Meeting WHO Goals for HCV Elimination: The role of Micro-elimination

Prof. Jeffrey V. Lazarus [Jeffrey.Lazarus@ISGlobal.org]
Associate Research Professor, ISGlobal, Hospital Clínic
Associate Professor, Faculty of Medicine, University of Barcelona
Vice-chair, EASL International Liver Foundation

Swiss Hepatitis Symposium
2 Dec 2019
Disclosures

Research grants and speaker fees from AbbVie, Gilead Sciences, MSD. Speaker fees from Abbott, CEPHEID, Janssen and Intercept.
The question in the field of hepatitis C...

Translating good biomedical tools into good health outcomes for people living with hepatitis C –

what will it take?
Meeting two types of challenges to eliminate HCV

Achieving a sustained virologic response in everyone with HCV requires much greater attention to *health systems challenges*, to resolve the public health issues.
Red circles denote the existence of a policy.

Pink circles denote that a policy is in development, is not well applied, or is in place for specific subpopulations;

White denotes the absence of a policy.

HCV treatment timeline

**Identification of HCV**

**The IFN era**
- IFN
- IFN + RBV
- Peg-IFN + RBV

**Early era of DAA’s**
- TVR
- BOC
- SMV
- SOF

**“DAA revolution”**
- LDV/SOF
- DCV
- EBR/GZR
- OBV/PTV/r + DSV

**Pan-genotypic era**
- SOF/VEL
- G/P
- SOF/VEL/VOX

New global political will to eliminate HCV

**World Health Assembly resolutions (2010, 2014)**

*Sixty-seventh World Health Assembly*
*WHA67.4*
*24 May 2014*

**Hepatitis**

The Sixty-seventh World Health Assembly,
Having considered the report on hepatitis,
Resolving, W9A57.1, adopted in 2010 by the World Health Assembly, which recognized viral hepatitis as a global public health problem and the need for governments and populations to take action to prevent, diagnose and treat viral hepatitis, and that called upon WHO to develop and implement a comprehensive global strategy to support their efforts, and expressing:

**First World Hepatitis Summit (2015)**

84 countries represented – repeated in 2017

**Patient community delivers NOhep (2016)**

**Hepatitis C Elimination in Europe (2016 + 2018)**

‘Our vision for a Hepatitis C-free Europe’

WHO Global Health Sector Strategy on Viral Hepatitis 2016–2021

28 May 2016: The first of its kind, WHO publishes a global strategy aiming for elimination of viral hepatitis as a public health threat by 2030.

Global Health Sector Strategy

HCV targets at a glance

Incidence targets
- 30% reduction in new HCV infections by 2020
- 80% reduction in new HCV infections by 2030

Mortality targets
- 10% reduction in mortality by 2020
- 65% reduction in mortality by 2030

Harm reduction
- Increase in sterile needle and syringes provided per PWID/year from 20 in 2015 to:
  - 200 by 2020
  - 300 by 2030

Testing targets
- 90% of people aware of HCV infection by 2030

Treatment targets
- 80% of people treated by 2030

The continuum of viral hepatitis services and the retention cascade

- WHO goal: eliminate HCV as a public health threat by 2030
- The HCV Cascade of Care: a key element of monitoring progress

Public health problem

Lack of standardisation in HCV CoC monitoring hampers efforts to tack progress toward WHO elimination goals

Outcome: the Consensus HCV CoC

Box 1. Definitions for the Consensus Hepatitis C Cascade of Care for a given year

The 2017 calendar year is used to illustrate these definitions, which can be applied to any 12-month period.

**Infected** = Number of people estimated to have viremic HCV infection on 1 January 2017.

**Diagnosed** = Number of people who received a diagnosis of viremic HCV infection before or during 2017, were still infected at the beginning of 2017 and were still alive at the end of 2017. This number excludes people whose HCV infection was cured (spontaneously or through treatment) before 2017, but includes those whose HCV infection was cured over the course of 2017. (People who have only had an antibody-based diagnosis are excluded.)

**Treated** = Number of diagnosed people (as defined above) who initiated HCV treatment at any time during 2017 (all types of treatment, including interferon-based regimens).

**Cured** = Number of treated people (as defined above) who attained a sustained virologic response (SVR)*, including people who initiated treatment in 2017 and underwent SVR testing within the first six months of 2018.

*SVR is defined according to the latest clinical practice guidelines that are relevant for the country of interest, e.g., guidelines from a national clinical society or from the World Health Organization, the European Association for the Study of the Liver or the American Association for the Study of Liver Diseases.

CoC – Sweden

A useful tool for comparison among countries and over time.

**Source:** Safreed-Harmon *et al.* The Consensus Hepatitis C Cascade of Care: standardized reporting to monitor progress toward elimination. [Abstract] ILC2019.
The continuum of viral hepatitis services and the retention cascade – example from Canada
**Barriers:** late presentation

DOI 10.1186/s12916-017-0856-y

**Late presentation of chronic viral hepatitis for medical care: a consensus definition**

Stefan Mauss¹², Stanislas Pol²,⁹, Maria Buti²,³, Erika Duffell⁴, Charles Gore⁵, Jeffrey V. Lazarus⁶, Hilje Logtenberg-van der Griet⁷, Jens Lundgren⁶, Antons Mozalevskis⁶,⁸, Dorthe Raben⁹,¹⁰, Eberhard Schatz¹¹, Stefan Wiktor¹², Jürgen K. Rockstroh¹⁰,¹³ and on behalf of the European consensus working group on late presentation for Viral Hepatitis Care

**Abstract**

**Introduction:** We present two consensus definitions of advanced and late stage liver disease being used as epidemiological tools. These definitions can be applied to assess the morbidity caused by liver diseases in different health care systems. We focus is on hepatitis B and C virus infections, because effective and well tolerated treatments for both of these infections have greatly improved our ability to successfully treat and prevent advanced and late stage disease, especially if diagnosed early. A consensus definition of late presentation with viral hepatitis is important to create a homogenous, easy-to-use reference for public health authorities in Europe and elsewhere to better assess the clinical situation on a population basis.

**Methods:** A working group including viral hepatitis experts from the European Association for the Study of the

Tracking late presentation

Fewer visits please...

Different models of HCV care are needed for different HCV subpopulations for testing and treatment

Multiple models essential

- Drug and alcohol clinics
- Primary healthcare/GP centres
- Tertiary care
- Prisons
- Harm reduction drop-in centres
- Community health centre


GP: general practitioner

@JVLazarus
Models of care – definition

A model of care (MoC) signifies a setting-specific framework that outlines how to provide the relevant services and interventions throughout the HCV cascade of care.

An MoC should address four key questions:
1. *where* to provide the services
2. *what* services to provide
3. *who* to provide them and
4. *how* to integrate them.

What is an ideal MoC for HCV?

- Much can be learned from examining innovative MoCs, which suggest that an effective MoC for HCV infection should be:
  - Simple
  - Targeted
  - Multidisciplinary
  - Scalable
  - Integrated
  - Patient-centred and affordable.

*Source:* Lazarus JV et al. We know DAAs work, so now what? Simplifying models of care to enhance the hepatitis C cascade. *J Int Med* 2019 In press.
Case 1. Where Would You Want To Be Tested and Treated?

Former Organization: Patient travelled

Future Organization: The sample and meds travel

Drug Treatment Unit → Test and Treat

Specialized Care → Drug Treatment Unit

Lab

Case 2. T’n’T, Copenhagen Denmark

Source: Lazarus 2019
Case 2. T’n’T in a van, Copenhagen Denmark

- Running from April 2019.
- Peer-led by Brugernes Akademi, Denmark, with on-site nurses.
- Rapid antibody PoC tests and GeneXpert machine in the van.
- Linkage to care at hospital – medicine can be delivered to the van.
- Parked behind the main train station in Copenhagen, Denmark’s largest open drug scene
Case 3. Background: HCV testing at pharmacies project

- Running from April 2018-April 2019.
- Based on original model of community pharmacy testing piloted by the London Joint Working Group.
- 8 GeneXpert machines based in the top 8 needle exchange pharmacies in Birmingham and Manchester (not all sites yet active in the two locations).
- Live from mid-July 2018

Case 4: Decentralised testing - Barcelona

Harm reduction center “El Local”

“La Mina” neighbourhood important drug trafficking area in Spain

“El Local”
2,700 different users in 2017
86,400 inj. drug consumes
182,800 syringes distributed
110,800 syringes returned

- Distribution of needles, syringes and paraphernalia
- Drug consumption room
- Outreach-street work
- Breakfast/snacks
- Showers and clean clothes
- Screening (HCV, HIV, TB)
- Vaccination (HAV, HBV, tetanus)
- Educational sessions

Source: Courtesy of Elisa Martó, Microbiology Service of Germans Trias Hospital, Spain, April 2019.
Elimination is Daunting for the Health System

Cost of implementing the WHO global health sector strategy on viral hepatitis, 2016–2030

Challenging

Costly

Complex
HCV (micro-) elimination in certain populations is also feasible in the short-to-medium term.

- Decompensated cirrhotics
- Veterans
- Patients with haemophilia
- Patients with chronic kidney disease
- Transplant patients
- PWID
- HIV/HCV co-infected
- Incarcerated individuals

Micro-elimination approach

Generally speaking, micro-elimination approaches should meet the following criteria, although these criteria may need to be adapted to different epidemiologic situations and geographic settings:

- There is a plan for how to tailor health resources and services to overcome known barriers and achieve high levels of HCV diagnosis and treatment in one or more clearly definable populations of interest within a specified timeframe.

- The plan sets forth achievable annual targets, basing these on mathematical modeling when relevant to determine the levels of diagnosis and treatment required to progress to the plan’s ultimate elimination targets.

- The plan is developed and implemented through a multi-stakeholder process, with essential participants including government officials, health service providers, and civil society representatives.

- Progress and outcomes are monitored and publicly reported using indicators selected at the outset of the process.

The micro-elimination evidence base

1. To what extent do initiatives reported to date follow the criteria proposed for a micro-elimination approach to HCV?
2. What evidence exists to support the effectiveness of the micro-elimination approach?

• 7 studies from: Australia, Canada, Iceland, the Netherlands, Spain (n=3) + conf abstracts: Georgia, Slovenia + Ireland (haemophilia)
A paradigm change: The central role of people and communication

System building blocks:
- Service delivery
- Health workforce
- Health information systems
- Access to essential medicines
- Financing
- Leadership / governance

Patient engagement
- Access
- Coverage
- Quality
- Safety

Overall goals / outcomes:
- Improved health (level and equity)
- Responsiveness
- Social and financial risk protection
- Improved efficiency

People-centred health systems

Healthcare access challenges among marginalized people

Marginalized groups at high risk of vulnerability:

- Homeless
- LGBTI
- People who use drugs
- Prisoners
- Sex workers
- Undocumented migrants

Health risks
- Infectious diseases
- Mental health
- Drug and alcohol misuse
- Violence
- Maternal/reproductive health
- Chronic diseases

Healthcare access barriers
- Educational
- Organisational
- Administrative
- Legal
- Stigma / discrimination

Low service uptake
- Health promotion
- Harm reduction
- Diagnosis / screening
- Treatment
- Supportive care

Poor outcomes
- Morbidity & mortality
- Excess care costs
- Public health threats
- Risk to SDG goals

Service design innovation - NLO Service Design Checklist

Focusing on service design and delivery

### A. Service delivery

**Aim:** Design and deliver an easily accessible service that meets the needs of the communities for whom it is intended.

Relevance: Providers ✓ ✓ Policymakers ✓

#### DESIGN STAGE

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Not relevant / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. Were community representatives involved in the design of the service?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the design of the service taken into account the:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A2. Health and social care needs of the community?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3. Existing barriers to service access for the community, identified by the community and/or service users?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A4. Existing barriers identified by healthcare staff in delivering services to the community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A5. Existing resources and skills within the community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A6. Relevant clinical practice guidelines and/or best practices?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Lazarus et al. Nobody Left Outside (NLO) Checklist: Improving access to healthcare for vulnerable and underserved Groups. ICIC 2019 Oral presentation 621.
**Putting it all together ...**

A people-centred health systems approach to HCV elimination with all key stakeholders engaged.

- Policy leaders
- Academia
- Industry
- Health care providers
- Civil society
- Other stakeholders
12 Countries on Track to Achieve WHO HCV Elimination Targets

HCV Elimination Targets
2017

- Iceland
- The Netherlands
- Georgia
- Mongolia
- UK
- France
- Spain
- Italy
- Egypt
- The Netherlands
- Switzerland
- Australia
- Japan

On track for WHO elimination targets
Working towards elimination
Not on track: elimination unachievable given present policy

2017 data.

---BREAKING NEWS---
Switzerland has eliminated hepatitis C

Multistakeholder effort and health system reforms leads to HCV elimination.

From micro-elimination in 2019 to HCV elimination as a public health threat in 2025

HCV Elimination Strategy a success!
Acknowledgements

All authors of all cited studies, especially Ahmed Elsharkawy, Elisa Martró Català, Lars Peters and authors of the “We know DAAs work, so now what? Simplifying models of care to enhance the hepatitis C cascade” review: Camila Picchio, Juan M Pèricas, Jasna Cernosa, Mishka Hoekstra, Niklas Luhmann, Mojca Maticic, Phillip Read, Emma Robinson, and John Dillon.

And the EASL International Liver Foundation (especially Massimo Colombo, Mark Thursz and Stefan Wiktor) for the work on micro-elimination, the NLO coalition for the health systems checklist and the Polaris Observatory for the elimination map and global timing data.

Contact: Jeffrey.Lazarus@ISGlobal.org

http://pathtozero.eiu.com/