against STIs, and on other measures such as not sharing needles

3) **Overcome stigma**

9. Educate both medical and non-medical staff to fight stigma judgment
10. Endorse evidence-based HCV prevention efforts (e.g. harm reduction)
11. Include high-risk segments specifically in elimination plans
12. Collaborate with cultural and religious organizations to reach specific groups

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‘Late-starter’ countries

These are countries which will have to make radical changes in their strategy to reach the WHO goal. They have not acknowledged HCV elimination as a public health priority, only treating individuals with closer access to the health system or at an advanced stage of the disease.

As a consequence, many marginalized groups are still awaiting treatment and overall treatment rates are very low. The main barriers include:

- Restricted treatment policies, based on factors such as disease stage or drug abstinence.
- Treatment coverage not available to all regardless of their income, hindering access for low-income populations.
- Lack of a national HCV plan to coordinate the elimination strategy.

The overall strategy that late-starter countries must follow to increase their speed and catch up with the more advanced countries in the race to elimination is twofold:

- **Improve treatment access**, offering affordable DAA drugs to all individuals.
- **Increase political commitment**, making HCV a public health priority, and formalized in a publicly available national plan. Ideally, the plan should be specific to HCV. However, countries should assess whether a specific plan or an integrated program is more appropriate. (e.g. Canada has included HCV among a wider plan for Sexually Transmitted Infections (STIs)).

### Specific actions for ‘late-starter’ countries

1) **Improve treatment access**

1. Promote universal treatment access, regardless of individual characteristics
2. Offer full treatment coverage
3. Reach agreements with pharmaceutical companies to make drugs more affordable
4. Reduce administrative requirements to access treatment (e.g. social security number)

2) **Increase political commitment**

5. Develop a national plan for HCV
Elimination strategy depending on populations at risk

At-risk populations-based strategies enable tailoring the approach to individuals and their specific needs. Having a strategy targeted at these specific groups allows for a more efficient use of resources and a person-centered approach.

This is essential to reach high treatment penetration within these groups and to achieve elimination. Although some people might belong to various groups, approaching them through different routes will ensure that fewer are left behind. Furthermore, some campaign measures are cross-segmental (e.g. increasing general awareness may improve diagnosis rates for every group, as primary care physicians would be more likely to test for the disease).

To achieve elimination, countries should consider the four most relevant populations at risk

<table>
<thead>
<tr>
<th>PWID</th>
<th>MSM</th>
<th>Migrants</th>
<th>Selected birth cohorts</th>
</tr>
</thead>
<tbody>
<tr>
<td>People who currently inject drugs (regularly or sporadically)</td>
<td>Men who have sex with men</td>
<td>Foreign adults born in high-prevalence regions</td>
<td>People of similar ages with a higher risk of having been exposed to HCV in the past</td>
</tr>
<tr>
<td>Main points of care are prisons, homeless shelters and harm reduction centers</td>
<td>More common among men with HIV co-infection or on PrEP</td>
<td>Includes both documented and undocumented migrants</td>
<td>Baby boomers are generally the most common cohort</td>
</tr>
</tbody>
</table>

Populations at risk have been selected based on four criteria:

1. **Higher prevalence** than the overall population’s average: 1-2% HCV prevalence (antibody positive) in countries within the scope of this report.\(^4\)
2. **Size:** significant amount of people in the group both living with or without HCV.
3. **Clear screening criteria** for healthcare workers: easily recognizable by workers in order to be tested.
4. **High transmission rates:** a relevant source of new HCV cases.

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In some countries, greater emphasis has been put by the medical community on reaching those groups at higher risk, especially PWID, as their prevalence and transmission rates are substantially higher\(^{46}\). These individuals can be accessed through specific care models, meaning that screening campaigns can be better targeted. However, **linkage to care** is essential to ensure PWID access to treatment. Thus, pathway simplification, decentralization, and integration of HCV care services must be implemented.

While authorities have focused on reducing HIV among MSM, HCV has not had the same level of visibility in many countries. **Prevention measures** and leveraging other STI care platforms as for HIV, will be critical in preventing the virus from spreading further and improving diagnosis rates.

**Migrants** are the hardest group to track, especially when they are undocumented as limited information exists on this particular population. Furthermore, they form a very heterogeneous group. As such, screening campaigns shortly upon arrival for those born in high prevalence areas offer a good opportunity for identifying new cases of individuals living with HCV. Additionally, free and universal **access to the national healthcare system** is essential to ensure that those diagnosed get treated and can be monitored.

**Selected birth cohorts** have not been the priority in most countries\(^{47}\), despite accounting for a significant share of people living with HCV in some countries. To date, most governments have been doubtful about the cost-effectiveness of awareness and

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screening campaigns\textsuperscript{18} and the burden this could put on the health system in the short term. For this reason, reaching innovative pricing agreements with diagnosis and pharmaceutical companies will be paramount to encourage the taking of action in this direction.

People who inject drugs (PWID)

This population comprises of current injecting drug users, who mostly take opioids, but also stimulants such as amphetamines or cocaine intravenously. They may inject either regularly or sporadically. The majority of them are men, and prevalence is higher among older people due to risk accumulation over years of potential exposure\textsuperscript{49}.

This population has very high HCV transmission rates, with some studies suggesting that 20-30% of PWID acquired HCV within the first two years of starting to inject drugs, and 50% within five years\textsuperscript{46}. This is partly driven by the strong endurance of the virus, which can live in dry blood on a surface for seven days and inside of a syringe for up to 63 days\textsuperscript{50}.

In addition, knowledge of one’s HCV status does not seem to decrease the risk behavior associated with injected drugs use\textsuperscript{51}, and therefore, treatment with DAAs is the best way to prevent transmission in this risk group.

The virus is generally transmitted through direct sharing of needles and syringes. For this reason, around two-thirds of the approximately 16 million people who currently inject drugs globally are HCV antibody positive\textsuperscript{52}. In developed countries in particular, PWID can represent up to 85% of new cases (e.g. Canada)\textsuperscript{53}.

The size of this group differs widely depending on the country. For example, this group may be prevalent where there have been drug use epidemics (e.g. Canada) or where there is less focus on harm-reduction measures, such as some countries in Eastern Europe (e.g. Slovakia), where only 10% of PWID are able to access needle and syringe programs\textsuperscript{54}.

PWID represent a large share of individuals with HCV in the countries under study. Moreover, in countries where the HCV epidemic is relatively recent and the majority of those living with HCV were born after 1960 (e.g. Finland, Ireland, or Russia), PWID comprise an even larger percentage.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
 & Incidence & Access to new patients & Authorities’ focus & Awareness & Cascade challenge & Best practice countries \\
\hline
PWID & High & High & High & High & Linkage to care & \includegraphics[width=\textwidth]{figures/pwid.png} \\
\hline
\end{tabular}
\end{table}

Lengthy care pathway, lack of referral protocols, and care concentrated in hospitals are the main barriers

Compared to other at-risk groups, a higher percentage of PWID are aware of living with HCV. However, treatment uptake within this population has historically been very low and non-adherence is also a major obstacle. The introduction of DAAs reduced treatment-related concerns (e.g., toxicity, ineffectiveness) and improved adherence levels, even among those actively using drugs. However, there are many other psychological, behavioral and social hurdles that jeopardize these patients’ pathway to cure.

Additionally, it is essential to bring healthcare closer to PWID in order to address their distinct needs. This can be facilitated through models of care in settings with members of this group, such as prisons, harm reduction centers, and homeless shelters. Those subgroups which are not in contact with any of these models of care pose an even greater challenge to identify and to treat.

The barriers across the care cascade are concentrated around linkage to care but are also present in diagnosis and treatment. The most relevant are:

**Awareness and prevention**

Mistrust towards institutions due to the fear of stigmatization because of their HCV condition and criminalization of drug use. Past unpleasant experiences with healthcare providers limit this group from attending the conventional care network for medical checks.

Limited access to prevention measures in some selected countries, where there is a reduced number of harm reduction clinics which often have restrictive opening hours, poor quality equipment, and staff with limited knowledge about HCV.

**Linkage to care**

Lengthy care pathway between screening and treatment, with long referral times and multiple appointments. This means that many patients drop out along the process, especially when the diagnosis requires two visits, one for the antibody screening and another for the confirmatory HCV Ribonucleic Acid (RNA) testing.

Lack of information about the severity of HCV’s effects on health, which leads to undesired outcomes, such as diagnosed individuals not considering treatment a priority which leads to unfinished treatments.

Poor medical infrastructure in non-hospital settings such as prisons, harm reduction centers or homeless shelters, lacking qualified healthcare staff to conduct the tests and provide treatment, together with non-medical support personnel and equipment. Therefore, these limitations mean that patients must be referred to medical facilities.

Lack of referral protocols for PWID, who generally require people they trust, such as peers, to guide them throughout the whole process. This support is not straightforward when there are many stakeholders involved, some of which are not familiar with health issues (e.g., prison authorities) or do not perceive HCV as an area within their responsibility (e.g., prison guards and social counsellors). In addition, the existence of multiple budget flows (e.g., funds from a country’s health or justice ministries, or private organizations, etc.) add administrative complexity.

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Treatment

Although a generalized issue, in a few selected countries, treatment restrictions excluding PWID and stigmatization by physicians have a greater expression than in others (e.g. Bulgaria, Slovakia)⁶¹. This severely hinders access to treatment for this group. These policies are based on the belief that these individuals are not deserving of care or that other groups should be a higher public health priority.

Furthermore, for people who cycle often between the prison and community environments and for inmates serving short sentences, there is an additional challenge in accessing care as they may need to deal with many administrative tasks to continue treatment once they leave prison⁶².

Additionally, in some selected countries (e.g. Hungary), there is a heavy administrative burden to access treatment because PWID are highly scrutinized before receiving medication, further complicating the process⁶³.

Simplify the pathway, bring care closer to patients, and implement a holistic care solution¹⁸,⁶⁴ are the main critical success factors

Since the removal of treatment restrictions in many countries in the last three years, PWID have become one of the highest priority groups for national governments across Europe, Australia, and Canada.

In addition to improving these individuals’ quality of life by eliminating the virus, treating this group can serve as an enabler to increase their level of integration into society.

Stimulated by the ease of finding new cases of individuals with HCV, stopping the virus from spreading has been the main priority. Since the prevalence among PWID is much higher than in other groups, they can be located and targeted in specific settings (e.g. prisons, harm reduction centers and homeless shelters).

For this reason, many PWID have been tested for HCV. However, many underestimate the severity of the disease and fail to engage in treatment⁶⁵. Therefore, linkage to care is key. Pathways adapted to the unique needs of PWID are essential.

The critical success factors for this group are:

Awareness and prevention

Develop public campaigns to fight stigma and criminalization of PWID. Moreover, an intense effort must be made to inform physicians about the special needs of the population at risk, highlighting that every individual is deserving of healthcare.

Raise awareness among those affected through programs that inform them about the impact of HCV on their health, the importance of the screening and treatment processes, the relevance of adhering to treatment, potential side effects, chances of cure, and other doubts. In addition, the use of peer-based information campaigns to reduce the distance of PWID from the health system has proven to be an effective measure in many countries to leverage their existing network to reduce mistrust⁶⁶.

Endorse prevention efforts, such as harm reduction programs, which cost-effectively reduce the number of new cases, and can serve as a route of information for individuals with HCV⁶⁷.
**Linkage to care**

**Simplify the patient pathway** aiming towards a ‘one-stop test and treat’ for HCV. Therefore, health authorities must support the use of:

- Rapid antibody screening and a single reflex viral load test.
- Non-invasive screening tests such as elastography/ FibroScan®. Although not strictly necessary, it can help improve treatment acceptance among these patients.

Bring care closer to patients, by **decentralizing HCV services**, shifting them out of large medical facilities to **include other models of care applied in prisons, harm reduction centers, and homeless shelters**. This can be achieved by:

- Investing more resources in settings where PWID are located, by providing equipment and HCV-educated healthcare staff to support them in the complete testing, linkage to care, and treatment process.
- Allowing primary care physicians and other healthcare workers to diagnose and treat less-complex cases to avoid referral to hospital specialists.
- Developing innovative solutions, such as mobile street units or pop-up clinics, enabled by the use of screening toolkits that can be used remotely (e.g. dried blood spot sampling).

- In the most difficult cases of adherence, promoting counselling and behavioral therapies in combination with opioid substitution therapy (OST), or even with other incentives such as giving money to those who engage in treatment.

**Implement a coordinated and holistic care solution for individuals**, by creating specific referral protocols which consider the characteristics of PWID models of care. Coordination can be made possible by creating a specific figure accountable for ensuring the whole test and treat process for individuals within each setting. For example, a nurse is assigned to follow up on the patient’s progress and coordinate with specialists and healthcare workers within a prison setting. The nurse is also in charge of considering the patient’s additional needs such as testing for co-infections or offering additional psychological support.

**Treatment**

**Lift the treatment restrictions in those countries which still maintain them**, providing free access to all individuals regardless of their socio-economic status. This should include those currently using drugs or who have acquired HCV again to stop HCV from becoming more widespread in the population (e.g. France treats all those living with HCV with no restrictions).

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Men who have sex with men (MSM)

This refers to men who acquire HCV through unsafe sexual practices with other men. Transmission occurs during condomless anal intercourse where contact with blood may happen or through transmission in semen. In addition, this has been associated with a mix of clinical and behavioral aspects that increase the risk of infection, such as co-infection with HIV or other STIs, men on pre-exposure prophylaxis (PrEP) for HIV, and sexual practices which include drug use (e.g. chemsex).

In the past, most countries have not considered MSM a priority population, even though HCV incidence among them has not declined. However, access to care services has been asymmetric. While HIV-positive MSM are more likely to receive routine care and be regularly screened for HCV, HIV-negative MSM have not been targeted by screening campaigns and many remain unaware of their HCV-positive condition.

The lack of awareness around the disease, sexual risk norms within the MSM population, HCV stigma and non-disclosure of HCV status constitute barriers to safer sex, and drug use directly impedes the

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### Barriers and critical success factors for PWID along the care pathway

<table>
<thead>
<tr>
<th>Activity</th>
<th>Awareness &amp; Prevention</th>
<th>Diagnosis</th>
<th>Linkage to care</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Patient decides to test for HCV due to past risk exposure</td>
<td>• Healthcare worker takes blood sample for testing &amp; initiates referral</td>
<td>• Laboratory tests for presence of HCV antibodies</td>
<td>• Hospital specialist confirms diagnosis &amp; tests for fibrosis level</td>
</tr>
<tr>
<td></td>
<td>• Mistrust towards public institutions</td>
<td>• Lengthy care pathway</td>
<td>• Poor medical infrastructure in PWID channels</td>
<td>• Remaining treatment restrictions and stigmatization by physicians</td>
</tr>
<tr>
<td></td>
<td>• Limited access to prevention measures</td>
<td>• Lack of information about HCV’s health effects</td>
<td>• Lack of referral protocols</td>
<td>• N/A</td>
</tr>
<tr>
<td></td>
<td>• N/A</td>
<td>• Develop public campaigns to fight stigma and criminalization of PWID</td>
<td>• Simplify the patient pathway</td>
<td>• N/A</td>
</tr>
<tr>
<td></td>
<td>• N/A</td>
<td>• Endorse prevention efforts</td>
<td>• Provide free access to all patients with no restrictions</td>
<td>• N/A</td>
</tr>
<tr>
<td></td>
<td>• N/A</td>
<td>• N/A</td>
<td>• Decentralize HCV services</td>
<td>• N/A</td>
</tr>
<tr>
<td></td>
<td>• N/A</td>
<td>• N/A</td>
<td>• Implement coordinated and holistic care solutions</td>
<td>• N/A</td>
</tr>
</tbody>
</table>

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self-efficacy of MSM to take risk-reduction measures. This limited awareness is responsible for the high transmission rates among the population. Also, MSM can sometimes have a higher rate of reinfection than other groups.

However, those few countries that considered this population at risk a priority, for example the Netherlands, where MSM have the highest HCV incidence, have developed many initiatives focused on increasing awareness of the disease and how to prevent it, together with screening initiatives targeting this particular community. These countries have leveraged the presence of MSM in HIV-treatment clinics to be able to reach more individuals. Individuals in these settings benefit from the strong HIV care services network, regular contact with the health system, and high levels of dedicated physicians’ attention, as they may suffer faster liver disease progression due to their HIV comorbidity.

**Limited information about HCV, false sense of protection, and stigma are the main barriers**

Men in this population at risk are not fully aware of HCV and its routes of transmission. Furthermore, they are often guided by the false sense of protection provided by HIV PrEP. Additionally, stigma against individuals living with HCV still remains strong in society at large and among medical practitioners.

**Awareness and prevention**

Limited information about HCV’s effects on health, leading to people underestimating its severity. Most people in the MSM community are highly aware of HIV, as this disease has had a lot of visibility during past decades. Although MSM generally know about the existence of other STIs, such as HCV, they underestimate the impact they can have on their health condition. This lack of knowledge also hinders prevention, with many not knowing about the increased risk attached to sexual practices such as chemsex.

**False sense of protection** among this community as some measures which protect against HIV, such as PrEP and serosorting (a practice whereby HIV-positive individuals choose HIV-positive sexual partners), are erroneously associated with immunity for all STIs in general.

**Diagnosis**

Stigma about homosexuality and taboo surrounding sexual behavior, leading to many people not getting tested, and physicians being uncomfortable when asking about potential sexual risk exposures.

**Linkage to care**

Insufficient healthcare staff to support these individuals throughout the full care process. In many instances, physicians have very short
consultation periods. Therefore, they are not able to dedicate enough time to explain the implications of the virus and link those living with HCV to the care they need. In addition, these individuals might have complex psychological needs linked to their sexual behavior requiring support, which is not always available.

**Treatment**

**Risk of drug interactions** with some antiretrovirals for those with co-infection with HIV, needing special attention and adding complexity to linking them to care. Therefore, they might require specialist referrals, which can increase the length of the care pathway.

**Limited treatment access based on the risk of reinfection.** Homophobic policies or attitudes held by physicians may lead them to withhold care and treatment from MSM in some countries.

**Improving information levels, promoting prevention, and increasing testing efforts to reduce incidence and reinfection rates are the main critical success factors**

Overall, considering that the men who have sex with men population in some high-income countries is estimated to be around 4% of the adult male population, and that HCV antibody positivity in this group is estimated to be around 4% by, they represent a significant share of the population living with HCV, although very few studies have tried to determine the real size of this population at risk.

Health authorities must prioritize this group to prevent transmission. Also, special attention must be given to those with co-infection with HIV, who are at higher risk for disease progression, and reaching them at the early stages of the disease is key to reducing mortality rates.

**Awareness and prevention**

**Reinforce information about protection measures against STIs.** HIV PrEP treatment must be preceded by extensive education work on its purpose to eliminate misconceptions.

**Diagnosis**

**Develop public campaigns to fight HCV stigma and homophobia** among targeted population and physicians to increase the number of people that are tested. Screening is recommended at least annually for MSM, even for those already treated, or more often if there are multiple risk exposures. To enhance the screening process some initiatives have promoted anonymity, such as self-testing at home, while others have been based on support from community peers who have had HCV and can help people come forward for diagnosis.

**Linkage to care**

**Leverage the current care structure for HIV** and other organizations of the MSM community to screen individuals cost-effectively, inform them about HCV, and provide full care services, including treatment, counselling, and behavioral therapies. However, **high complexity cases** (e.g. co-infections or other comorbidities) will require specialist referrals.

**Treatment**

**Eliminate restrictive policies,** even in case of reinfection, as scaling treatment in this population at risk is the only way to stop HCV transmission.

In addition, before providing treatment, **inform people of the risks associated with reinfection** and the consequences this can have on the patient’s quality of life.

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Migrants

This at-risk population includes foreign adults born in high-prevalence countries (Central, Southern and Eastern Asia; Eastern Europe; Middle East and North Sub-Saharan Africa) where HCV antibody positivity is around 3-5% vs. 1-2% in countries within the scope of this report, including both documented and undocumented migrants.

They may have acquired HCV via an array of transmission sources, the most common being the receipt of contaminated blood products, unsafe injections or medical procedures, resulting from deficient healthcare infection control measures in the country of origin. Additionally, intravenous drug use, perinatal transmission, or risky sexual practices are also reported as important infection routes. Beyond this, in some cases in their cultural or religious contexts, these individuals may also be exposed to other risk procedures involving reused and unsterilized needles or other sharp objects used in spiritual practices or acupuncture.

Furthermore, HCV rates among migrants are often higher than in their birth countries, suggesting that the migration process itself may prompt types of behavior that expose migrants to a higher risk of acquiring HCV, such as exposure to perilous migration journeys that increase the risk of infectious diseases.

diseases, poor living conditions in host countries (e.g. refugee camps, reception centers, overcrowding or shared accommodation) or limited access to healthcare services.\textsuperscript{86}

The size of this population at risk varies greatly among countries as it depends on the size of the foreign-born population and the percentage that come from high HCV-endemic regions (HCV antibody positivity prevalence ≥1%). For instance, in the EU/EEA approximately 11% of the adult population is foreign-born, 79% of whom were born in endemic countries\textsuperscript{87}. In Canada, migrants represent one in three people who are antibody positive but only 21% of the whole population\textsuperscript{88}. Most countries, rather than screening migrants based on country of origin, require the identification of clinical manifestations or risk factors for viral hepatitis (e.g. history of liver disease, HIV or tuberculosis). However results from studies have estimated that screening could be cost-effective if targeted at those born in endemic regions, and some countries have started to apply this broader criterion accordingly\textsuperscript{89}.

Most countries, rather than screening migrants based on country of origin, require the identification of clinical manifestations or risk factors for viral hepatitis (e.g. history of liver disease, HIV or tuberculosis). However results from studies have estimated that screening could be cost-effective if targeted at those born in endemic regions, and some countries have started to apply this broader criterion accordingly\textsuperscript{89}.

**Stigma, lack of contact with the health system, and limited access to treatment are the main barriers**

These individuals have generally not been considered a priority. In fact, only 36.4% of all migrant HCV cases in the EU/EEA were diagnosed, and of these, only 12.7% were treated (2018)\textsuperscript{90}, and just three EU countries (France, Italy and Ireland), and the UK along with Australia and Canada, have adopted migrant screening policies\textsuperscript{15}.

However, in recent years there has been a movement of large numbers of people from high-prevalence countries to the countries within the scope of this report\textsuperscript{90}, and therefore authorities should consider this group a priority for diagnosis and treatment. **Special attention must be given to undocumented migrants**, as undocumented status decreases their access to the health system while putting them at risk of other serious issues (e.g. homelessness or other infectious diseases of high prevalence in the country of origin). This might lead to delaying seeking healthcare, thus the postponement of HCV diagnosis and treatment until advanced stages of the disease.

To target this group more cost-effectively, **authorities must focus on specific models of care in settings such as internment and community centers**, where this community can be more easily accessed.

Although there has been some progress in addressing this group, there are many barriers that lie ahead, especially at a healthcare access level:

**Awareness and prevention**

**Stigma** of HCV being a “dirty disease” that migrants bring from their countries of origin\textsuperscript{90}, which also makes integration in society more difficult. In addition, there is also censorship within their own community, which prevents individuals from getting tested, or once tested, from starting treatment\textsuperscript{91}.

\textsuperscript{86} Galli, M., et al. HCV and immigration in Italy. Acta Bio Med. 2018; 89: 19
\textsuperscript{87} Falla, A.M., et al. Estimating the scale of chronic hepatitis C virus infection in the EU/EEA: a focus on migrants from anti-HCV endemic countries. BMC Infectious Diseases 2018; 18: 42.
Mistrust towards public institutions from those with an undocumented status, fearing deportation or losing custody of their children\(^9\). This limits their access to standard care networks.

Lack of awareness of frontline workers and primary care providers about the virus and the relevance of addressing this disease because other health conditions, such as acute diseases or psychological afflictions related to the migration process, are considered a priority\(^9\). Moreover, physicians are not always aware of which regions are HCV-endemic and therefore who should be considered at high risk.

**Diagnosis**

Lack of resources to test for HCV and staging chronic hepatic disease (e.g. qualified staff or a FibroScan®) in clinics for newcomers and internment centers.

**Linkage to care**

Language and cultural differences between patients and providers may lead to poor communication and low quality of care.

Nomadic behaviors as individuals with HCV may move through different parts of a city or even across the country in search for a job. These situations hinder the capacity of patients to complete the care pathway.

Limited information, such as medical records or a tax registry, to be able to track them and provide stable care services.

**Treatment**

Limited access to healthcare services for those undocumented or asylum seekers who are not included in the national health system. This is common in many countries, as undocumented migrants can only access emergency care services and therefore cannot access HCV treatment when the disease is at an early stage. Only some, such as France, have no restrictions whatsoever and all those individuals with HCV are treated.

Administrative requirements (e.g. employment, social security number or permanent residence), therefore excluding indirectly those most vulnerable, or delaying their treatment for long periods of time.

Awareness campaigns, screening policy shortly upon arrival, and access to the health system are the main critical success factors

Driven by fear of the cost that migrant care could entail for the health system, many governments limit access to health services, especially as HCV treatment remains expensive. Despite DAA prices being driven down over recent years, most countries have not prioritized this population at risk either in terms of diagnosis or treatment campaigns.

Nevertheless, treating migrants has a threefold benefit, as it can serve to prevent onward transmission of the disease, improve individual quality of life, and facilitate people’s integration into society.

The critical success factors for this group are:

**Awareness and prevention**

Develop public campaigns to battle HCV stigma among this population at risk, collaborating with cultural and religious authorities in order to adapt the campaigns to the specific circumstances of the different subgroups.

Peer-based models which leverage the public image of community influencers (e.g. mosque imams) can also serve to promote awareness.

\(^9\) EASL position statement on liver disease and migrant health.
**Diagnosis**

*Raise awareness among care providers* in order to be able to identify those potentially living with HCV, while reducing stigma towards migrants.

*Screening shortly upon country arrival* migrants coming from high-prevalence regions is a cost-effective measure, although those diagnosed must be also guaranteed access to treatment.

**Linkage to care**

Health authorities must work closely with community members and local NGOs to create a greater sense of security for individuals and enhance their linkage to care. In addition, providing interpretation services could help avoid losing people during the process.

**Promote innovative solutions**, such as mobile street units that provide care in non-medical locations (e.g. community centers).

**National registry to track and assist patients** across different regions of the country to ensure as many individuals as possible complete the care process.

**Treatment**

*Provide free access to the health system* for migrants, including HCV testing and treatment, limiting the administrative requirements as much as possible.

### Barriers and critical success factors for migrants along the care pathway

<table>
<thead>
<tr>
<th>Activity</th>
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<th>Linkage to care</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>01</strong></td>
<td>Patient decides to test for HCV due to past risk exposure</td>
<td>Healthcare worker takes blood sample for testing &amp; initiates referral</td>
<td>Laboratory tests for presence of HCV antibodies</td>
<td>Hospital specialist prescribes DAAs</td>
</tr>
<tr>
<td><strong>02</strong></td>
<td>Stigma</td>
<td>N/A</td>
<td>N/A</td>
<td>Healthcare worker takes follow-up test to check that patient is free of HCV</td>
</tr>
<tr>
<td><strong>03</strong></td>
<td>Mistrust towards public institutions</td>
<td>Limited awareness of care providers</td>
<td>Hospital specialist confirms diagnosis &amp; tests for fibrosis level</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>04</strong></td>
<td>Limited access to healthcare services</td>
<td>Language and cultural differences</td>
<td>Limited access to healthcare services</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>05</strong></td>
<td>Nomad behaviors and limited patient information</td>
<td>Limited access to healthcare services</td>
<td>Administrative requirements (e.g., social security no.)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>06</strong></td>
<td>Develop public campaigns to battle HCV stigma</td>
<td>N/A</td>
<td>Develop innovative solutions and a national patient registry</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Critical success factors**

- Develop public campaigns to battle HCV stigma
- Use peer-based models
- Raise awareness among care providers
- Screen shortly upon country arrival
- Offer interpretation services
- Develop innovative solutions and a national patient registry
- Provide free access to the health system
- Reduce administrative requirements
Selected birth cohorts

This refers to groups of people of similar ages who were exposed to a higher risk of acquiring HCV in the past. In many countries, it is a cost-effective screening strategy for targeting particular demographic groups in which there is a higher disease prevalence. Although it depends on local HCV epidemiology, the age groups most commonly considered are people born between 1946 and 1964 (i.e., baby boomers)\(^93\).

The reasons why individuals in this group are more at risk of acquiring HCV than other adults are not completely understood, but are thought to be related to:

**Blood transfusion with contaminated blood**
or blood derivatives before blood screening tests were widely introduced. Blood transfusions were a leading cause of the spread of HCV in most European countries in the past\(^94\).

This has also been the main cause of infection in North America. In fact, in the US in the 1960s the risk of contracting HCV from a blood transfusion was approximately 33%, while in the 1970s and 1980s, receipt of HCV-contaminated blood products or organs accounted for nearly 50% of new cases of HCV\(^95\).

The proportion of new HCV cases caused by contaminated blood or organs dramatically declined after the introduction of blood screening tests in the early 1990s.

**Contaminated medical equipment or unsecure procedures** related to a lack of infection control precautions, such as the use of disposable material or an efficient sterilization of reused equipment in surgery, dental or endoscopic procedures. For instance, in Eastern Europe, HCV healthcare-associated transmission was responsible for 40-70% of cases until the mid 1990s\(^96\).

**Past drug use** involving shared needles and other equipment to prepare and inject drugs. This is the main subgroup in Australia\(^96\) and in many European countries (e.g., Finland, UK), where injection drug use has been the dominant mode of HCV transmission during the past 35 years, accounting for 60% to 90% of prevalent cases\(^97\).

Two-thirds of people who have contracted HCV through injecting drug-use no longer inject drugs. Although they share the same infection route as current PWID, they have completely different lifestyles and therefore need another approach from healthcare providers\(^97\).

This group can be divided into two categories based on their awareness or treatment status:

1. **Those who have not been diagnosed** due to the lack of visible symptoms. These individuals need to be identified and screened.

2. **Those who were diagnosed but have not been treated with DAAs.** The reasons behind this are twofold:
   - The diagnosis occurred before the appearance of DAAs in 2014, and the treatment was either postponed, because of its prior toxicity, or was not effective.
   - Additionally, in some countries, treatment is still restricted to those with a certain degree of fibrosis.

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\(^93\) WHO to test HCV Decision-making tables – PICD 2 - www.who.int › hepatitis › publications › annex-a › (accessed February 9, 2020).  

38
Lack of awareness of the virus, challenge of promoting testing and cost pressure on the healthcare system are the main barriers

Although this population at risk has good access to the health system network, it is also characterized by low awareness and stigma, which prevent those with HCV from seeking treatment.

The main barriers across the care cascade are:

**Awareness and prevention**

**Lack of awareness** about the virus, the risk factors that lead to infection, as well as of the existence of a cure. The individuals with HCV in this group have very little awareness of their condition, as they are a very heterogeneous group and were not targeted in specific public screening campaigns. In fact, in Europe there have been very few specific studies to determine the size of this population and what screening strategies could be more effective. This low attention has been mainly due to their low incidence (e.g. low transmission rate) and to public authorities’ fear of overloading the health system due to the size of the group and the associated treatment investment it would require. Lastly, as other more accessible groups are treated, it is also harder to find individuals with HCV among them, levelling the cost-effectiveness.

**Stigma** has also been a factor holding some doctors back from asking patients difficult questions that may lead to testing, as the disease is often associated to drug use and HIV.

**Diagnosis**

Challenge of promoting people getting tested, as some are not even aware of having ever been at risk, needing many interventions to encourage them to be screened.

The size of the overall group, both with and without HCV, requires considerable resources to be mobilized for screening. This is exacerbated in the case of countries with low prevalence (e.g. Denmark), in which birth cohort screening is not always cost-effective.

**Treatment**

Concern of placing significant cost pressure on the healthcare system by granting treatment to a significant share of the population.

Nevertheless, new developments are increasing the cost-effectiveness of treating these individuals. Firstly, drug treatment costs have decreased considerably in the five years since DAA medicines were introduced. Secondly, there has been an increase in treatment capacity and a reduction in administration costs. HCV has already been integrated within many health systems, together with clear clinical guidelines and simplified process steps.

To increase cost-effectiveness even further, studies show that prevalence varies among different decades of birth depending on the country, so that it is possible to narrow down the selected birth cohorts at higher risk to avoid having to screen everyone in this large group (for example, in the Netherlands).
most of those with HCV were born between 1950 and 1975, while in Finland they are concentrated after 1960. However, epidemiological data is very limited in many countries and would need to be further developed.

In addition, medical staff consider that older individuals are not worth treating given the lack of symptoms and low transmissibility.

**Launch awareness campaigns, apply targeted cohort screening, and reach innovative pricing agreements to improve diagnosis and treatment rates are the main critical success factors**

Policymakers should consider prioritizing this group given that some studies show that they represent 65-80% of adults with HCV in many countries within the scope of this report, with an estimated HCV antibody positivity prevalence of ~3%. Additionally, as they age, rates of liver failure, liver cancer and death among this birth cohort are expected to rise rapidly, becoming a high cost burden for health systems.

The critical success factors in the care cascade for this group are:

**Awareness and prevention**

Deploy targeted awareness campaigns to inform individuals about the virus, its consequences and motivate people to step forward for screening.

Educate healthcare staff directly in contact with patients through trainings to fight stigma and better understand the risk factors leading to infection and the severity of its consequences.

**Diagnosis**

Launch targeted birth cohort screening or pilot other targeting programs. While recommended in the United States, general birth cohort screening is not a common practice in most countries. It requires large investments in awareness campaigns and treatment drugs in addition to a healthcare infrastructure capable of withstanding large treatment demand peaks.

However, countries with low prevalence or which cannot commit a significant amount of resources to this effort can learn from this experience by deploying other targeting strategies to locate individuals within this group with HCV. Some options are to leverage databases in order to target specific higher prevalence sub-groups of patients within this population or to screen individuals in this cohort who enter an emergency room.

In order to achieve this, leveraging the connection of the group with the health system to facilitate large screening strategies is key. In high prevalence countries, this can even be used to promote once-in-a-lifetime screening of the entire population, as this has proven to be an affordable approach in those specific cases.

**Treatment**

Reach volume-based discounts or innovative pricing agreements, such as a flat-fee model (e.g. Australia), to guarantee a steady provision of DAAs.

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107 ECDC (2018). Public health guidance on HIV, hepatitis B and C testing in the EU/EEA.
108 Risk-sharing arrangement with capped annual expenditure but no cap on the number of treated patients.
Use data to provide evidence to support the potential health system savings by treating this group now versus assuming the high cost of having to address liver failure and liver cancer cases in the future, as these individuals age and their health deteriorates rapidly.

Develop clear guidelines ensuring universal treatment in order to formally include these patients as a priority group.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Awareness &amp; Prevention</th>
<th>Linkage to care</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Patient decides to test for HCV due to past risk exposure</td>
<td>N/A</td>
<td>Healthcare worker takes follow-up test to check that patient is free of HCV</td>
</tr>
<tr>
<td>02</td>
<td>Healthcare worker takes blood sample for testing &amp; initiates referral</td>
<td>N/A</td>
<td>Hospital specialist prescribes DAAs</td>
</tr>
<tr>
<td>03</td>
<td>Laboratory tests for presence of HCV antibodies</td>
<td>N/A</td>
<td>Hospital specialist confirms diagnosis &amp; tests for fibrosis level</td>
</tr>
<tr>
<td>04</td>
<td>Hospital specialist prescribes DAAs</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>05</td>
<td>Healthcare worker takes follow-up test to check that patient is free of HCV</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>06</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Barriers**
- Lack of awareness of the virus
- Stigma, associating HCV with drug use and HIV
- Challenge to promote people getting tested
- Large amounts of screening resources needed
- N/A
- N/A
- Significant cost pressure on healthcare system
- Patients considered not worth treating
- N/A

**Critical success factors**
- Deploy targeted awareness campaigns
- Educate medical staff
- Launch screening strategies adapted to the country’s epidemiology
- Leverage connection with the health system
- Implement alerts to remind physicians to test
- N/A
- N/A
- Reach volume-based discounts or innovative pricing agreements
- Back with data the savings for the health system
- N/A
Other groups

Once the main groups are engaged in care and treatment, countries will be close to eliminating the disease. However, in order to eliminate it completely, countries must address the last mile of other populations at risk which are harder to reach.

The patients included in these groups are:

**Sex workers:** these individuals contract HCV and often transmit the virus to other individuals through risky sexual practices and injection drug use\(^\text{111,112}\). Sex work is not legal in many settings and sex workers face stigma which may further problematize access to the healthcare system. Some sex workers are concentrated in specific locations, whereas others are geographically dispersed, which makes it more challenging to access them. Oftentimes they can also be irregular migrants who have no access to the health system, which makes it even more difficult to link them to care\(^\text{113,114}\).

**Psychiatric patients:** these are individuals affected by mental illnesses (e.g. schizophrenia, depression, bipolar disorder) with high-risk behaviors, often related to past substance abuse or unsafe sexual practices. Due to their condition, they need additional psychological support, and may or may not be located in specific psychiatric centers\(^\text{115}\).

**People located in rural and remote areas:** in some countries where the population is dispersed across the territory, it is hard to target those who are located in areas that are more difficult to access, and healthcare and prevention facilities are limited. In particular, those regions not covered by micro-elimination strategies and where a national plan is not expected will have individuals living with HCV whose health condition rapidly deteriorates\(^\text{116}\).

**People who receive tattoos, piercings, and/or manicures in unsafe places:** these individuals have visited specific salons which have particularly low hygiene standards to get a tattoo, piercing, and/or manicure service and thus, could have acquired HCV during the procedure due to the use of contaminated equipment\(^\text{117}\).

**Patients who were treated with DAAs but the treatment was not effective:** 5% of those living with HCV who received DAAs treatment and who were not cured after receiving the drug therapy.

**Indigenous population:** this is a relevant risk population in all countries with indigenous communities (e.g. Australia, Canada and Denmark), as they are more frequently exposed to environments and situations where there is an increased risk of exposure to HCV (e.g. sharing needles, being born to a mother with HCV). They face barriers such as institutional discrimination, which limits access to testing and treatment\(^\text{118}\).

**Children born to a mother with HCV:** refers to newborns infected through contact with the blood of a mother living with HCV during labor or via the placenta\(^\text{119}\).

As prevalence is reduced and individuals with HCV become scarcer, diagnosis will become increasingly important in order to identify those living with HCV cost-effectively. Therefore, to address the aforementioned populations at risk, it is essential that authorities focus on finding these individuals through intensive screening programs. In order to make them cost-effective, the following measures can be implemented:

1. Investing in the development of screening technologies to reduce testing times, the number of tests, or increase their ease of use (e.g. HCV self-test toolkit).
2. Simplifying laboratory testing protocols for HCV to shorten the steps (e.g. reflex testing).


3. **Avoiding retesting through monitoring systems** to be able to follow up with those already diagnosed or recently tested as negative for infection. These individuals would be those who have already been tested and have not exposed themselves to risky behavior, those who experienced ineffective treatment, and children who are too young and therefore cannot be treated yet.

4. **Sharing costs** with other blood-borne or sexual contact-transmitted diseases (e.g. HIV, HBV, syphilis) by combining their tests.

5. **Optimizing the targeting of individuals living with HCV through the use of big data and artificial intelligence**, being able to identify high-prevalence sub-groups more successfully.

Success in reaching these patients will only be achieved by investing effort in making **screening more accessible and targeted** towards these specific micro-groups.

Moreover, the absence of an HCV vaccine makes early diagnosis and treatment the best tool to prevent HCV from spreading again and avoid losing the ground already gained.

Besides this, **primary prevention measures** are cost-effective means of preventing new cases. We highlight the following, most of them already covered in previous chapters\(^\text{120,121,122}\):

- Screening and testing of blood, plasma, organ, tissue, and semen donors.
- Virus inactivation of plasma-derived products.
- Implementation and maintenance of infection-control practices in healthcare services.
- Increased regulation and surveillance of centers of cosmetic procedures like tattooing, body piercing, barbering or manicure for proper infection-control practices.
- Increased investment in needle exchange programs, drug consuming rooms and condom distribution.
- Increased network of harm reduction centers making new syringes accessible to PWID.
- Increased awareness among people with multiple partners and involved in risky sexual practices of the importance of proper condom use in preventing multiple STIs.

Special focus should be put on young people because, although most will not show symptoms for many years, they are exposed to many kinds of high-risk behavior and therefore transmission rates may be higher\(^\text{123,124}\).

\(^{120}\) CDC (2016). Recommendations for Prevention and Control of Hepatitis C Virus (HCV) Infection and HCV-Related Chronic Disease.


\(^{124}\) Wolfers, M., et al. Adolescents underestimate risk for STI and deny the need for STI testing. AIDS Patient Care and STDs 2010; 24: 311.
Elimination strategy depending on models of care

Since a large proportion of people living with HCV are not currently accessing treatment, there is an urgent need to reshape the entire cascade of care, according to specific population needs.

Models of care outline how to provide the relevant services and interventions during the different stages of the individual’s care pathway, including testing, linkage to care, retention in care, treatment, chronic care, and prevention of primary infection and reinfection. Decisions on what strategies to adopt to improve the performance of each country will depend on the local epidemiology of the disease, the social context, and healthcare system conditions\textsuperscript{18,100}. 
The conventional paths of managing individuals living with HCV are associated with a set of barriers. One of the major obstacles is the lack of treatment settings adapted to the special needs of at-risk groups (e.g. PWID, migrants), still having to improve issues such as stigma and discrimination, high cost of care, distance from care sites, transportation costs, or long waiting times at the facility. Furthermore, a lack of HCV knowledge in primary care units, harm reduction centers, and shelter centers, among others, prevents these institutions from providing treatment.

A successful model of care must have the following hallmarks.

Simplicity, scalability and patient convenience
Because DAAs are highly effective, have few side effects, and can be administered orally, it is possible to design much simpler models of care. Other elements that contribute to simplicity include integration of services and bringing healthcare closer to the places where patients are.

Test and treat model
The application of a test and treat model is highly recommended, wherever possible, to eliminate gaps between diagnosis and treatment.

On-site single sampling episode with rapid results, a pre-test discussion and education, demonstrated to be effective in increasing HCV screening. Moreover, simple and quick diagnostic methodologies must be preferred. Some good examples are the use of dried blood spot testing, where it is also possible to apply reflex testing, and the use of transient elastography (that can be a portable piece of equipment) or biochemical scores, like aspartate transaminase to platelet ratio index (APRI), to evaluate the level of fibrosis.

Enabling policy environment
This is a very important point to address the most vulnerable people, like PWID, migrants, or homeless people. Restrictive policies, such as the criminalization of drug use, preclude these patients from accessing healthcare services, including community support services, and contribute to increasing the stigma among the general population.

A high level of acceptance of individual life circumstances, rather than rigid exclusion criteria in selecting patients for treatment (e.g. based on active drug or alcohol consumption), will determine the success of HCV elimination.

Affordability and availability
Referring primarily to diagnostic tools and treatment, so that no affected populations are left behind for any reasons. This implies, for example, access to free treatment or providing assistance with transport if the treatment center is far from the testing site.

At a country level, there are some measures that can contribute to better financial resource management:

Formulating national testing and treatment guidelines that specify which medicines and diagnostic assays should be used.

Determining whether generic medicines are available in the country, if DAAs are not protected by a patent or if the country is included in the respective license agreement.

Registration and inclusion in the national essential medicines list, as registration of products from as many manufacturers as possible will increase competition and lower prices.

Estimating the volume of products required to meet program demand, according to the number of people waiting for treatment and the expected rate of scale up for testing and treatment activities.

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126 Application of a molecular biology test for ARN-VHC detection after a positive antibody screening test.
Enhancing procurement activities either through price bidding (generic medicines) or economies of scale (original drug makers).

Multidisciplinary delivery of care

The delivery of care should encompass medical and non-medical professionals in the core team (doctors, nurses, psychologists, social workers), including peer support whenever possible, and/or professionals trained to provide multiple services for biomedical, psychoeducational, and social coverage of the individual. Peer-led interventions can be particularly effective in reducing stigma, improving the acceptability of services and treatment compliance, and making the global integration of the most vulnerable patients into the care cascade easier.

Integration of services

It is key to bring services closer to the patient, rather than expecting the patient to seek them out.

There are three types of potential service integration:

Providing testing for HCV in different settings, reducing duplication of services and improving coordination (e.g. services/clinics that manage other diseases with the same risk factors, like HIV, HBV, STI; or those aimed at the same risk groups, like PWID, migrants, MSM, incarcerated people, sex workers, psychiatric patients, etc.).

Integrating the diagnosis of HCV with diagnostic platforms and laboratory services used for other infections, such as using the same blood sample to screen for different diseases such as HBV, HIV or syphilis. This provides significant system efficiency and cost savings.

Combining service delivery of care, prevention and treatment, as the continuity between prevention and care is needed to ensure ongoing harm reduction measures and avoid individuals acquiring HCV again, especially among PWID and MSM.

Decentralization of services

Care services should be delivered at peripheral health facilities, community-based venues, and locations beyond hospital sites, bringing care closer to where patients are. This may reduce transportation costs and waiting time for a specialized consultation, amplify care, and capture patient compliance.

This will require simple and portable diagnostic means as mentioned above, good referral networks, and robust computer systems that prevent the dispersion and loss of clinical information. It will be facilitated by simple treatment algorithms, with access to regimens that are effective against every genotype.

There are already some successful approaches in operation, mainly aimed at clinically well and stable patients, using mobile units with multidisciplinary teams or professionals with multiple skills, telemedicine, nurse-led, or pharmacist-led programs. This task-sharing with non-specialists, nurses or other professionals requires provision of appropriate training and easy access to additional support or referral to a specialized service of complex cases.

The delivery of HCV services and interventions varies tremendously in practice, and the settings where they can be offered depend on the structure of the healthcare system of each country. Beyond the specialized centers at central hospitals and primary care facilities, there are multiple successful examples of implementing the HCV care cascade in community health centers, addiction centers and harm reduction centers, prisons, pharmacies, or sexual health clinics.
Data systems

These are key to monitor the quality and suitability of the different models of care. The WHO suggests three indicators to evaluate the HCV cascade of care: (1) the proportion of people with HCV diagnosed; (2) treatment initiation rate; and (3) the proportion of those treated who are cured.

Not all models are feasible for every healthcare system and no model meets the needs of every single patient. Therefore, it is important to have a variety of different models and approaches available.
Best practices have been identified in all countries in scope. However, we have made a short selection of 12 case studies from various countries that have implemented innovative strategies to eliminate HCV. The strategies illustrate how countries have been successful at implementing initiatives adapted to the progress made so far and how they have addressed specific populations at risk and models of care.
## Country best practices scope at a glance

<table>
<thead>
<tr>
<th>MoC</th>
<th>PWID</th>
<th>MSM</th>
<th>Migrants</th>
<th>Birth cohorts vs. Other groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community health centers</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harm reduction centers</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prisons</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homeless shelters</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual health clinics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internment centers</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

| Kombi Clinic (Australia)| Caserta model (Italy) | Care in prisons (Spain) | Latino MSM prevention (Canada) | Home-based testing (Netherlands) | Integrated screening (Portugal) | Integrated care for refugees (Australia) | Arrival care services (Italy) | Foreign-born screening (Scotland) | C-Free South (Denmark) | Tour de France (France) | Focus Galicia (Spain) |
KOMBI CLINIC OUTREACH MODEL OF PCP CARE

Authors: Joss O’Loan, Matt Young and Mim O’Flynn

POPCULATION AT RISK

PWID

LOCATION

Brisbane, Australia

PURPOSE

Take free HCV screening and linkage to care to the streets

WHY IS THE MODEL NEEDED?

- Long hospital waiting times
- Fear of blood tests and treatment side effects
- Fear of stigma
- Lack of access to non-invasive screening tests
- Lack of knowledge by physicians and patients about DAAs
- Limited medical access in rural areas

WHAT IS THE MODEL ABOUT?

All-inclusive PCP-led mobile hepatitis clinic in a 1975 VW Kombi van

HOW DOES IT WORK?

Visit 1

I. Patients speak to a PCP
II. FibroScan®
III. Whole blood draw via venesection (sent for testing and returned after ~3 weeks)

Visit 2

I. Test results reviewed
II. Treatment prescribed
III. Follow-up visits arranged

Return to same venue 4 weeks later

Patient collects prescription at local pharmacy – $20 supermarket voucher provided

OUTCOME: THE KOMBI CLINIC IN 2019

Achieved cure rates similar to ‘standard’ models of care in non-traditional settings by simplifying patients’ pathway

914 individuals screened
216 patients diagnosed
66% started treatment

Location
Drug, alcohol and mental health services, homeless shelters and other community centers

Resources
PCPs 2
Nurse 1
Phlebotomist 1
CASERTA MODEL OF INTEGRATED HCV CARE

Authors: Vincenzo Messina, Filomena Simeone, Angela Salzillo and Nicola Coppola

WHAT IS THE MODEL ABOUT?
Integrated and simplified model of care between hospitals and PWID channels

WHY IS THE MODEL NEEDED?
- Lack of screening at PWID channels
- Long waiting list for specialist referral
- Multiple hospital visits
- Limited equipment due to lack of resources
- DAAs prescribed only at specialist centres

HOW DOES IT WORK?

Standard of Care

Visit 1
- PCP HCV Ab Test
- Screening & confirmation: 2-3 months

Visit 2
- HCV Ab+ Specialist referral
- Blood tests / assessments

Visit 3
- PCP Test results
- HCV RNA+ Specialist referral
- Genotype FibroScan®

Visit 4
- Eligible for treatment
- Prescribing centre referral
- DAA treatment

Visit 5
- HOSPITAL Monitoring and monthly treatment collection
- Sustained virological response

Visit 6, 7 (8 if required)
- Monitoring and monthly treatment collection
- dispensed to nurse

Visit 8 or 9
- Treatment & post-treatment follow-up: 5-6 months

Simplified Pathway

Visit 1
- PWID CHANNELS HCV Ab Test (saliva/blood)
- Blood draw if HCV Ab+
- Screening & confirmation: 7-10 days

Visit 2
- HCV Ab+ Virology and biochemical blood tests Central lab
- PWID CHANNELS Test results

Visit 3
- HOSPITAL Same day FibroScan®, treatment & motivational counselling

Visit 4
- PWID CHANNELS Monitoring and monthly treatment collection dispensed to nurse

Visit 5
- PWID CHANNELS Sustained virological response
- Treatment & post-treatment follow-up: 5-6 months

OUTCOME: THE CASERTA MODEL IN 2019
Reduced drop-outs for high-risk populations by shortening their care pathway

~50% shorter lead time to cure patients

410 individuals screened

85 patients cured

LOCATION
Caserta, Italy

Resources
Harm reduction centers and prisons
1 Nurse
1 Doctor
1 Hepatologist
HCV CARE MODEL IN PRISONS

Authors: Andres Marco Mouriño, Joan Colom Farran and Neus Solé i Zapata

WHAT IS THE MODEL ABOUT?
Systematic HCV screening upon admission to prison and post-channel-release transition program to link inmates to specialist care after completing their sentence.

WHY IS THE MODEL NEEDED?
- Poor medical infrastructure in non-hospital settings
- Lack of referral protocols
- Administrative bottlenecks
- Discoordination among stakeholders
- Multiple medical appointments
- Limited capacity to follow-up with short-sentence inmates

HOW DOES IT WORK?

WHAT IS THE MODEL ABOUT?

WHY IS THE MODEL NEEDED?

HOW DOES IT WORK?

MAIN FIGURES DURING 2018-19

Expected HCV elimination in the region’s prisons by 2021

OUTCOME

83.7% of inmates screened
860 patients treated since 2015
2.2% decrease in HCV RNA+

LOCATION
Catalonia, Spain

STAKEHOLDERS
Primary care centres, hospitals, PWID channels, Ministry of Justice, Ministry of Health
PILOT STUDY ON HIV PREVENTION PROGRAM FOR LATINO MSM

Authors: Jorge Luis Martínez-Cajas; Beatriz Alvarado; Barry D. Adam; Trevor Hart

PURPOSE
Reduce unprotected sex among the latino MSM community, the second most highly exposed racial group to HIV in the region.

WHY IS THE MODEL NEEDED?
- Low psychological support to control addictive behaviors
- Limited information about sexually transmitted infections’ (STIs) effects on health
- Insufficient medical staff to support these patients along the care process end-to-end
- Stigma about homosexuality and immigration
- Language and cultural differences with health providers

WHAT IS THE MODEL ABOUT?
Peer-based prevention model which provides information about STIs and emotional & psychological support.

LOCATION
Ontario, Canada

WHY IS THE MODEL NEEDED?

WHAT IS THE MODEL ABOUT?

HOW DOES IT WORK?

01 Training of local facilitators
- One peer selected from the community
- 35 hours of training on STIs and psychological support for patients

02 6 weekly 2-hour individual sessions led by a community peer, covering:
- HIV and other STIs' transmission
- Sexual behaviors and risks
- Means to improve sexual health
- Strategies for change and achieving personal goals

OUTCOME
Increased condom use in both HIV positive and HIV negative MSM

MAIN FIGURES OF THE PILOT

- 31% decrease of unprotected sex encounters during the following 3 months
- 46% reduction of reported loneliness and sexual compulsivity behaviors
- 126 sessions provided
NO-MORE-C
HCV-RNA HOME-BASED TESTING

F. Zuure, U. Davidovich, T. Prinsenberg, P. Zantkuijl, W. Zuilhof, M. Prins, M. van der Valk, J. Schinkel

PURPOSE
Reach MSM patients earlier by scaling-up screening and preventive measures

WHY IS THE MODEL NEEDED?
- Lack of information about HCV and how to prevent it
- Low psychological support to control addictive sexual behaviors
- False sense of protection (PrEP, serosorting, etc.)
- Stigma about homosexuality and taboo surrounding risky sexual behaviors
- Long process between screening and treatment

WHAT IS THE MODEL ABOUT?
Online and face-to-face interventions aimed to raise HCV awareness, promote risk reduction behavior and willingness to test

HOW DOES IT WORK?

<table>
<thead>
<tr>
<th>Website with information about HCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-cost internet-guided home-based testing service</td>
</tr>
</tbody>
</table>

1. Risk assessment questionnaire used to self-assess HCV infection likelihood
2. Test is ordered through the website and sent to a chosen address
3. Self-collected HCV-RNA test using dried-bloodspots
4. Sample is sent by mail to a certified laboratory
5. Test results are communicated by login in at the website
6. Website guides users who test positive towards health care services for further evaluation

Outcomes
Increased HCV awareness by allowing men to test anonymously at home

Main Figures during Feb’18-Sep’19

| 26,500 | users visited the page |
| 1,609 | users accessed the advice tool |
| 678 | were advised to test |
| 9% | ordered the test |
| 6% | of samples tested positive |
COMMUNITY-BASED INTEGRATED SCREENING FOR HCV, HBV, HIV AND SYPHILIS

Authors: D. Simões, R. Freitas, M. Rocha, P. Meireles, A. Aguilar, H. Barros

WHAT IS THE MODEL ABOUT?
Integrated strategy for different blood-borne viruses to optimize testing opportunities with current care structure

WHY IS THE MODEL NEEDED?
- Fragmented health system structure
- Different campaigns for diseases with the same target segments
- Limited HCV education programs for care providers
- Lack of awareness of HCV’s health effects
- Limited epidemiological data to improve screening campaigns’ effectiveness

HOW DOES IT WORK?

01 Train organizations’ staff, medical and non-medical, to provide rapid screening tests for multiple infectious diseases
02 Offer a questionnaire to patients to understand better their specific situation, follow up their case and obtain epidemiological data
03 Escort infected patients from the organizations to the referred specialist in the hospital
04 Analyze data, at a national and local level, using common indicators to measure the effectiveness of testing campaigns
05 Understand infection patterns (e.g. coinfections, segments’ size, virus outbreaks, etc.) to develop new initiatives

OUTCOME: THE COMMUNITY SCREENING MODEL DURING 2016
Increased disease awareness among individuals living with HCV in non-hospital settings by integrating multiple tests

35,494 tests provided
5,931 individuals screened
827 infections detected
INTEGRATED APPROACH TO HCV SERVICES FOR REFUGEES IN RURAL AREAS

Authors: Watkinson S, Higgins L, Sasadeusz J, Biggs BA, Cowie BC, Schulz TR

PURPOSE
Establish a community-based clinical service pilot for refugees to improve their access to HCV treatment

WHY IS THE MODEL NEEDED?
- Mistrust towards institutions (e.g., fear of being deported)
- Lack of testing sites at newcomer health services
- Challenge to complete pathway (e.g., nomadic behaviors)
- Poor medical facilities within internment centers
- Not included in health systems and therefore no access to treatment

WHAT IS THE MODEL ABOUT?
Coordinated action against HCV to reach migrants through community channels

LOCATION
Migrants
Victoria, Australia

POPULATION AT RISK

WHY IS THE MODEL NEEDED?

WHAT IS THE MODEL ABOUT?

OUTCOME
Established a successful model of care to manage a culturally and linguistically diverse group

MAIN FIGURES OF THE PILOT
14 patients started treatment
88% reached treatment completion
ARRIVAL CARE SERVICES FOR REFUGEES

Authors: T. Prestileo, V. di Marco, O. Dino, A. Sanfilippo, F. di Lorenzo, M. Tutone, M. Milesi, C. Picchio, A. Craxi, J. V. Lazarus

PURPOSE
Provide care earlier to HCV-endemic-regions migrants to treat those infected as soon as they enter the country

WHY IS THE MODEL NEEDED?
- No access to free HCV treatment for those undocumented or asylum seekers who are not included in the national health systems
- Lack of resources to test for HCV
- Nomadic behaviors
- Language and cultural differences with health providers

WHAT IS THE MODEL ABOUT?
Grant screening for HCV, HBV and HIV, linkage to care and treatment for refugees at country arrival

HOW DOES IT WORK?
- Blood-borne virus screening within 6 weeks after arrival
- Liver evaluation if HCV or HBV positive
- HBV vaccination if negative
- Treatment access for those infected

OUTCOME
Provided early and effective care for migrants

MAIN FIGURES 2015-17
- 2,751 migrants offered screening
- 96% accepted to be screened
- 145 cases identified
- 88% started treatment
VIRAL HEPATITIS SCREENING FOR FOREIGN-BORN LEGAL MIGRANTS

Authors: Maria K Rossi, Rachel Thomson, Laura Kluzniak, Irene K Veldhuijzen

PURPOSE
Develop viral hepatitis screening strategies for migrants in community settings

WHY IS THE MODEL NEEDED?
- Low awareness of HCV endemic regions among frontline workers and primary care providers
- Heterogeneous group with diverse backgrounds
- Language and cultural differences with health providers
- Stigma associated to their HCV and foreigner condition
- Limited contact with the local healthcare system

WHAT IS THE MODEL ABOUT?
Pilot screening model for viral hepatitis among migrant populations

Location
Universities and workplaces

Resources
Nurses
Phlebotomists
Interpreters

HOW DOES IT WORK?
01 Awareness-raising for target population with posters and briefing sessions
02 Risk exposure questionnaire
03 Hepatitis test and sample sent to laboratory
04 Results communication to patient, translated by an interpreter
Positive, by telephone
Negative, by post
05 Referral to specialist

OUTCOME
Demonstrated effectivity of screening migrants for viral hepatitis at university and workplace settings

MAIN FIGURES OF THE CAMPAIGN
100 screening hours
461 people screened
13 infections identified
C-FREE-SOUTH MULTI-LEVEL INTERVENTION MODEL TO ELIMINATE HCV

Authors: Peer Brehm Christensen and Anne Øvrehus

PURPOSE
Eliminate HCV in the region through an at-risk population approach

WHY IS THE MODEL NEEDED?
- Limited public awareness of HCV
- Low political commitment
- Stigma, associating the virus with drug use
- Lack of resources to conduct screening campaigns
- Limited knowledge about testing strategies’ cost-effectiveness

WHAT IS THE MODEL ABOUT?
Micro-elimination strategy which targets elimination for the main populations at risk

HOW DOES IT WORK?
- Screen the ‘hidden’ population
  - Screening campaigns in emergency rooms and psychiatric wards
  - Risk-based population surveys for 1945-1975 birth cohorts
- Test and treat
  - Target at-risk populations through their specific channels
  - Leverage hospital and laboratory registry to follow up with patients and engage those diagnosed into care and treatment
- Decentralize care services
  - Van-based outreach to engage PWID and other at-risk populations
- Monitor elimination progress
  - Infection & reinfection incidence, and HCV-related deaths

OUTCOME: THE C-FREE-SOUTH MODEL BY 2025
- Expected to achieve HCV elimination in the region by 2025
- 44% of infected expected to be diagnosed
- 64% of patients to be provided treatment
2019 TOUR DE FRANCE
HCV AWARENESS
CAMPAIGN

PURPOSE
Raise awareness among general population on the relevance of getting screened for HCV

WHY IS THE MODEL NEEDED?
• Large investment generally needed to increase impact of awareness campaign
• Patients are difficult to reach due to diverse lifestyles

WHAT IS THE MODEL ABOUT?
Comprehensive media campaign built around 3 key messages and a unique call to action to encourage people to get tested

HOW DOES IT WORK?
1. Awareness raising
   - 2 noise-making vans following cyclists, distributing goodie bags, and engaging visitors in on-site prevention & screening activities

2. Screening campaign
   - Rapid-diagnosis tests located in every village departure and arrival, and fan parks

3. Media coverage
   - Key messages and photos shared on social media, TV & radio

OUTCOME
Maximized exposure of audience to campaign messages, encouraging on-site screening

MAIN FIGURES
600 rapid-diagnosis tests
180K goodie bags distributed to spread awareness & prevention messages
9.7M people exposed to awareness-raising and prevention messages via social media
212M global audience reached via TV & radio

Source: Press articles; www.addiction-agency.com
FOCUS GALICIA PILOT PROGRAM TO IDENTIFY PATIENTS TO BE TESTED FOR HCV AND HIV

**PURPOSE**
Leverage age and patients medical history to identify patients who should be tested for HCV and HIV

**WHY IS THE MODEL NEEDED?**
Challenge to identify patients to screen in general population

**WHAT IS THE MODEL ABOUT?**
Leverage artificial intelligence software to select patients who should be screened for HCV and HIV, and accelerate referral to specialist and linkage to care

**HOW DOES IT WORK?**
- **Software filters all patients who visit a primary care facility for any reason**
  Selects those who are between 20 and 70 years old and who according to their medical history have not been tested for HCV or HIV in the past

- **PCP is notified in real time by the system to schedule serology analyses for those selected patients**

- **Follow-up is guaranteed for all positive cases, with patients being evaluated quickly and referred to the due specialist**

- **In less than 7 days, patients can initiate treatment**

**OUTCOME**
Found patients who were unaware of their HCV or HIV condition, improving their quality of life and achieving savings for the health system

**MAIN ESTIMATED FIGURES FOR THE FIRST YEAR**
- ~200 HCV-positive patients detected
- ~50 HIV-positive patients identified

**LOCATION**
Pontevedra and O Salnés, Spain

**POPULATION AT RISK**
Birth cohorts / Other groups

Source: Press articles
Innovative treatment developments and highly effective prevention measures have made achieving HCV elimination during this decade possible. If countries follow the WHO recommendations set out to achieve the UN Sustainable Development Goals, which include combating viral hepatitis, a scenario where HCV is eliminated can become a reality. This historic moment will require policymakers’ strong commitment to prioritizing and investing resources in HCV. This will improve people’s lives, not only in terms of their health but also by eliminating the stigma and discrimination. Moreover, it may potentially bring significant cost-savings to the health system in the long term. Lastly, there is a reputational recognition for elimination leaders, positioning them as role models in the global health scene.
In those countries were health authorities are not taking action and there is a lack of reliable epidemiological data, other stakeholders (e.g. the scientific community, hospital management) must step up and develop micro-elimination strategies.

As disease complications are expected to increase rapidly with an aging population, governments and health ministries must step up their elimination efforts and leverage treatment affordability to improve HCV diagnosis and treatment in order to realize elimination by 2030.

In sum, the main actions that should be considered by all countries to reach the WHO HCV elimination goal are:

1. **Develop solid, national elimination plans** with defined country-specific targets and strategic actions to use resources efficiently.

2. **Allocate resources to HCV elimination strategies and establish new funding mechanisms to make treatment more accessible** through price/volume discounts or more innovative pricing schemes, such as the flat-fee model implemented in Australia, to offset the cost of treatment.

3. **Implement comprehensive HCV screening policies** to identify the undiagnosed. In order to make them cost-effective, adapt campaigns to the country’s disease epidemiology.

4. **Decentralize test and treat programs** to reduce drop-out rates and ensure all diagnosed individuals are treated.

5. **Extend harm reduction programs** to prevent new cases, as injecting drugs is the main source of new infections in high-income countries (>80%)\(^{13}\).

6. **Measure HCV through a standardized prevalence database and define outcomes-based targets** across all countries to evaluate their performance against the WHO targets on a yearly basis and with reliable data. Robust, accessible and useful indicators should be collected at country level and subsequently monitored by an international organization, such as the WHO and relevant regional bodies, that provides oversight of the progress of HCV elimination\(^{13}\). At the national level, this is essential to understand the local characteristics of the disease, improve national plans, and create micro-elimination strategies. This will allow for the identification and treatment of more patients at earlier stages of the disease.

Looking ahead, the country experts that contributed to this report still consider HCV elimination an achievable goal for 2030, provided that sufficient investment is made in covering the testing and treatment costs, decentralizing testing, and hiring and educating healthcare staff. **HCV elimination by 2030 will only be possible if real action is taken now.**

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\(^{13}\) The World Health Organization (2016). Monitoring and Evaluation for viral Hepatitis B and C: Recommended indicators and framework.
Further information

Overall approach

This report assesses the current status of HCV elimination of 29 countries, covering Europe, Australia, and Canada. The aim is to determine the progress made in elimination in the last three years, an analysis of the main barriers and critical success factors to achieving elimination, and a forward-looking people-centered approach. The report looks into primary at-risk groups affected by HCV, their distinct needs, and how to improve their treatment rates, in addition to highlighting how to reach the remaining smaller populations at risk. Moreover, the report includes a models-of-care perspective and shows how this can help healthcare authorities implement effective strategies to battle HCV.
BCG Managing Directors and Partners María López and Paulo Gonçalves, and Consultant Teresa Ko have held editorial control of the report throughout. A scorecard was created summarizing the status of the countries covered by the report in terms of key metrics based on the progress of national plans, monitoring, and tracking of patients. The scorecard was developed by BCG analysts with the support and validation of experts and clinicians from the countries in scope.

The report includes an overall assessment of the barriers and critical success factors identified today in the care cascade. Additionally, for each of the groups reviewed, a profile was developed using input from the available literature, followed by validation interviews and the review of an Advisory Committee. Common sources of information were national plans, scientific papers, previous reports on HCV, and the media.

When country examples are mentioned in the report, they reflect the overall perception in the country, but may not apply to all regions within it. Moreover, research study results are difficult to compare given the heterogeneity of definitions across countries. This is compounded by the fact that large-scale studies capable of ensuring the reliability of epidemiological data and quantifying the size of the different at-risk groups with enough certainty are often lacking in the current literature, since many governments are not monitoring the progress of HCV elimination.

Analyses conducted

Over 20 experts from the different countries within the report’s scope, including clinicians, academics, regulators, payers, scientists, and patient association representatives, were interviewed or provided information to complete and validate each group’s profile. Interviews usually lasted forty-five minutes, were preceded by a brief questionnaire template, with questions covering the information needed to obtain an in-depth analysis of the target groups, taking into account the expertise of the interviewee. However, the opinions expressed may not always reflect the opinion of the organizations to which the experts belong. All interviewees agreed to participate on a pro-bono basis, and while some wish to remain anonymous, we have taken the opportunity to acknowledge the contribution of others:

- Soo Aleman – MD, PhD, Associate Professor and Head of HIV, Viral hepatitis and Immunodeficiency disorders units, Department of Infectious Diseases at Karolinska University Hospital/Karolinska Institute, Stockholm, Sweden
- Dr. Iain Brew – National Deputy Medical Director for Health in Justice, England
- Dr. Yuval Dadon – MD, MBA, Lead of Health Ministry’s National HCV Elimination Plan, Israel
- Prof. Victor de Ledinghen – Hepatology at the University Hospital of Bordeaux, Member of the European and American Associations for the Study of the Liver, and Secretary of the French Association for the Study of the Liver, France
- Jesús María Fernández – Former Deputy Spokesman of the Health and Social Services Commission, Spain
- Graham Foster – Professor of Hepatology at Queen Mary University and the clinical lead for hepatology at Barts Health, former President of The British Viral Hepatitis Group and former President of the British Association for the Study of The Liver, England
- Mark Gillyon-Powell JP – Head of Programme HCV Elimination, NHS England and NHS Improvement, Specialised Commissioning, England
- Prof. Angelos Hatzakis – MD, PhD, MSc, Epidemiology & Preventive Medicine and Director of the Department of Hygiene, Epidemiology & Medical Statistics at Athens University Medical School, Greece
• Sari Högström – Executive Director, Liver and Kidney Patient Association, Finland
• George Kalamitsis – Chair of Board of the Liver Patient Association “Prometheus”, Greece
• Daniel Lavanchy – MD, Consultant and former Coordinator & Chief of Viral Diseases for the WHO, Switzerland
• Daryl Luster – President of the Pacific Hepatitis C Network (PHCN) and Executive Member of the Steering Committee of Action Hepatitis, Canada
• Felice Nava – Director of the Penitentiary Medicine and Drug Abuse Unit part of the Public Health Service, Padua, Italy
• Dr. Juha Oksanen – Micro-elimination of Hepatitis C, Kotka Opioid Substitution Therapy Clinic, Finland
• Anne Øvrehus – MD, PhD, Consultant and Clinical Associate Professor, Department of Infectious Diseases, Odense University Hospital, Denmark
• Prof. George Papatheodoridis – MD, PhD, Director of Academic Department of Gastroenterology, Athens University Medical School, Greece
• David Pešek – Head of Sananim, NGO operating in the area of PWID care, Czech Republic
• Dr. Nazifa Qurishi – Specialist in internal medicine and infectious diseases, Cologne, Germany
• Swiss Hepatitis C Association (SHCA), Switzerland
• Dr. Juan Turnes – PhD, Head of Gastroenterology and Hepatology Department, University Hospital of Pontevedra, Spain
• Helen Tyrrell – Former Chief Executive Officer, Hepatitis Australia
• Dr. Wim Verlinden – Specialist in gastroenterology and hepatology at AZ Nikolaas Hospital, Belgium

• Dr. Jindrich Voboril – Head of Podane Ruce, NGO operating in the area of PWID care, Czech Republic

The report was developed in collaboration with an Advisory Committee, which consisted of three members known for their expertise in HCV elimination, and was formed to oversee the report and its recommendations. The members are:
• Jeffrey V. Lazarus - Associate Research Professor at the Barcelona Institute for Global Health (ISGlobal), also a member of the Expert Review Panel from the previous report
• Cary James - CEO of the World Hepatitis Alliance
• Dr. Andrew Ustianowski - Clinical lead for the Greater Manchester HCV Elimination Programme and former chair of the British Viral Hepatitis Group

About the Authors

Paulo Gonçalves is a Managing Director and Partner in the Barcelona office of Boston Consulting Group

María López is a Managing Director and Partner in the Madrid office of Boston Consulting Group

Teresa Ko is a Consultant in the Madrid office of Boston Consulting Group
## Selected criteria for country scorecard

For each of the dimensions considered in the HCV status scorecard, a series of criteria were defined to ensure consistency in the evaluation of each country. The scorecard assesses the situation of countries on April 2020.

### Strategic plan in place

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The government has published a <strong>publicly available national plan</strong> as a guide to achieving HCV elimination.</td>
<td>There is no <strong>publicly available national HCV plan</strong>.</td>
</tr>
</tbody>
</table>

### Achieving HCV elimination by 2030 objective in plan

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The national plan sets the year <strong>2030 (or before)</strong> as <strong>target year</strong> in which the country aims to achieve elimination based on their estimates.</td>
<td>There is no national plan, or if there is, it <strong>does not mention a target year</strong> to reach HCV elimination.</td>
</tr>
</tbody>
</table>

### Monitoring of impact of each of the initiatives

<table>
<thead>
<tr>
<th>Yes</th>
<th>Partially addressed</th>
<th>Planned</th>
<th>Not addressed</th>
<th>No plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiative results are closely monitored through pre-defined milestones and indicators.</strong></td>
<td>Although overall progress of the initiatives is being followed, there are <strong>no specific delivery dates or the indicators are too generic and therefore it is hard to measure real progress.</strong></td>
<td><strong>Initiative progress is expected to be followed in the near future,</strong> but the <strong>specific indicators to be monitored have not been decided yet</strong> or the monitoring <strong>infrastructure is still not in place.</strong></td>
<td>The government does not periodically review the progress made in initiatives that aim to achieve elimination.</td>
<td>There is no national HCV plan with initiatives to be monitored.</td>
</tr>
</tbody>
</table>

### HCV national patient registry

<table>
<thead>
<tr>
<th>Well addressed</th>
<th>Not addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is an <strong>organized national database</strong> where patient profiles from across the country are recorded consistently. Depending on the country, the scope may vary: from recording all new cases, only those under treatment, etc.</td>
<td>There is no type of patient registry or it does not have a national scale, such as clinical research trials or regional databases.</td>
</tr>
</tbody>
</table>
Abbreviations

AASLD: American Association for the Study of the Liver
ALEH: Latin-American Association for the Study of the Liver
APASL: Asian Pacific Association for the Study of the Liver
APRI: AST to Platelet Ratio Index
CEO: Chief executive officer
CDC: Center for Disease Control and Prevention
DAA: Direct-acting antivirals
EASL: European Association for the Study of the Liver
ECDC: European Center for Disease Control and Prevention
EMCDDA: European Monitoring Centre for Drugs and Drug Addiction
EU/EEA: European Union (EU) and European Economic Area (EEA)
HBV: Hepatitis B virus
HCV: Hepatitis C virus
HIV: Human immunodeficiency virus
MSM: Men who have sex with men
NGO: Non-governmental organization
OST: Opioid substitution therapy
PCP: Primary Care Practitioner
PHCN: Pacific Hepatitis C Network
PrEP: Pre-exposure prophylaxis
PWID: People who inject drugs
RNA: Ribonucleic acid
SHCA: Swiss Hepatitis C Association
STI: Sexually transmitted infections
UK: United Kingdom
UN: United Nations
US: United States of America
WHA: World Hepatitis Alliance
WHO: World Health Organization