

Hepatitis C elimination program in Georgia: successes, challenges, and role of science

Davit Baliashvili, MD, PhD
Centers for Disease Control and Prevention
Georgia country office

Outline

Background

3

Successes

9

Challenges

13

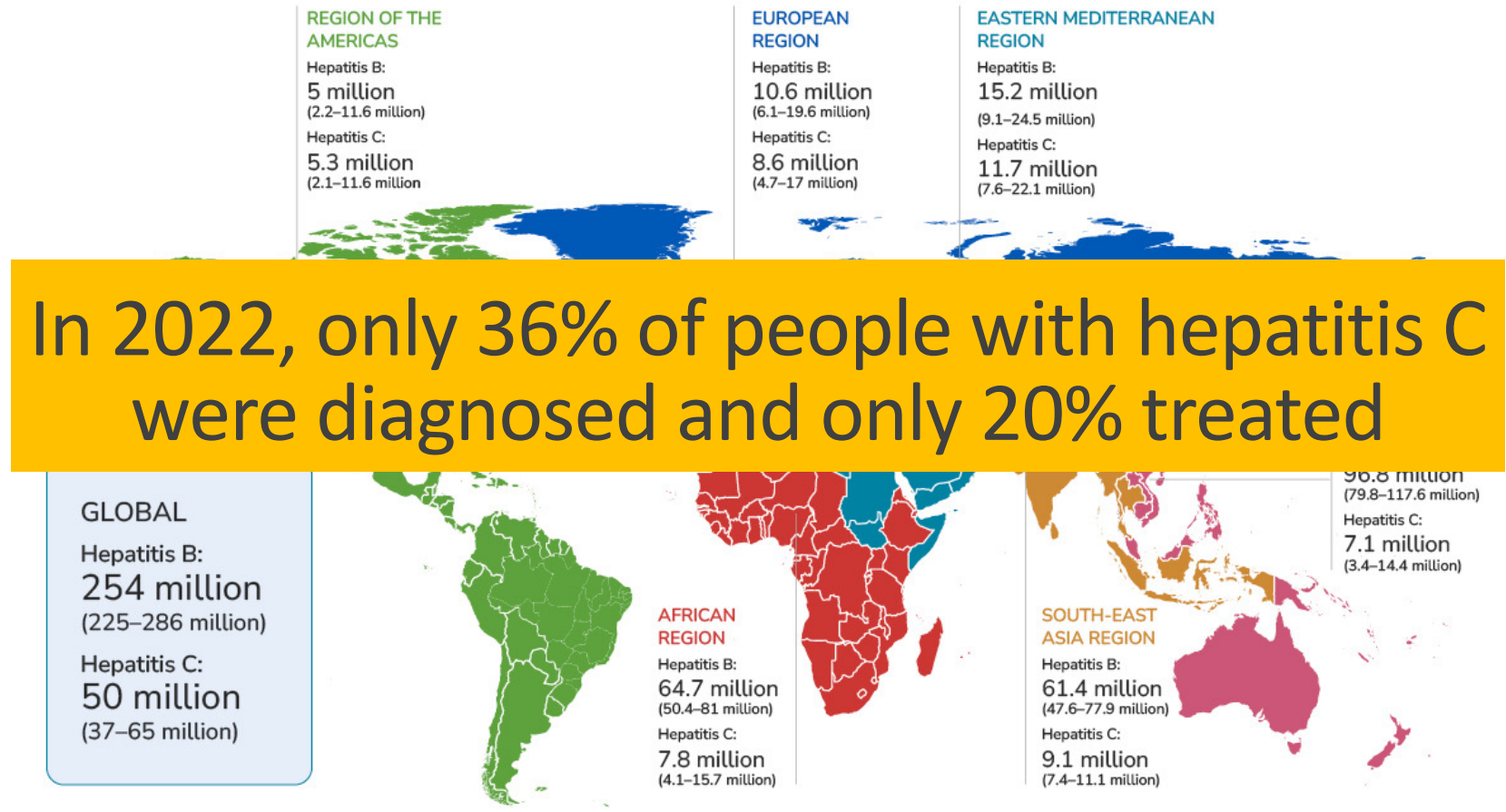
Science

17

Background

Global epidemiology of hepatitis C infection

- In 2022:
 - 50 million people living with hepatitis C worldwide
 - 1 million people newly infected
- WHO goal: to eliminate viral hepatitis as public health threat by 2030



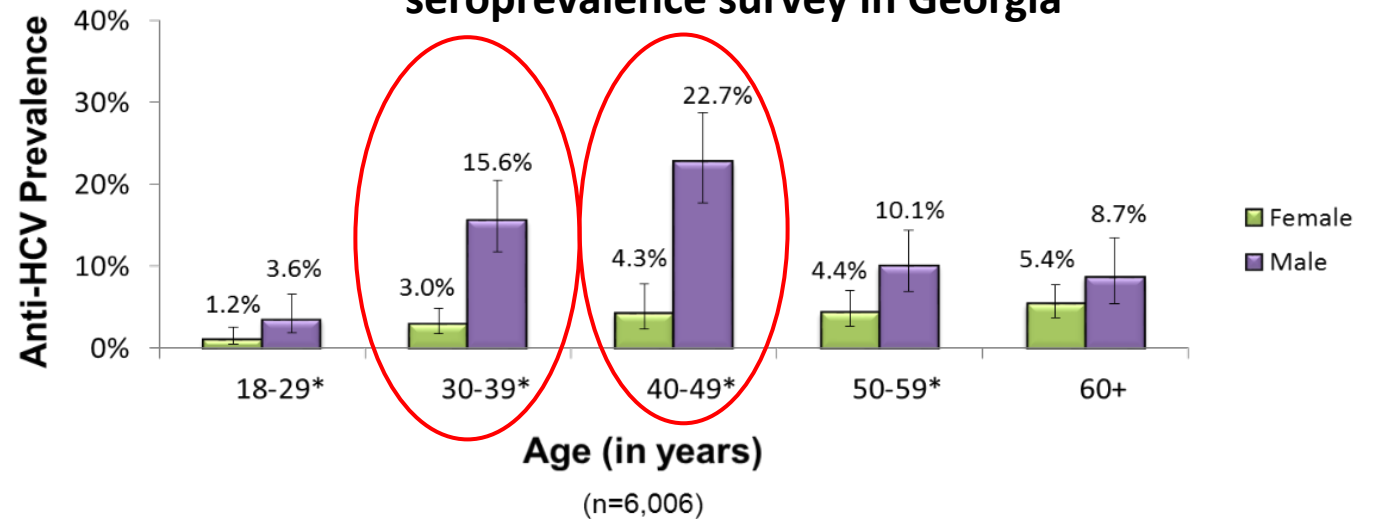
Source: <https://www.who.int/publications/i/item/9789240091672>; <https://www.cdc.gov/hepatitis/global/index.html>

Hepatitis C in Georgia

- Prevalence in adult population (2015)
 - Anti-HCV antibody positive: 7.7%
 - HCV RNA positive: 5.4%
- Major risk factors
 - Injection drug use
 - History of blood transfusion
 - Healthcare procedures (e.g., history of surgery, renal dialysis)

Highest among countries of Eastern Europe and Central Asia

Anti-HCV prevalence by age and sex, 2015 seroprevalence survey in Georgia

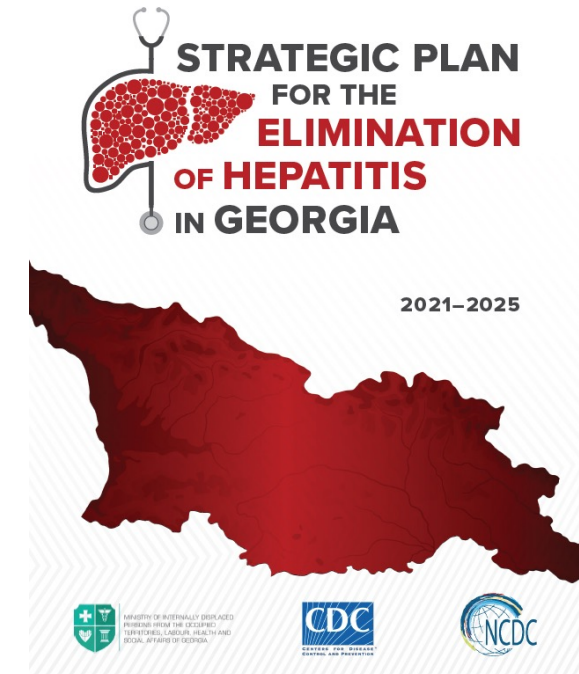
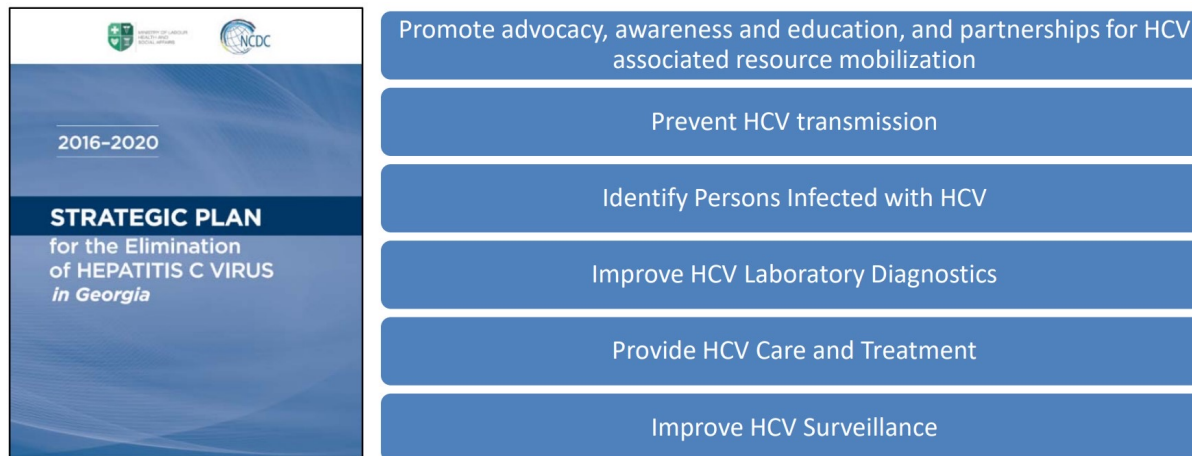


* Differences in anti-HCV prevalence between male and female respondents were statistically significant in asterisked categories ($p < 0.05$).

Sources: Hagan et al., 2019; Baliashvili et al., 2022

National HCV Elimination Program

- World's first formal nationwide hepatitis C elimination program launched in 2015
- Elimination strategy encompasses six strategic direction to ensure comprehensive approach for controlling hepatitis C



Source: 1. NCDC, Hepatitis C Elimination in Georgia, Country Brief; 2. Monthly care cascade analysis reports

Screening for hepatitis C

Blood donors

NCDC

Pregnant women/ANCs

Hospitalized patients

Harm reduction beneficiaries

Outpatients

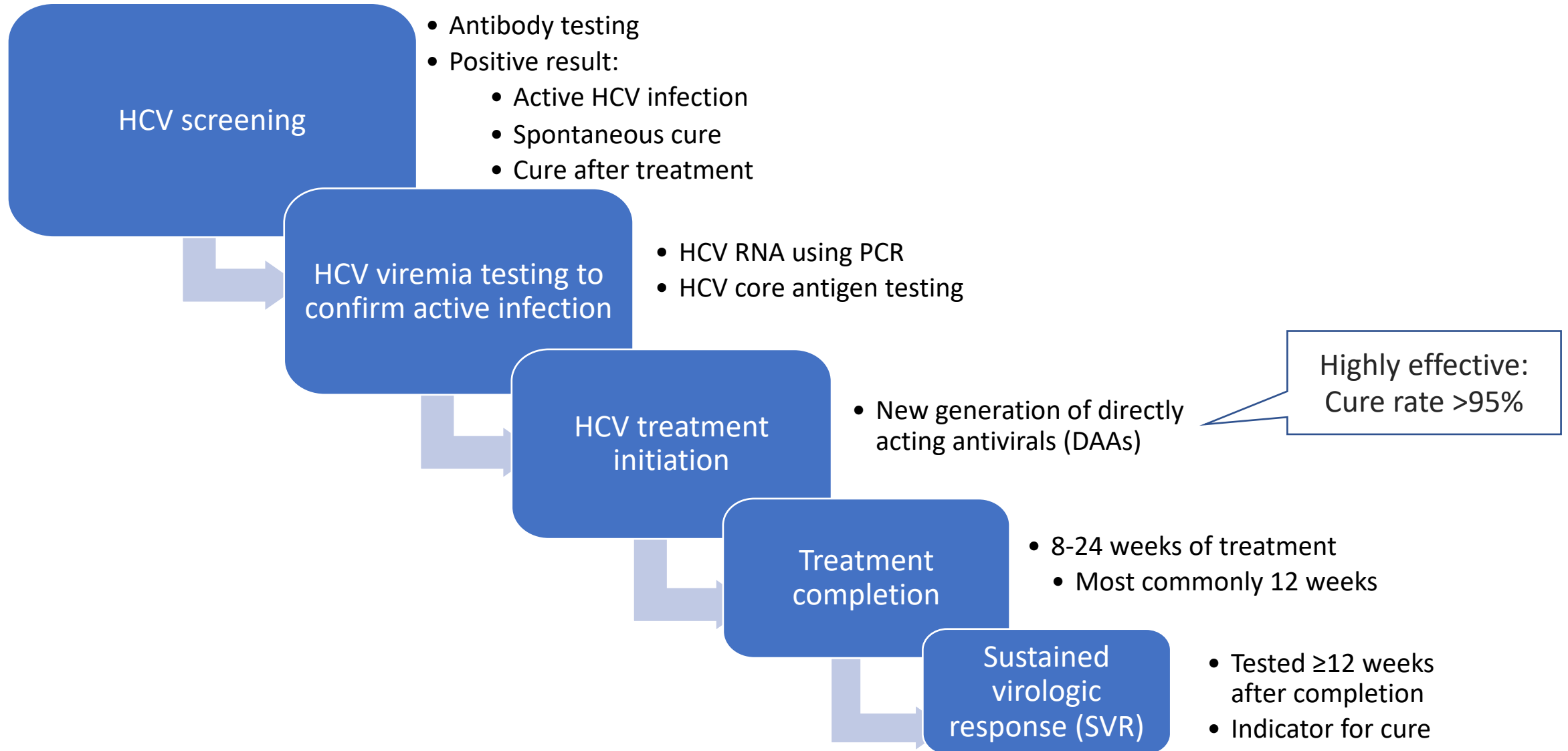
Prisoners

Military recruits

Persons living with HIV

Persons diagnosed with TB

Hepatitis C care cascade



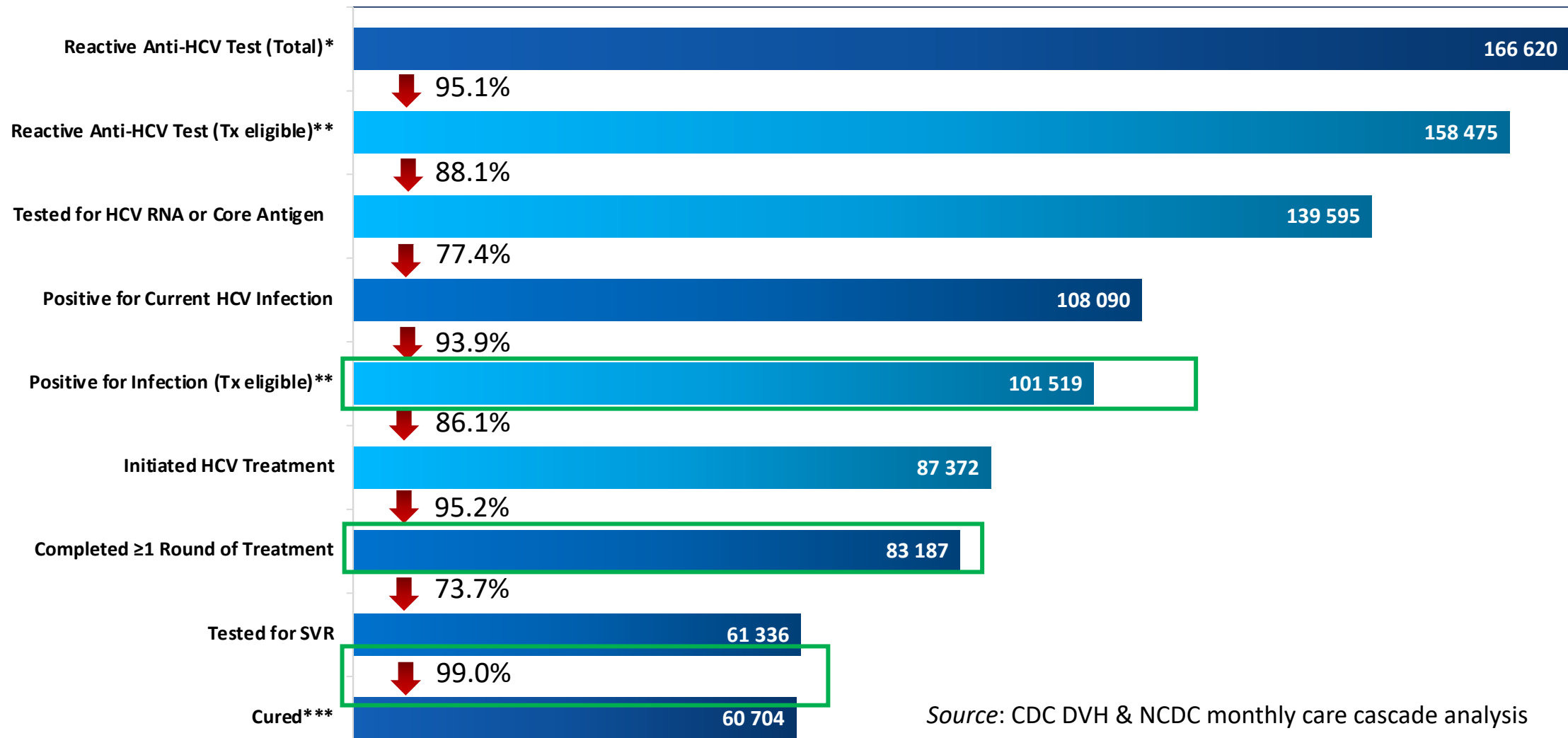
Successes

Hepatitis C prevalence in Georgia

	2015	2021	
	Adults % (95%CI)	Adults % (95%CI)	Children % (95% CI)
Anti-HCV	7.7 (6.7, 8.9)	6.8 (5.9, 7.7)	0
HCV RNA	5.4 (4.6, 6.4)	1.8 (1.3–2.4)	0

67% reduction in prevalence

Georgia Hepatitis C Elimination Program Care Cascade, 28 April 2015 – 31 May 2024



Source: CDC DVH & NCDC monthly care cascade analysis

* Among persons with national ID number. An additional 18,586 screened anti-HCV+ using an anonymized 15-digit code. Thus, their representation in the cascade cannot be confirmed; ** Age ≥12 years with no mortality data prior to progressing in cascade


*** Per-protocol, includes retreatments. Among 61,666 persons tested after their **1st round of treatment**, 59,797 (**97.0%**) achieved SVR (Including **82.4%** for **SO^F-based regimens**, **98.2%** for **SO^F/LED regimens**, and **98.5%** for **SO^F/VEL regimens**). 2,446 persons were **retreated** with a 2nd round of treatment, with **94.3%** (1,282/1,360) of those tested achieving SVR. Overall SVR by **Intention-to-Treat analysis: 71.8%**

Impact of the elimination program


Home / Eurosurveillance / Volume 28, Issue 30, 27/Jul/2023 / Article


Research

 Open Access

Insights from a national survey in 2021 and from modelling on progress towards hepatitis C virus elimination in the country of Georgia since 2015 |  Check for updates

Like 0

 Download

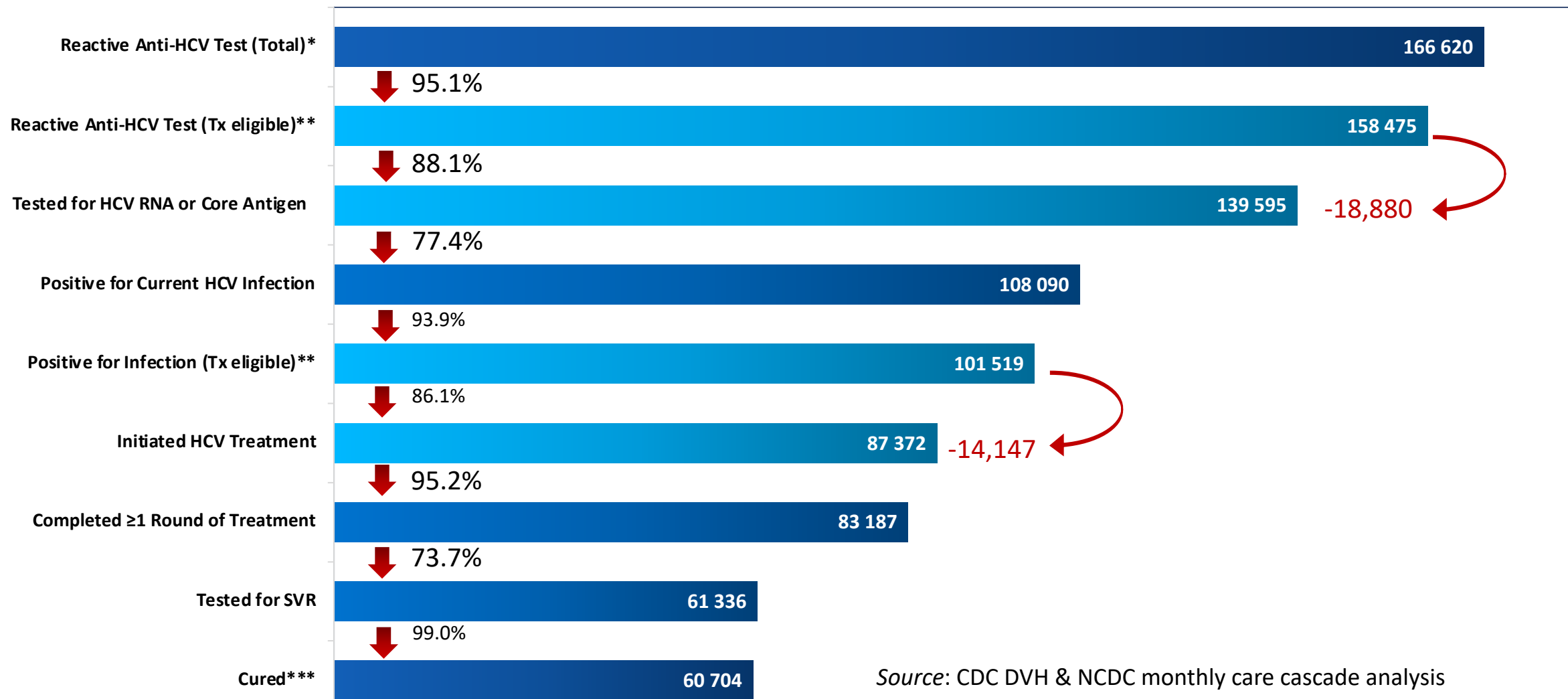
Josephine G. Walker¹ , Irina Tskhomelidze², Shaun Shadaker³, Maia Tsereteli⁴, Senad Handanagic³, Paige A. Armstrong³, Amiran Gamkrelidze⁴, Peter Vickerman¹

- **Incidence among PWID: 57%** ↓
- **Overall Incidence: 58%** ↓
- Treatments given up to March 2022 have averted **9,186 infections** and **842 deaths**
- By 2030, accumulating threefold for cases averted (26,154) and fivefold for deaths averted (3,971)*

*if tracked to 2030 without additional treatments after March 2022.

Challenges

Georgia Hepatitis C Elimination Program Care Cascade, 28 April 2015 – 31 May 2024

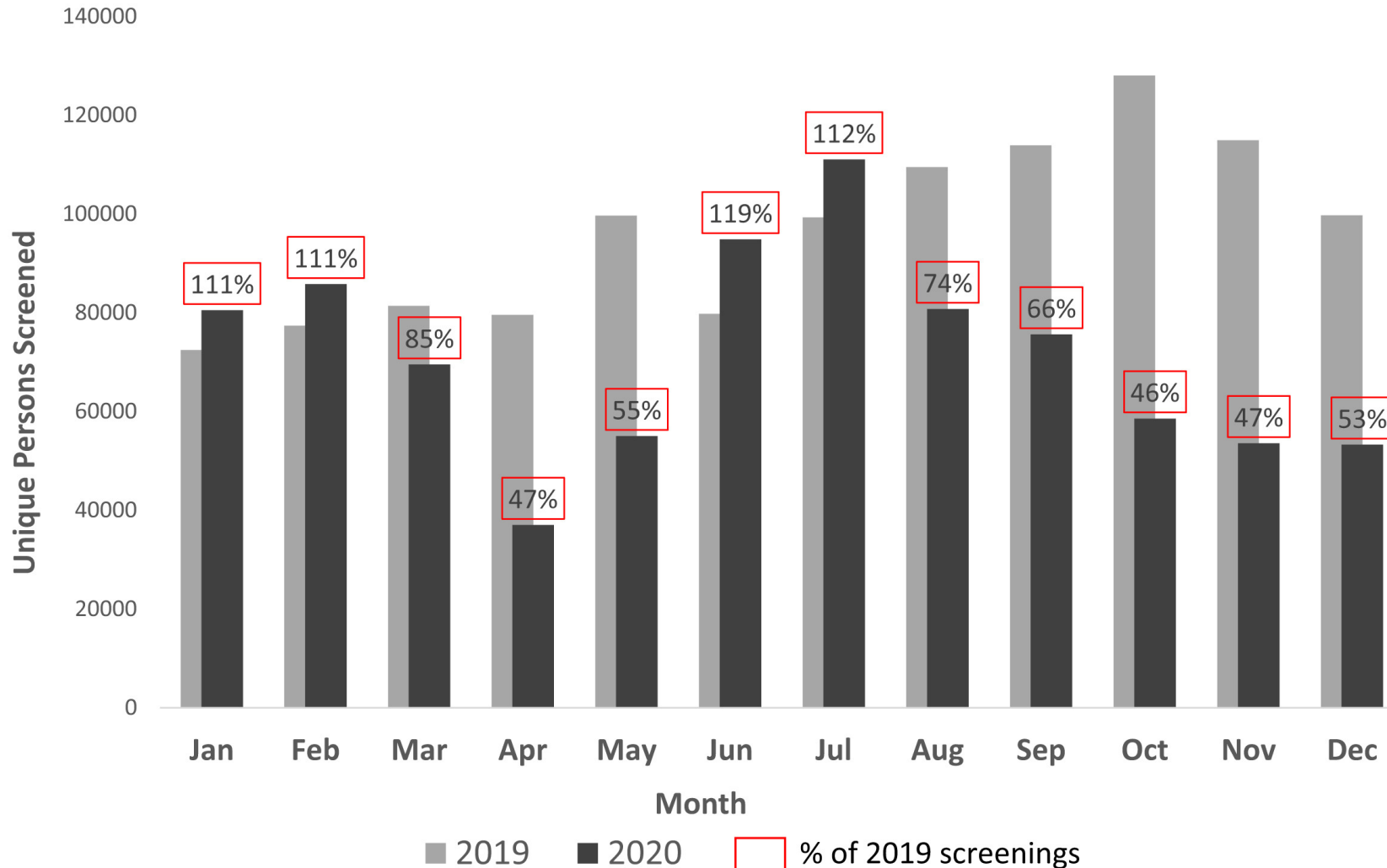


Source: CDC DVH & NCDC monthly care cascade analysis

* Among persons with national ID number. An additional 18,586 screened anti-HCV+ using an anonymized 15-digit code. Thus, their representation in the cascade cannot be confirmed; ** Age ≥12 years with no mortality data prior to progressing in cascade

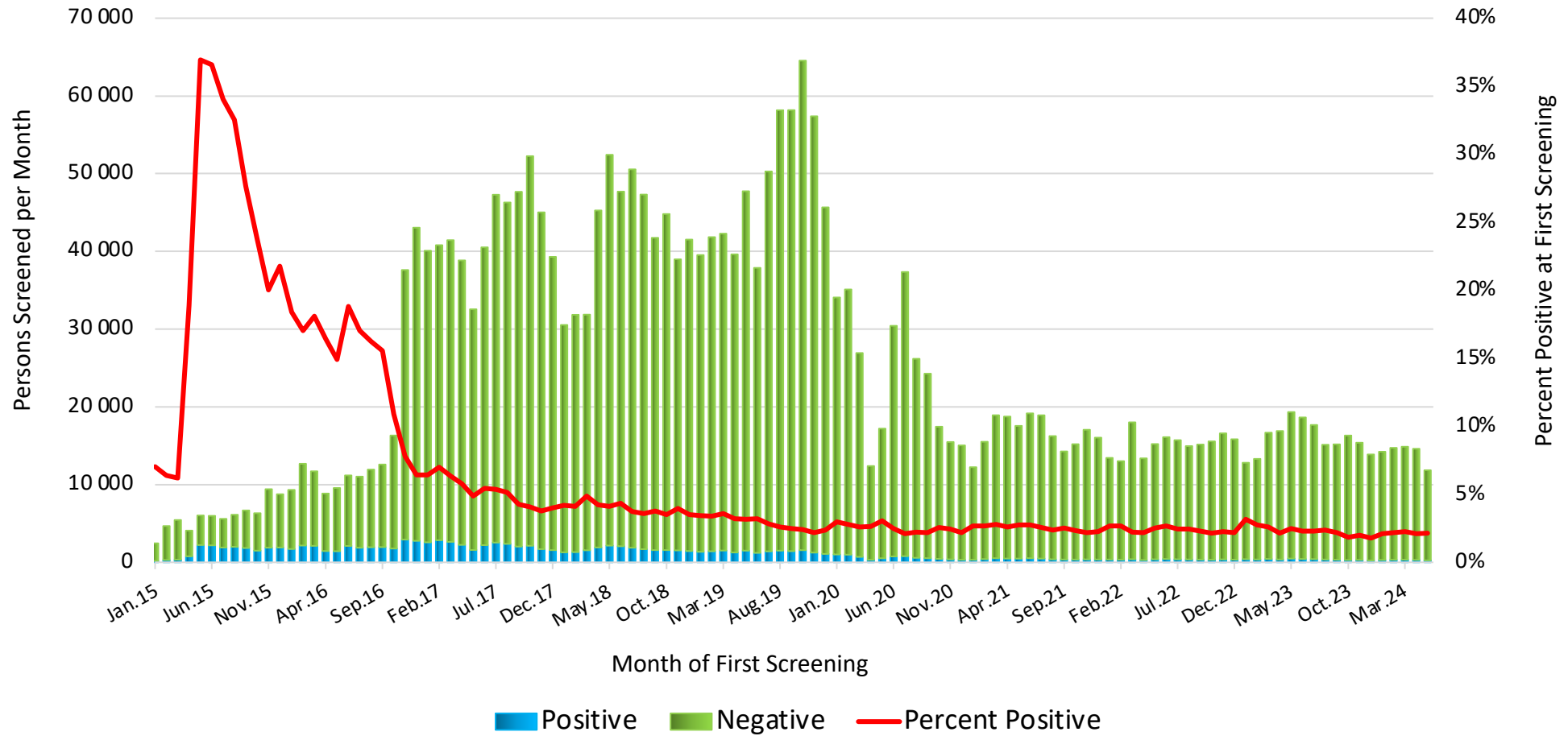
*** Per-protocol, includes retreatments. Among 61,666 persons tested after their 1st round of treatment, 59,797 (97.0%) achieved SVR (Including 82.4% for SOF-based regimens, 98.2% for SOF/LED regimens, and 98.5% for SOF/VEL regimens). 2,446 persons were retreated with a 2nd round of treatment, with 94.3% (1,282/1,360) of those tested achieving SVR. Overall SVR by Intention-to-Treat analysis: 71.8%

Impact of COVID on HCV screening



Source: Gamkrelidze et.al., The impact of COVID-19 pandemic on the 2020 hepatitis C cascade of care in the Republic of Georgia. Public Health. 2022 Apr;205:182-186. doi: 10.1016/j.puhe.2022.01.040. Epub 2022 Feb 9.

Persons* Newly Screened per Month Georgia, January 2015 – May 2024



Source: CDC DVH & NCDC monthly care cascade analysis

* Among all persons with national ID. Does not include persons with 15-digit code

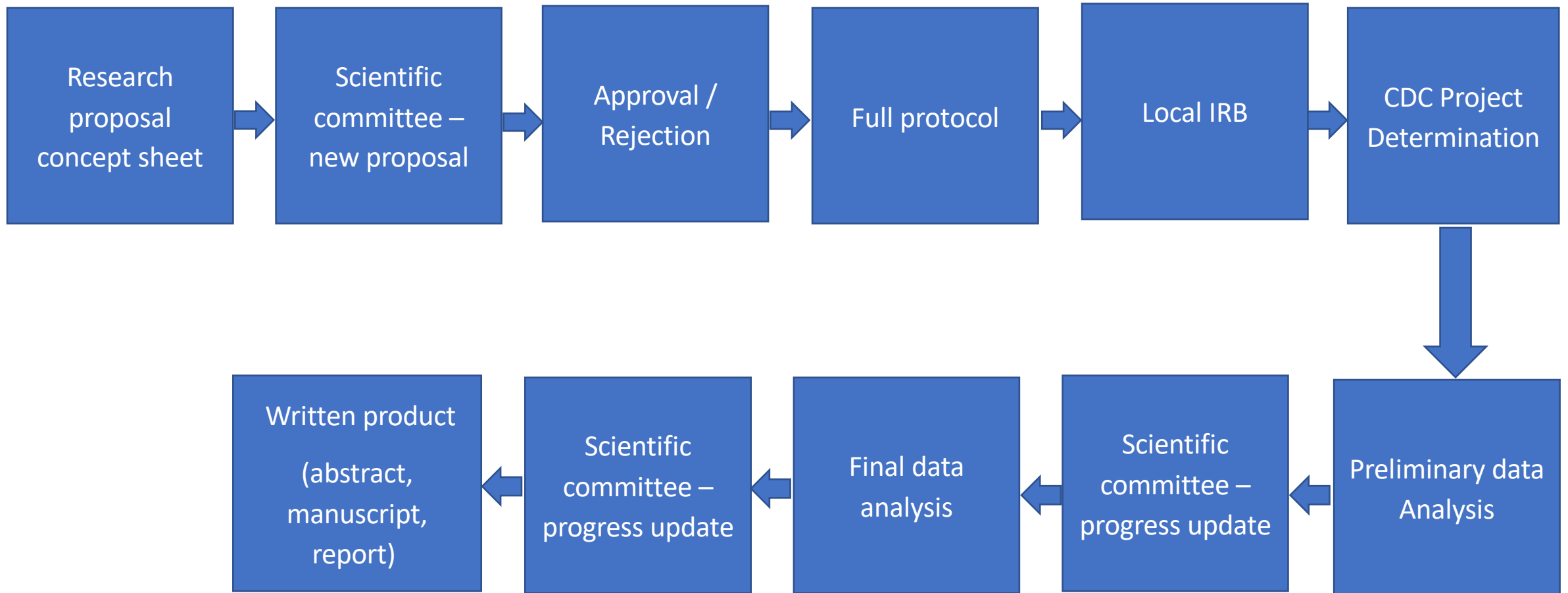
Science

Coordination of the viral hepatitis scientific activities in Georgia – Scientific Committee

- Established in August, 2016
 - Coordination
 - Communication
 - Dissemination
 - Transparency
- Members
 - MoH
 - NCDC
 - CDC
 - Clinicians, researchers, policy-makers
- Non-member participants per invitation –
 - NGOs, universities, and other partners may be invited ad hoc

53 meetings, >100 projects discussed

From idea to product



Sources of data

Seroprevalence surveys

HCV screening registry

Elimination C (HCV treatment registry)

Other nationwide electronic databases

Special studies

Scientific products of elimination program 2015-2024

Presence at conferences

>100 abstracts at
international
conferences

Published articles

>70 articles in peer-
reviewed journals

Recent publications



Transfusion Clinique et Biologique

Available online 11 March 2023

In Press, Corrected Proof [?](#) [What's this?](#)



Original article

Advancing blood transfusion safety using molecular detection in the country of Georgia

[Maia Alkhazashvili](#)^{a, b}, [Evan M. Bloch](#)^c, [Shaun Shadaker](#)^d, [Tinatin Kuchuloria](#)^e, [Vladimer Getia](#)^a, [Alexander Turdziladze](#)^a, [Paige A. Armstrong](#)^c, [Amiran Gamkrelidze](#)^{a, b}

Substance Abuse Treatment, Prevention, and Policy

[Home](#) [About](#) [Articles](#) [Submission Guidelines](#)

Research | [Open Access](#) | [Published: 28 March 2022](#)

Barriers of linkage to HCV viremia testing among people who inject drugs in Georgia

[Maia Butsashvili](#), [Tinatin Abzianidze](#), [George Kamkamidze](#), [Lasha Gulbiani](#), [Lia Gvinjilia](#), [Tinatin Kuchuloria](#), [Irina Tskhomelidze](#), [Maka Gogia](#), [Maia Tsereteli](#), [Veronique Miollany](#), [Tamar Kikvidze](#), [Shaun Shadaker](#), [Muazzam Nasrullah](#) & [Francisco Averhoff](#)

Substance Abuse Treatment, Prevention, and Policy 17, Article number: 23 (2022) | [Cite this article](#)

1198 Accesses | 1 Altmetric | [Metrics](#)



ORIGINAL ARTICLE | [Open Access](#) | [CC](#) [i](#)

Economic evaluation of the Hepatitis C virus elimination program in the country of Georgia, 2015 to 2017

[Irina Tskhomelidze](#), [Shaun Shadaker](#), [Tinatin Kuchuloria](#), [Lia Gvinjilia](#), [Maia Butsashvili](#), [Muazzam Nasrullah](#), [Tamar Gabunia](#), [Amiran Gamkrelidze](#), [Vladimer Getia](#) ... [See all authors](#)

First published: 21 September 2022 | <https://doi.org/10.1111/liv.15431>

Handling Editor: Dr. Alessio Aghemo

The Journal of Infectious Diseases

[Issues](#) [More Content](#) [Publish](#) [Purchase](#) [Advertise](#) [About](#)

The Journal of Infectious Diseases

Article Contents

Abstract

JOURNAL ARTICLE | ACCEPTED MANUSCRIPT

Nationwide hepatitis C serosurvey and progress towards HCV elimination in the country of Georgia, 2021

[Amiran Gamkrelidze](#), [Shaun Shadaker](#), [Maia Tsereteli](#), [Maia Alkhazashvili](#), [Nazibrola Chitadze](#), [Irina Tskhomelidze](#), [Lia Gvinjilia](#), [Nino Khetsuriani](#), [Senad Handanagic](#), [Francisco Averhoff](#), [Gavin Cloherty](#), [Giorgi Chakhunashvili](#), [Jan Drobeniuc](#), [Paata Imndaze](#), [Khatuna Zakhshvili](#), [Paige A Armstrong](#)

The Journal of Infectious Diseases, jiad064, <https://doi.org/10.1093/infdis/jiad064>

Published: 18 March 2023 [Article history](#)

Wiley Online Library

Search



ORIGINAL ARTICLE | [Open Access](#) | [CC](#) [i](#) [e](#) [s](#)

Feasibility and effectiveness of HCV viraemia testing at harm reduction sites in Georgia: A prospective three-arm study

[Sonjelle Shilton](#), [Jessica Markby](#), [Maia Japaridze](#), [Violet Chihota](#), [Shaun Shadaker](#), [Lia Gvinjilia](#), [Maia Tsereteli](#), [Maia Alkhazashvili](#), [Maia Butsashvili](#), [Ketevan Stvilia](#), [Ryan Jose Ruiz III](#) ... [See all authors](#)

First published: 07 February 2022 | <https://doi.org/10.1111/liv.15191>

[Sonjelle Shilton](#) and [Jessica Markby](#) contributed equally to this work.

Handling Editor: Alessio Aghemo

Funding information: This study was funded by the Unitaid as part of the multi-country HEAD-Start (Hepatitis Elimination through Access to Diagnostics) project.

Clinical Infectious Diseases

[Issues](#) [More Content](#) [Publish](#) [Purchase](#) [Advertise](#) [About](#)

Clinical Infectious Diseases



Volume 76, Issue 2
15 January 2023

Comments (0)

[Previous](#) [Next](#)

JOURNAL ARTICLE

Association of Treated and Untreated Chronic Hepatitis C With the Incidence of Active Tuberculosis Disease: A Population-Based Cohort Study

[Davit Baliashvili](#), [Henry M Blumberg](#), [David Benkeser](#), [Russell R Kempker](#), [Shaun Shadaker](#), [Francisco Averhoff](#), [Lia Gvinjilia](#), [Natalia Adamashvili](#), [Matthew Magee](#), [George Kamkamidze](#) ... [Show more](#)

Clinical Infectious Diseases, Volume 76, Issue 2, 15 January 2023, Pages 245–251, <https://doi.org/10.1093/cid/ciac786>

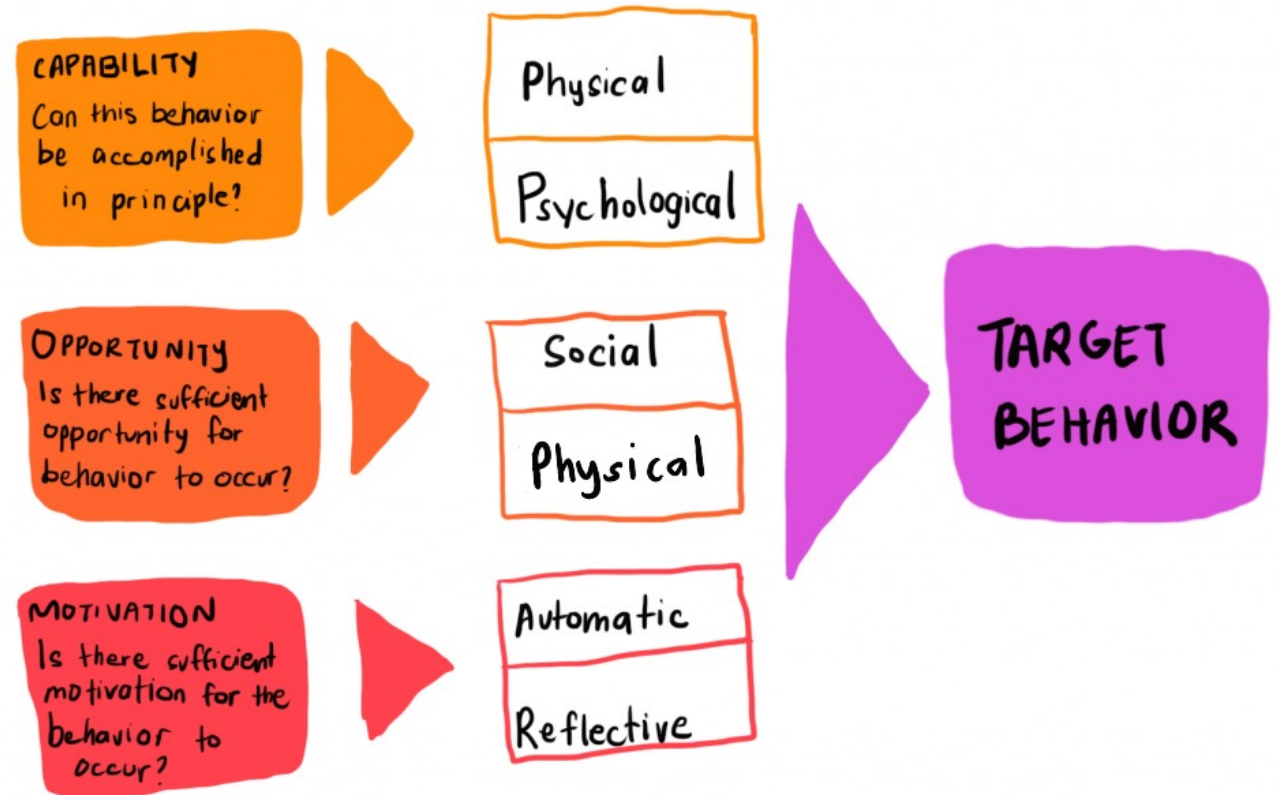
Published: 22 September 2022 [Article history](#)

Initiation of Hepatitis C treatment in Georgia

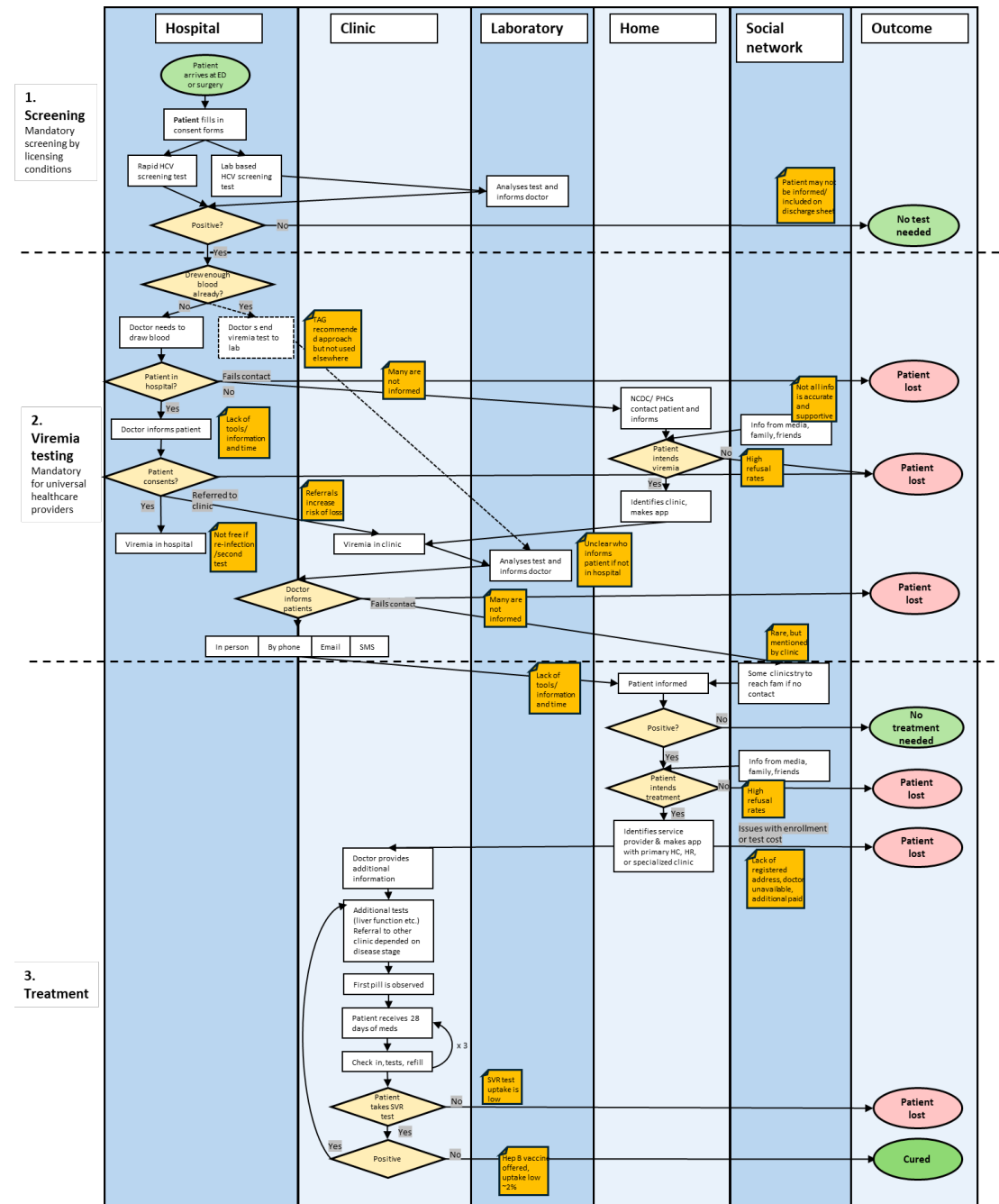
– understanding the barriers and drivers

Using COM-B framework to:

- **Gain insights** into the drivers and barriers impacting patients' ability to:
 - Conduct confirmatory testing
 - Initiate HCV treatment?
- **Identify opportunities** for interventions and policies to enable/encourage patients to conduct confirmatory testing and initiate treatment



Patient Journey



Ongoing projects

Enhanced linkage-to-care for patients lost to follow-up in Hepatitis C Elimination Program

Uptake of HCV self-testing among general population in Georgia

Improvement of HCV linkage to care among PWID in Georgia through peer-to-peer recruitment

Incentivized Peer Interventions to support Hepatitis B vaccination among PWID in Georgia

A Dual Approach to Eliminating Tuberculosis and Hepatitis C (DARE TB/HCV) Study

The integrated HCV, HIV and TB screening programs in Georgia

Etc.

Acknowledgements

- Clinicians, policy-makers, public health specialists and many more involved in the implementation of hepatitis C elimination
- Shaun Shadaker
- Sophia Surguladze
- Irina Tskhomelidze

Thank you

Davit Baliashvili

Email: DBaliashvili@cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the U. S. Centers for Disease Control and Prevention.