

**The role of Center for Disease Analysis Foundation (CDAF) in
the elimination of viral hepatitis in Europe**
Achievements, challenges and the way forward

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6 April 2023

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Center for Disease Analysis Foundation is a non-profit organization working with over 130 countries/regions

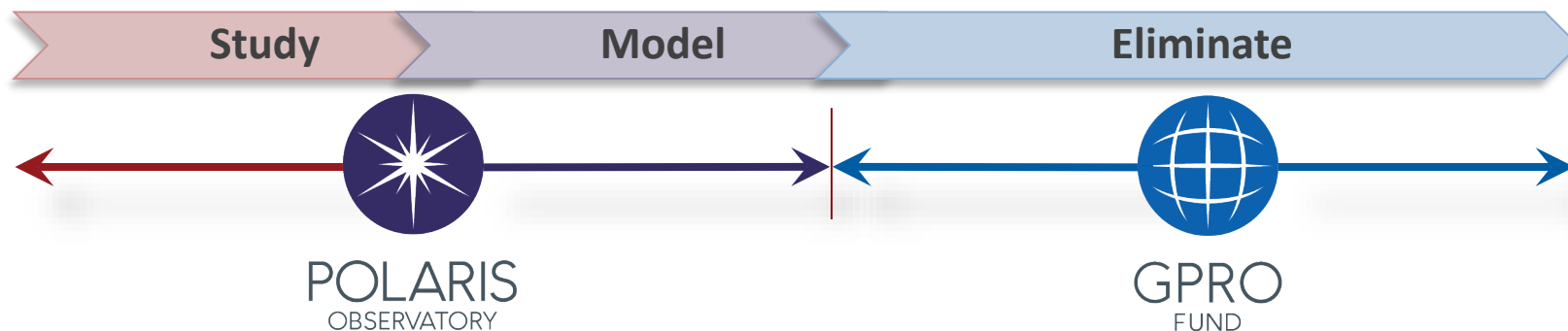
VISION:

Eliminate suffering, adverse societal impact and mortality caused by preventable, treatable diseases.

MISSION:

Accelerate hepatitis B and C elimination through verified epidemiological data, disease burden and economic impact modeling, intervention strategies, access to affordable diagnostics and treatments, innovative financing and knowledge-sharing partnerships.

We work to *study, model & eliminate* hepatitis. We accomplish this through our two major initiatives:



Mission: *Provide collaborators with epidemiological data, modeling tools, training and decision analytics to support eliminating Hepatitis B and C globally by 2030.*

Available free to collaborators, Polaris offers the most up-to-date estimates for the hepatitis C virus (HCV), hepatitis B virus (HBV), and the disease burden and economic impact of each, and includes strategies for the elimination of each virus.

Mission: *Improve access to medicines and diagnostics, and develop scalable, sustainable funding mechanisms for low and middle-income (LMIC) countries.*

GPRO develops catalytic funding models to help LMIC finance hepatitis elimination programs.

GPRO uses volume purchasing via pooled procurement to obtain substantially discounted pricing for approved HBV, HCV and HIV medicines and diagnostics.

GPRO delivers an out of the box hepatitis elimination franchise

Publications & Citations

- CDAF partners with our collaborators to publish data, analyses and related findings.
- Since 2011, together we have published **>100 papers** in prominent, peer reviewed journals.
- Polaris and its collaborators have over **36,000 citations** and growing!

THE LANCET
Gastroenterology & Hepatology

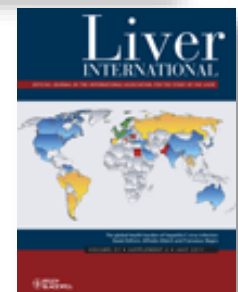
JGH
Journal of Gastroenterology
and Hepatology

nature
REVIEWS

The National
Academies of
SCIENCES
ENGINEERING
MEDICINE

Swiss Medical
Weekly

JOURNAL OF VIRAL HEPATITIS
JVH



Acta Clinica Belgica
International Journal of Clinical and Laboratory Medicine

HEPATOLOGY

CDAF is well known for its work in viral hepatitis

- The HBV and HCV prevalence estimates for the 2016 PAHO report
- We provided the HBV diagnosed and treated estimate and all HCV estimates in the 2017 WHO Global Hepatitis Report



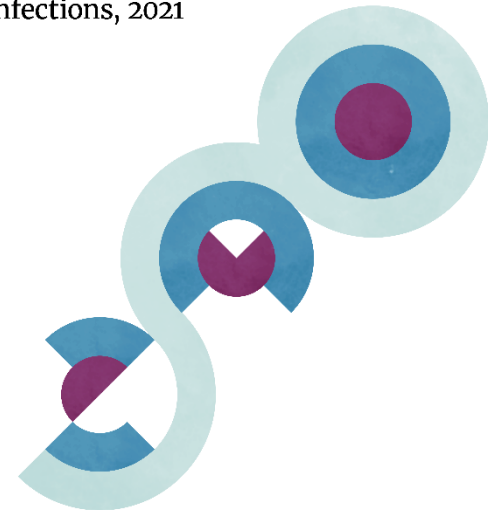
GLOBAL HEPATITIS REPORT, 2017

- We provided HBV and HCV estimates used in the 2021 WHO Global Progress Report

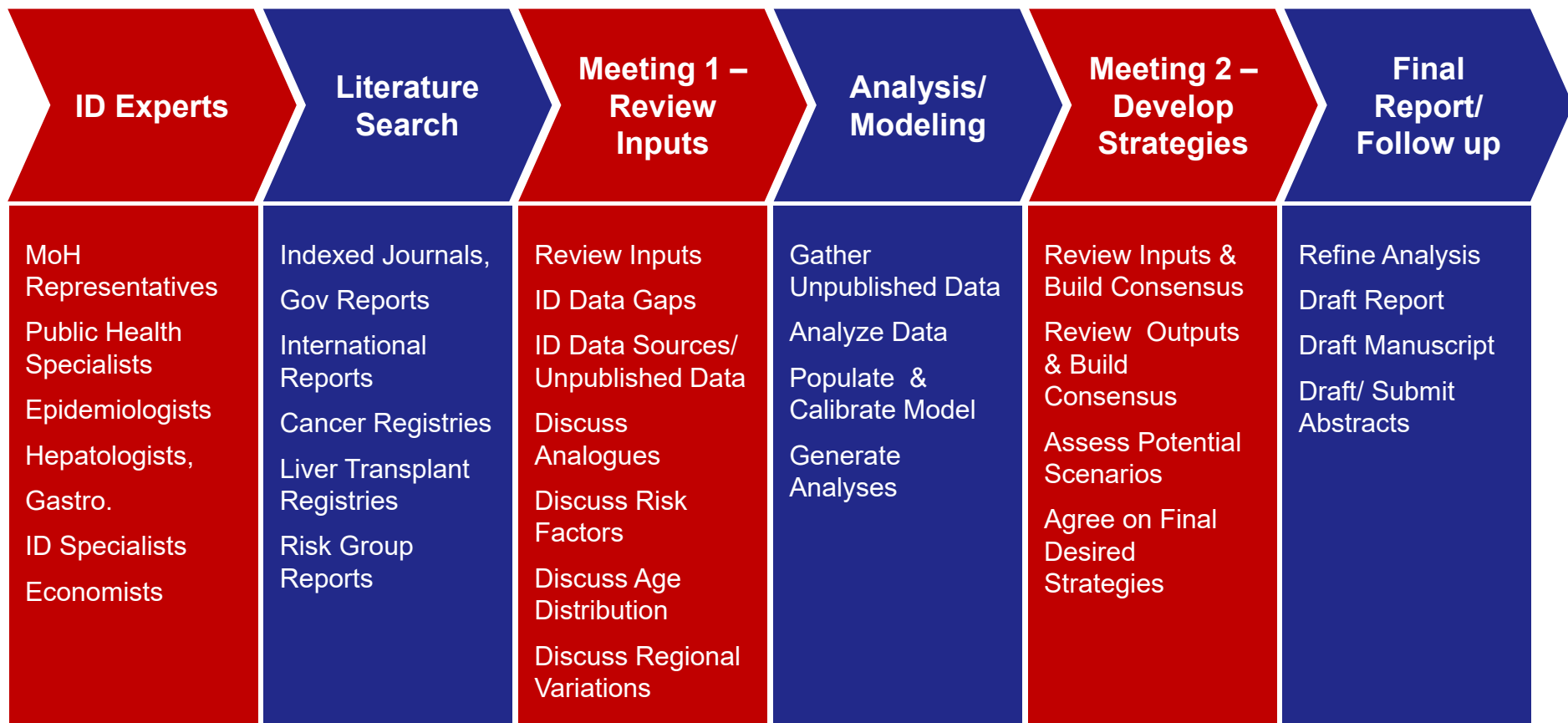
Hepatitis
B and C
in the Spotlight
A public health response
in the Americas



Global progress report
on HIV, viral hepatitis
and sexually transmitted
infections, 2021



For the last 10 years, we have followed a consistent process to collect epidemiological data and model viral hepatitis, with a goal of gaining consensus

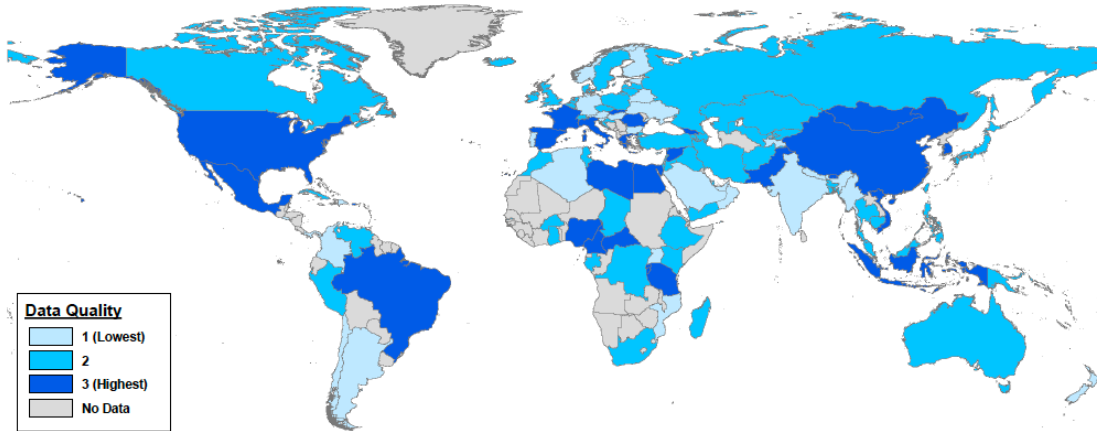


Data published in indexed journals are at least two years old and represent studies that will be accepted by journals.

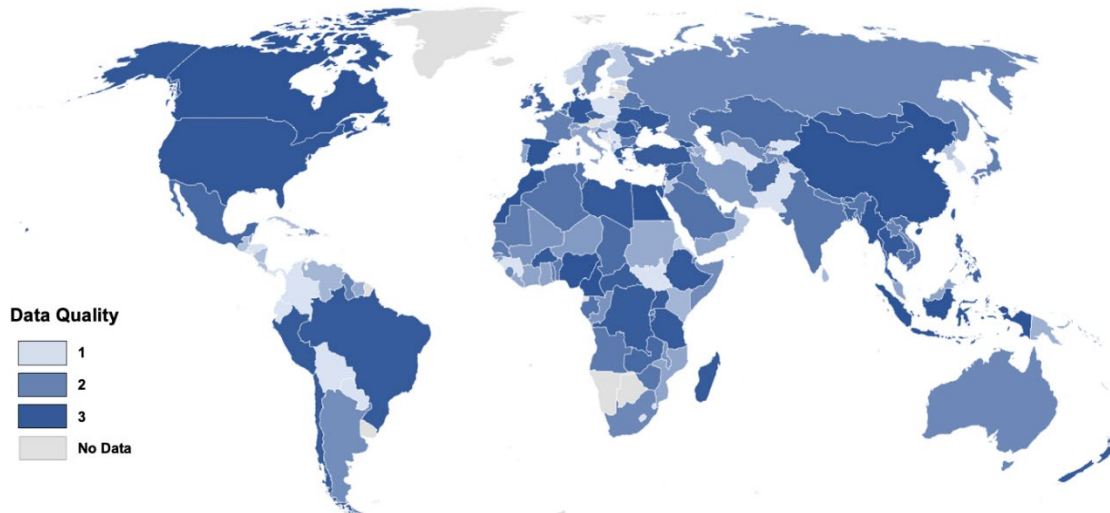
The quality of available data varies, but there is a lot more HBV/HCV epidemiology data available than expected

Section 9. Quality score of input prevalence data for approved or estimated countries/territories

HCV



HBV



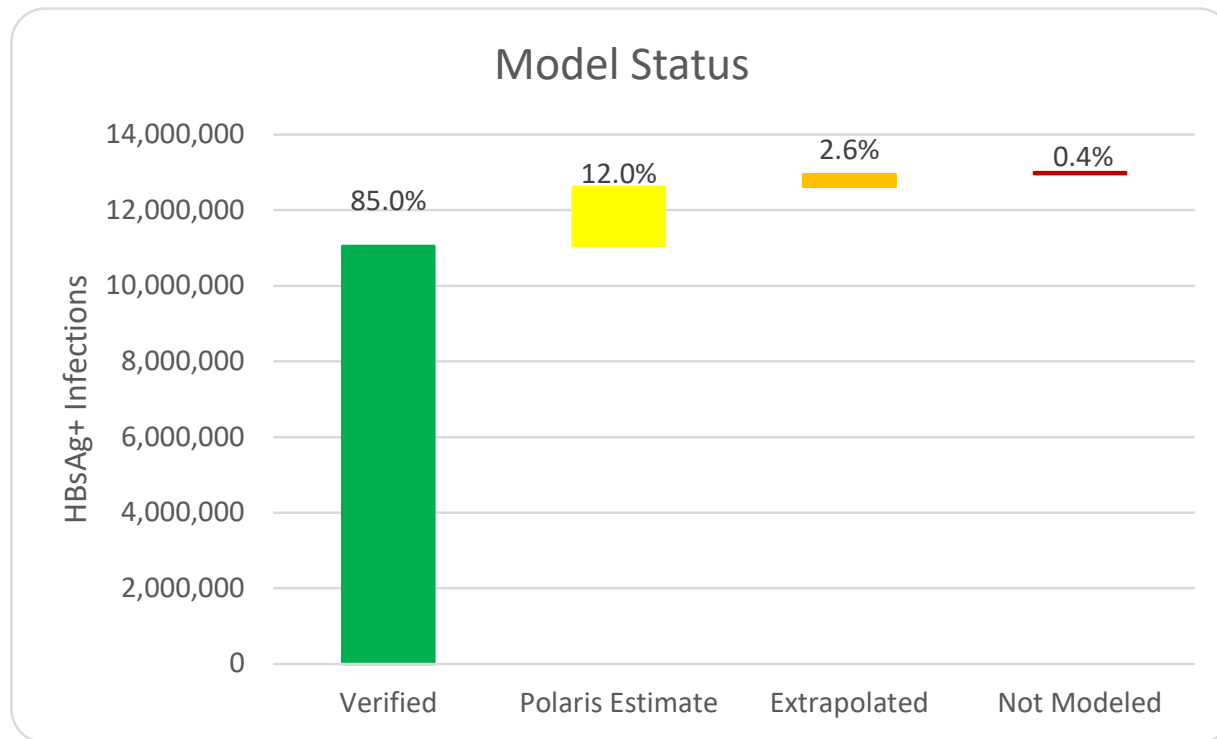
- Most data in LMIC are not published or are published in a local journal.
- National serosurveys are often published as reports on the Ministry of Health websites.
- Most patients are treated at tertiary centers where robust historical data exists.
- Premarital screening provides HBV/HCV prevalence for ages 17-65.
- Screening of pregnant women provides HBV/HCV prevalence among women of childbearing age.
- Military recruit screening provides prevalence among young males.

Polaris Observatory Collaborators. Global change in hepatitis C virus prevalence and cascade of care between 2015 and 2020: a modelling study. *The Lancet Gastroenterology & Hepatology*. 2022;7(5):396-415. doi:10.1016/S2468-1253(21)00472-6.

Polaris Observatory Collaborators. The Global Prevalence, Cascade of Care and Prophylaxes Coverage of Hepatitis B in 2022: A Modeling Study. 2023. To be published.

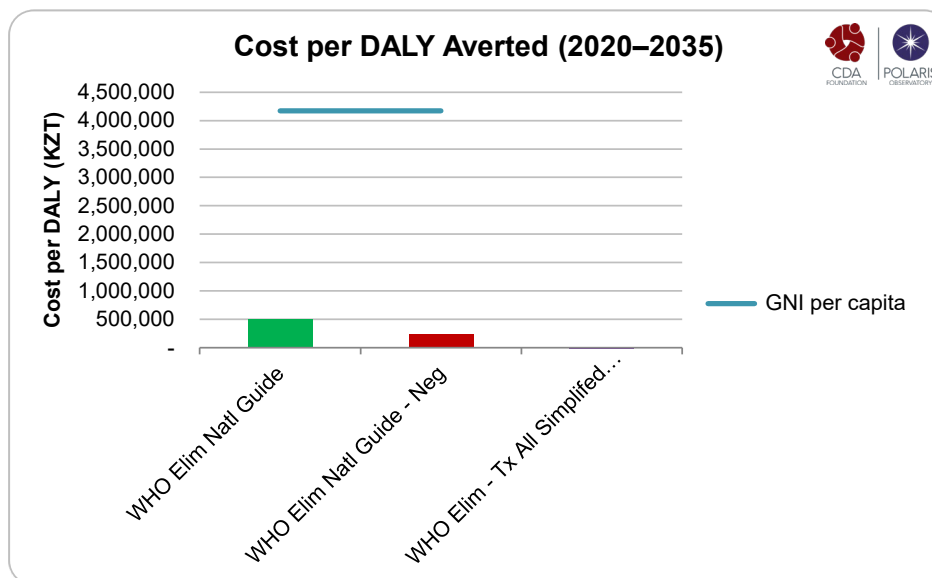
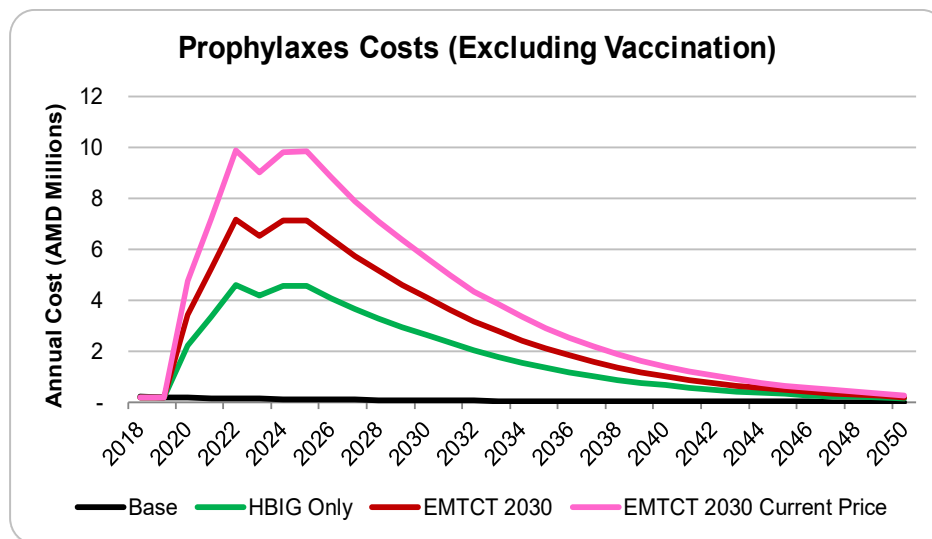
The PROGRESs model has been used extensively globally and within the EURO region

- 46 country specific fully dynamic disease burden and transmission models
 - » 31 received feedback from in country experts
 - » 9 based on country data
 - » 6 prevalence data was extrapolated by GBD region
 - » Remaining countries were extrapolated based on population by GBD region

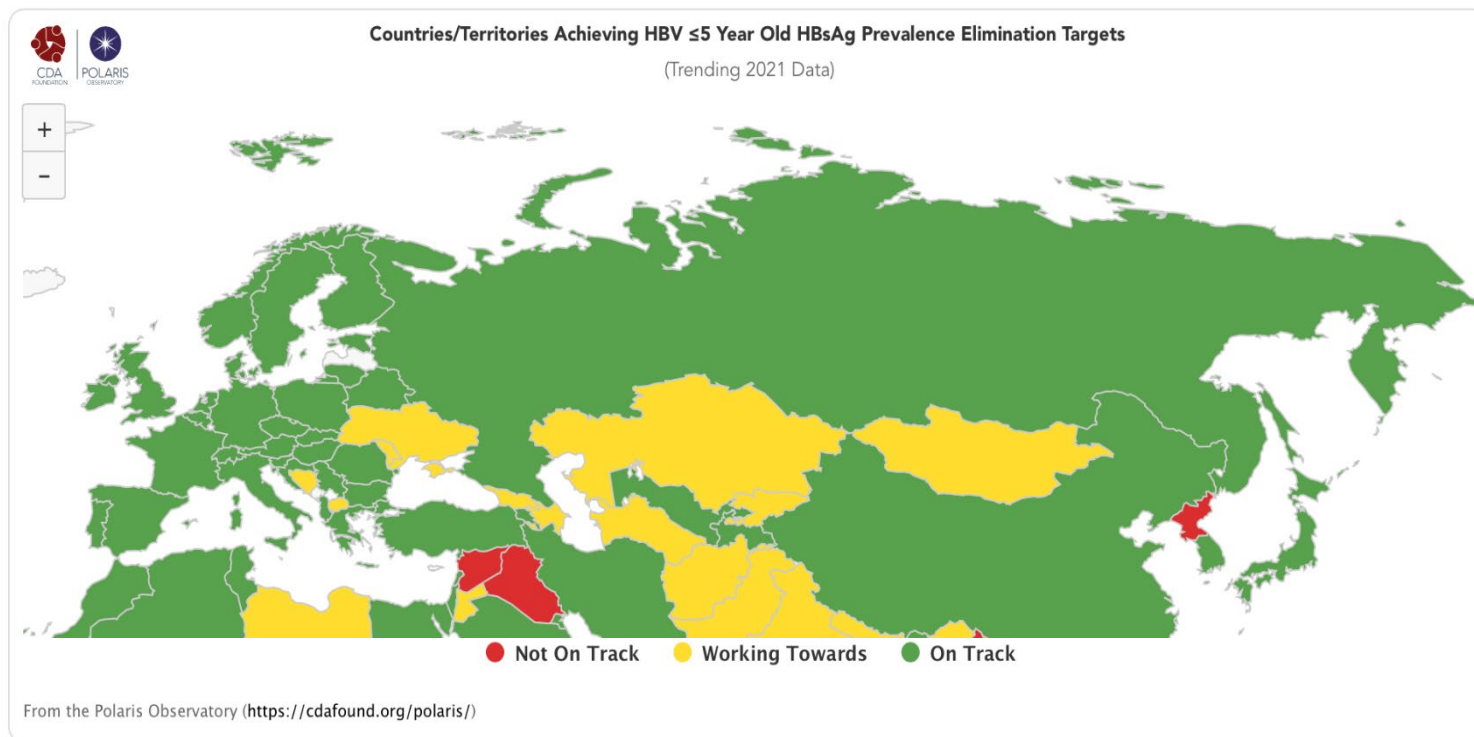
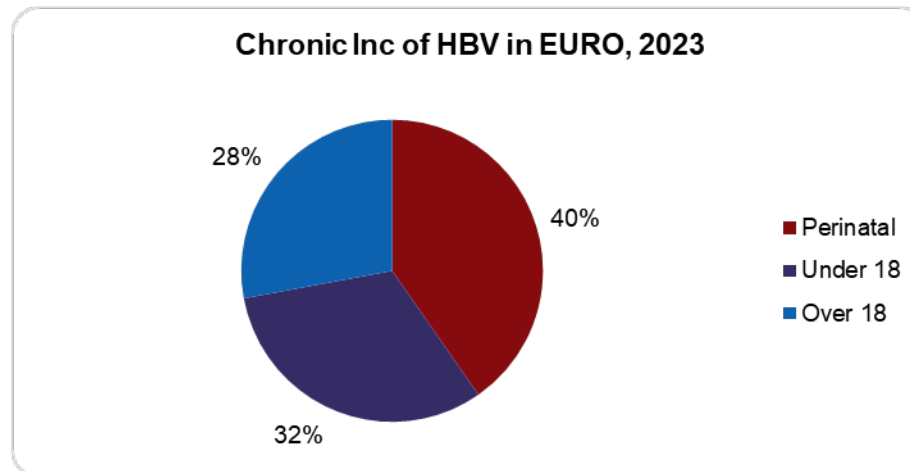


In EURO, we have completed economic impact analyses for four countries

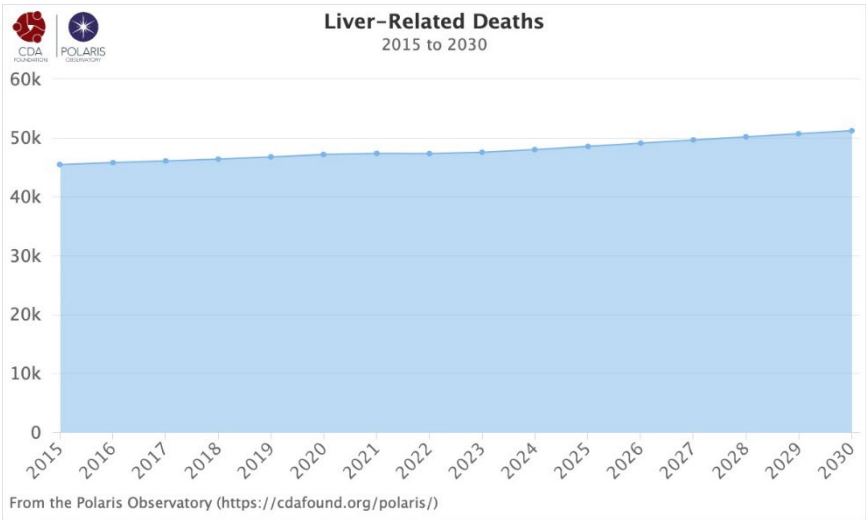
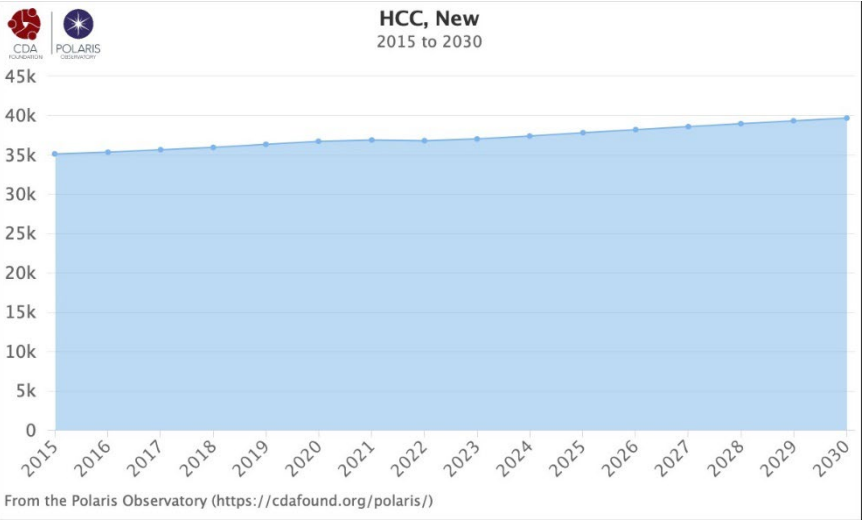
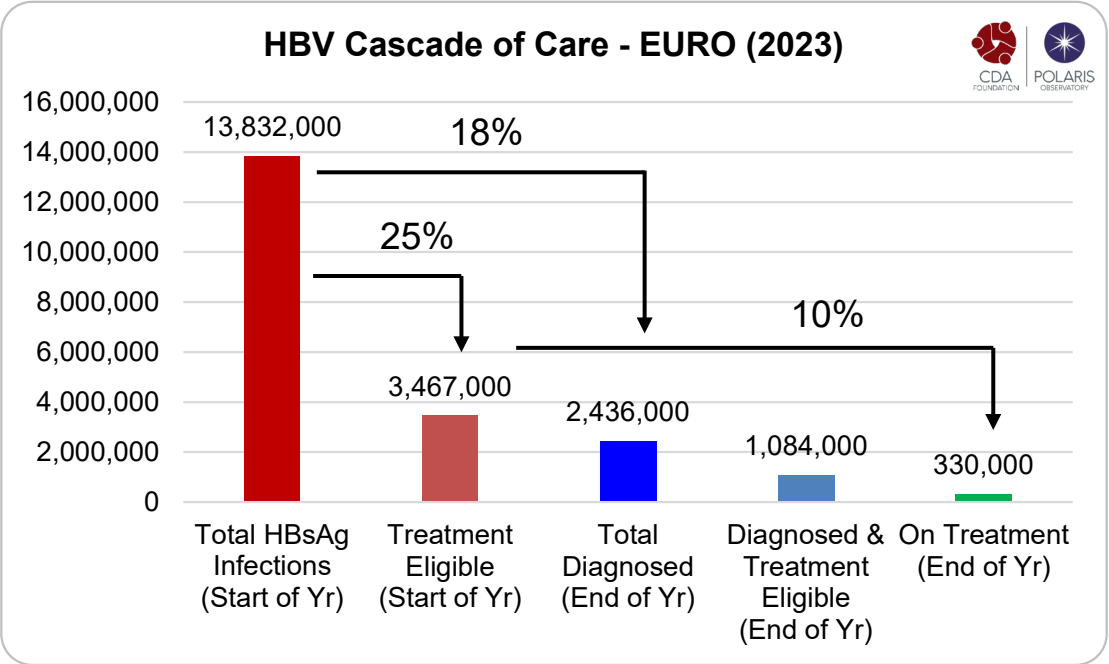
- Armenia
 - Kazakhstan
 - Kyrgyzstan
 - Uzbekistan
- Particular interest in expanding their interventions to prevent mother to child transmission
 - They are also paying too much for treatment and diagnostics
 - » Need to simplify screening and follow-up diagnostics to reduce the cost burden



Prevention measures in EURO have been very successful

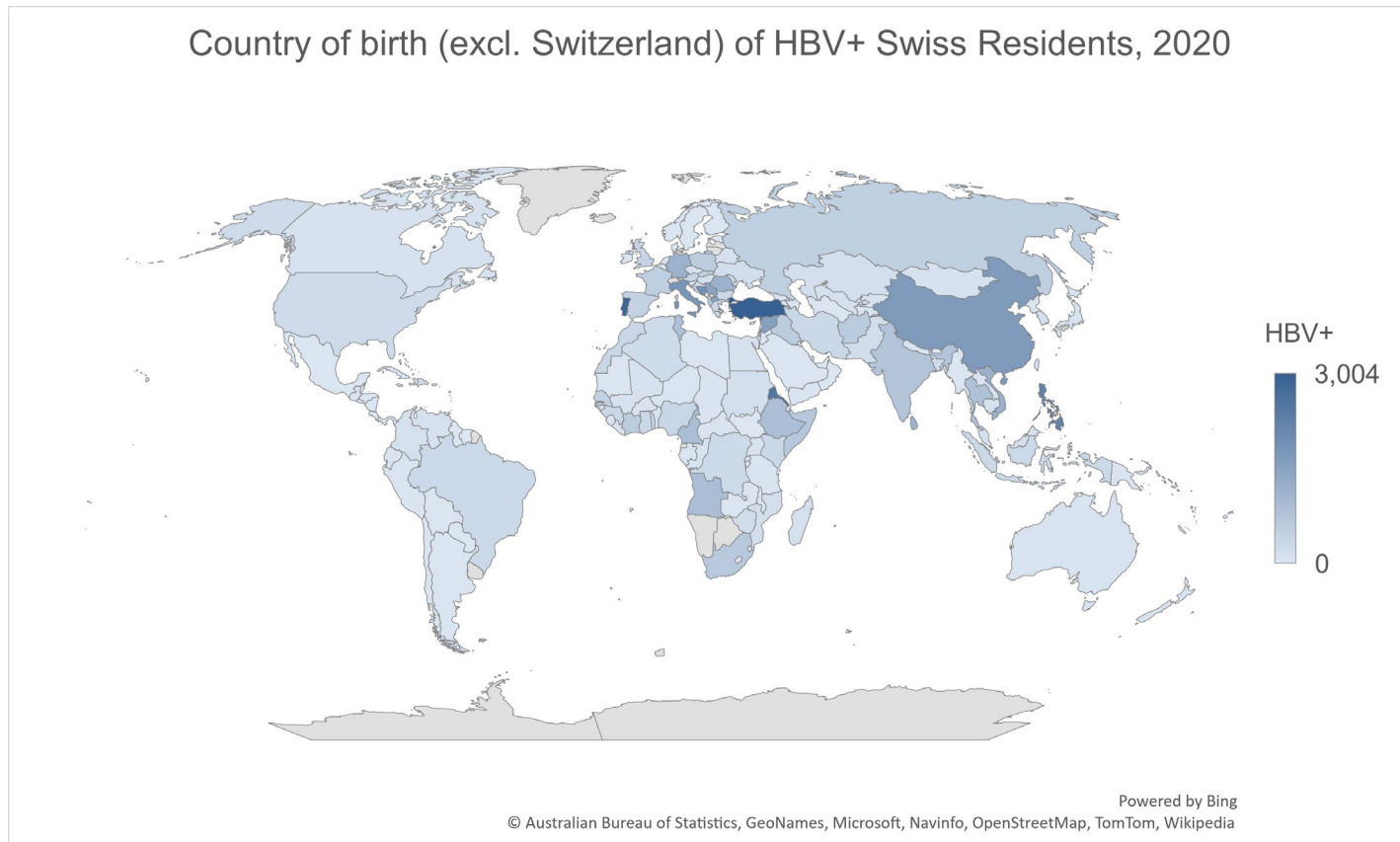


Without additional interventions HBV related morbidity and mortality are expected to increase through 2030



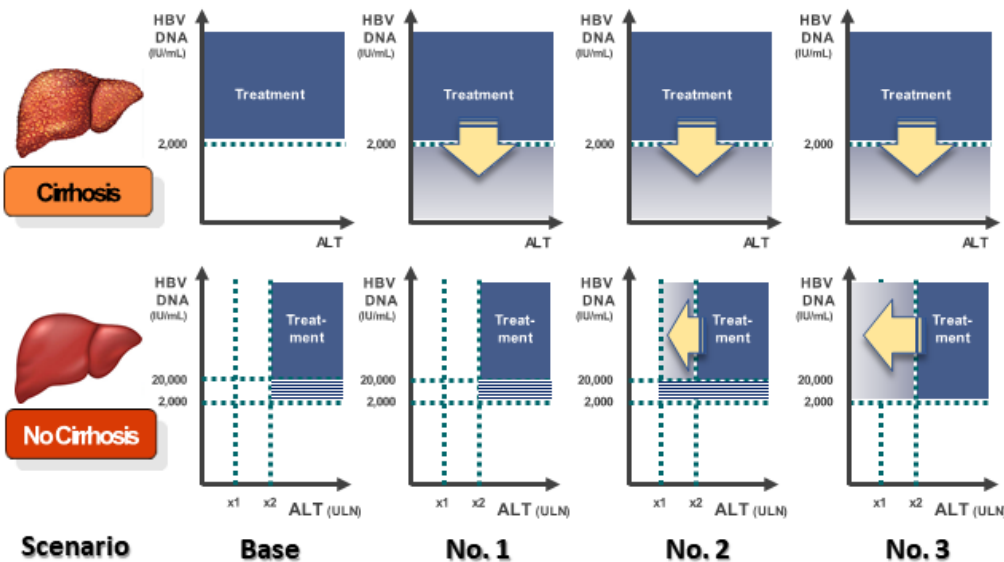
As the benefits of HBV vaccination continue to multiple there is a newly needed focus, immigrant communities

- Almost 80% of cases in Switzerland were found to be among foreign born individuals
 - » Opportunities to screen, link to care, and treat
 - » Offer vaccination support in countries of birth

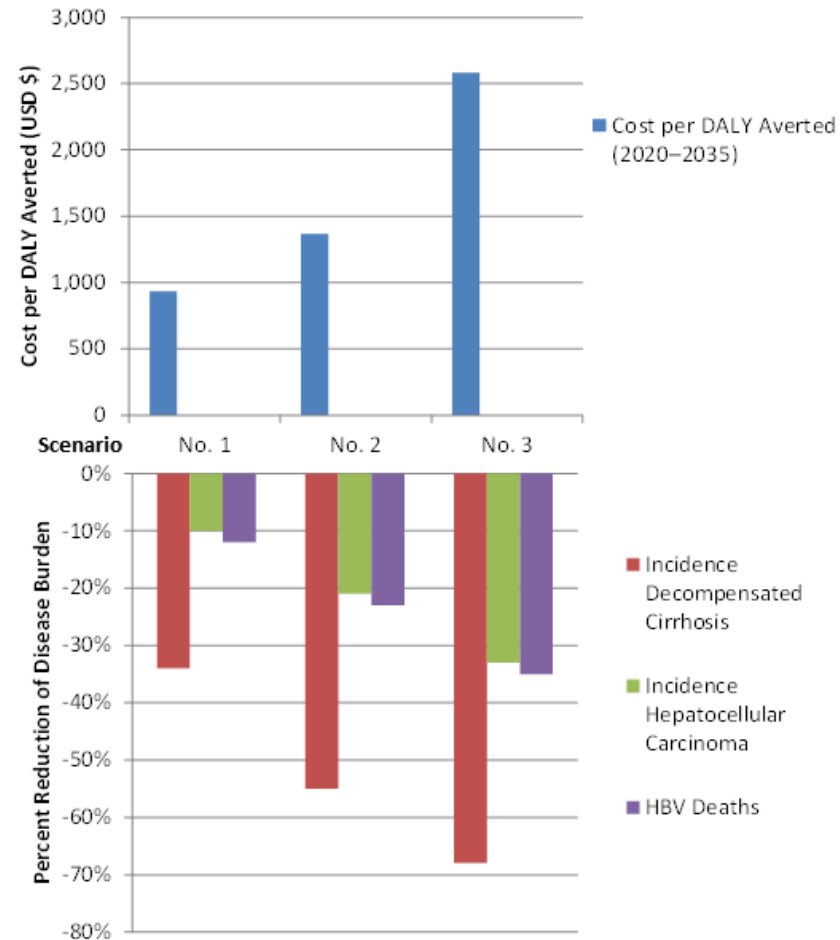


Expanding treatment guidelines has a larger impact on morbidity and mortality and remained highly cost-effective - Korea

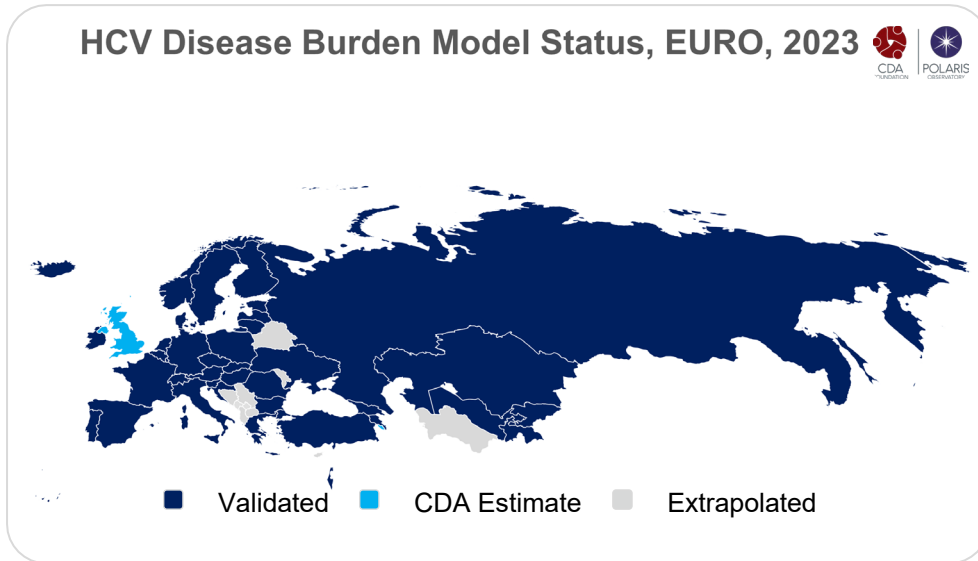
Impact of Expanding Hepatitis B Treatment in Korea, a HBV-Endemic Country with High Diagnostic Rates (74.2%)



All scenarios assumed treating 70% of the eligible and were compared to the Base Scenario.



In EURO, we have modeled the HCV disease burden in >40 countries, economic impact in 16 countries, and transmission in 8 countries



HCV elimination is highly cost effective or cost saving in all countries we have studied (all income levels/regions)

HCV Economic Analyses	
Armenia	Netherlands
Belgium	Portugal
France	Spain
Germany	Sweden
Greece	Switzerland
Italy	Turkey
Kazakhstan	United Kingdom
Lithuania*	Uzbekistan

HCV Transmission Models	
Belgium	Norway
France	Portugal
Luxembourg	Sweden
Netherlands	Switzerland

Engaging 90% of PWID in harm reduction programs and treating 90% of HCV+ PWID in harm reduction would allow Sweden to reach the WHO targets

- Increasing PWID engagement in NSP programmes to 90% by 2023 could reduce new infections among PWID by 27%, in the absence of treatment

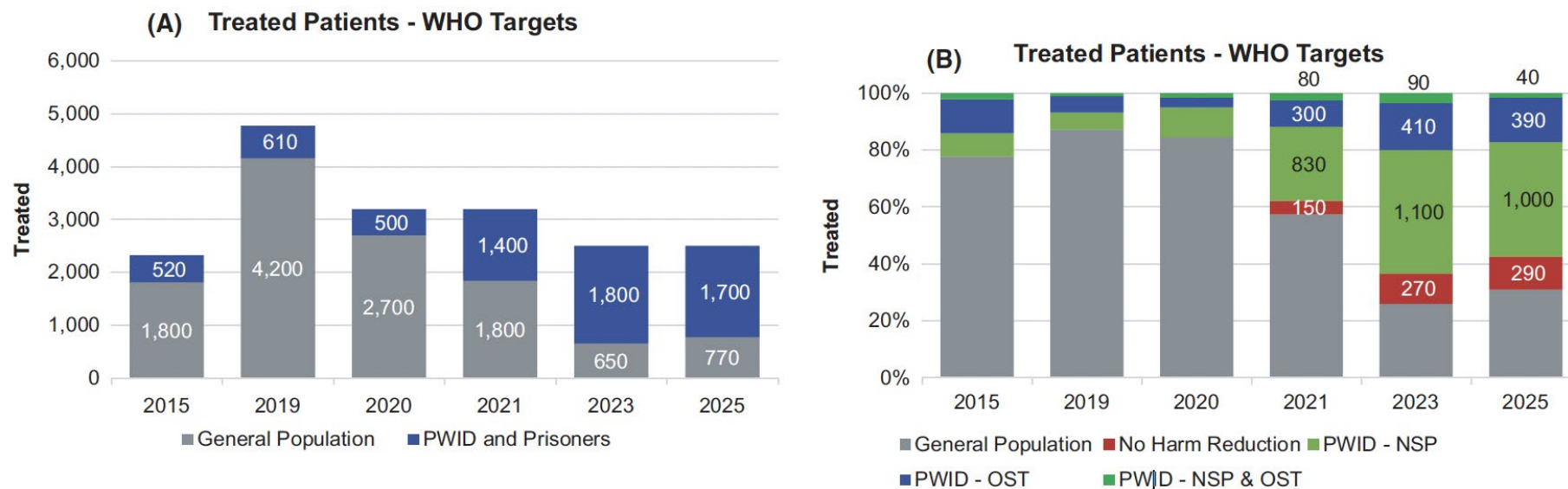
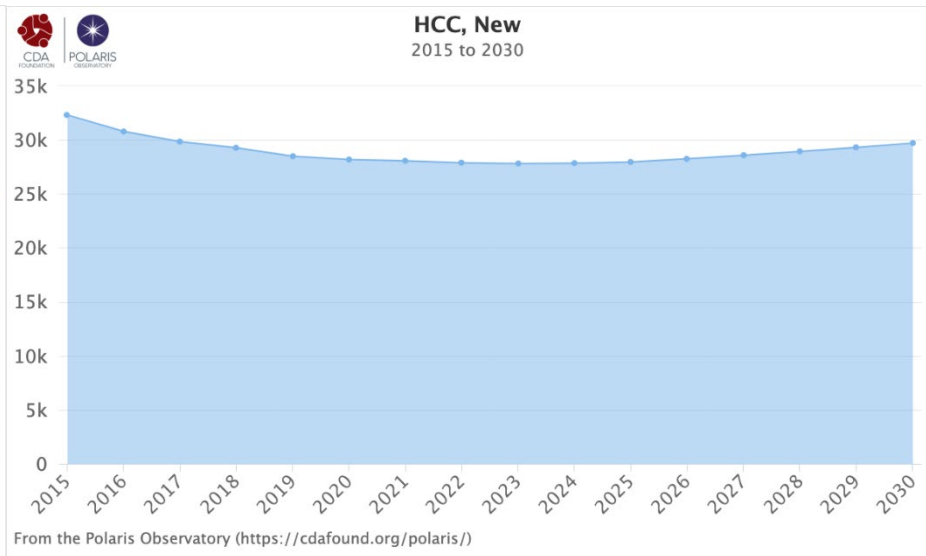
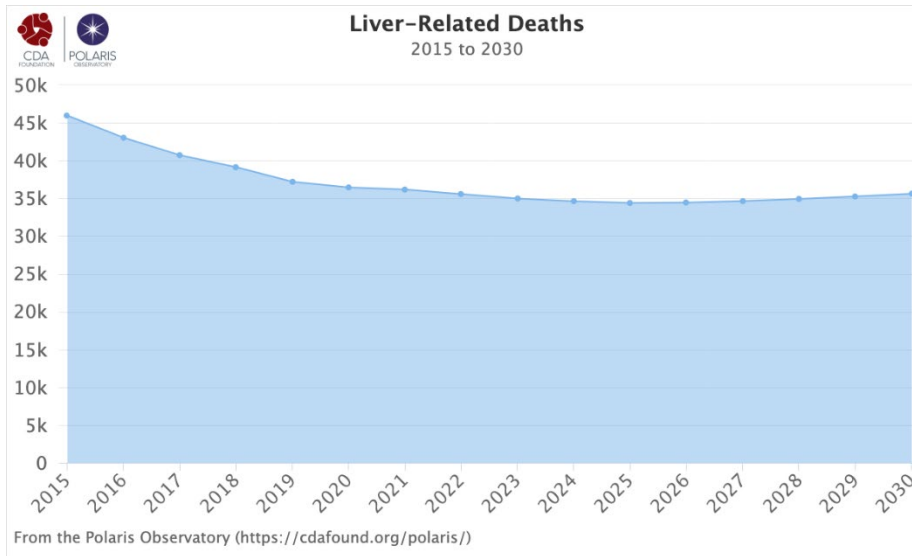
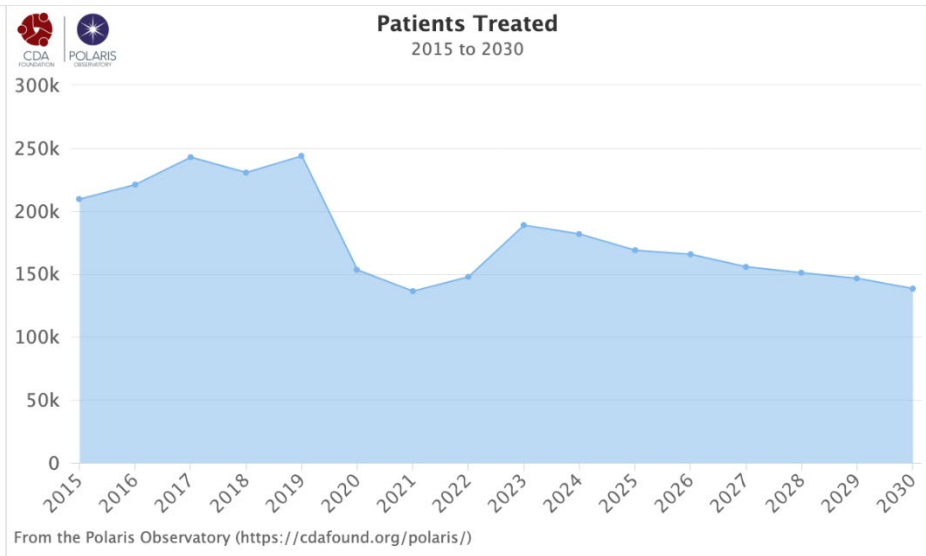
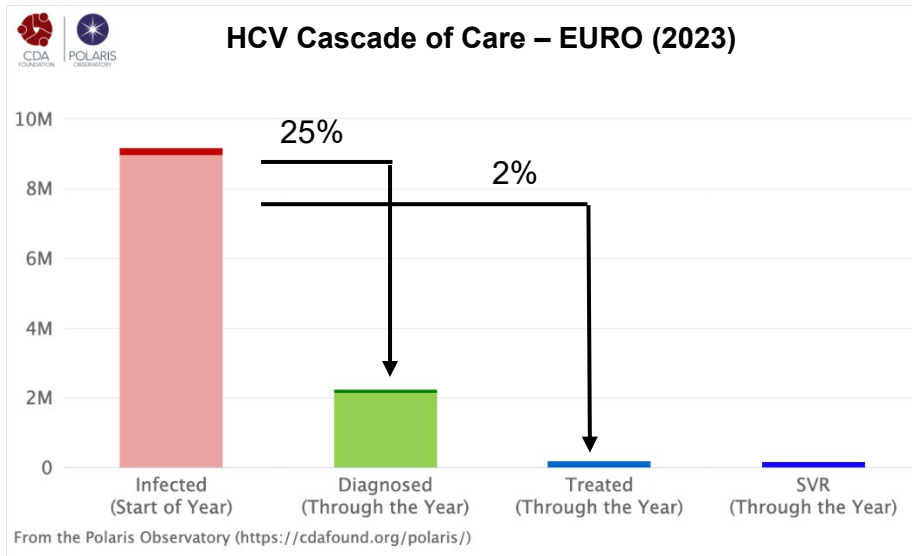


FIGURE 4 Distribution of treated patients under the WHO 2030 target scenario: (A) absolute number treated in the general population and PWID and prisoner population; (B) percent of total treatments, by population and harm reduction status. PWID, people who inject drugs; WHO, World Health Organization

Large gaps in the HCV cascade of care remain in EURO; if treatment continues to decline, morbidity and mortality may plateau or increase



~65% of countries on track (achieving by 2030) or working towards (achieving before 2050) HCV elimination were in the EURO region (22 out of 32)

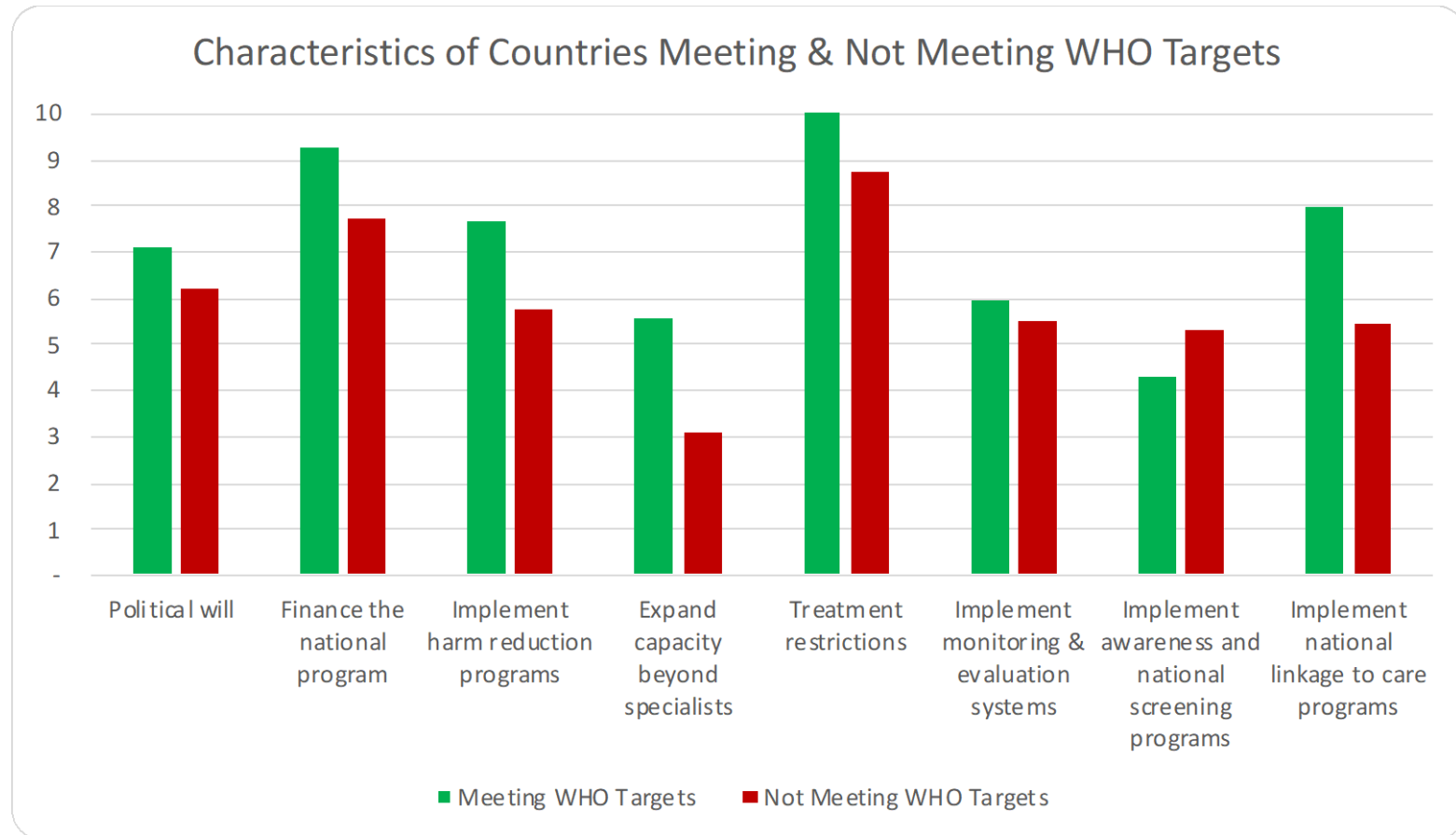
On Track for Achieving Relative or Absolute Impact and Programmatic Targets by 2030

Australia	Canada	★ Denmark
Egypt	★ Spain	★ Finland
★ France	★ United Kingdom	★ Georgia
Japan		★ Norway

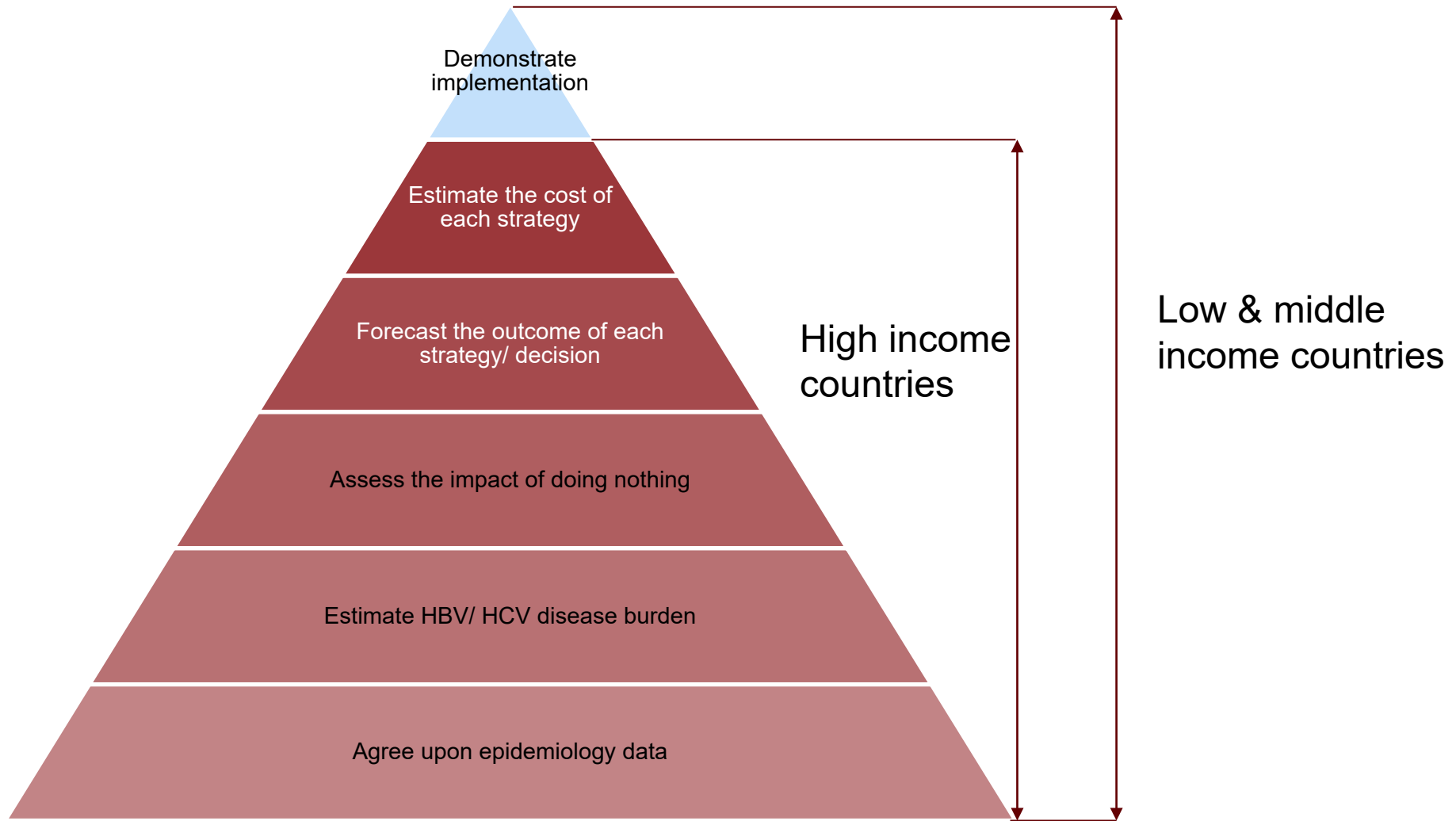
Working Toward Achieving Relative or Absolute Impact and Programmatic Targets by 2030–2050

★ Armenia	★ Austria	★ Belgium
★ Switzerland	★ Germany	★ Ireland
★ Iceland	★ Israel	★ Italy
Korea, Republic of	Libya	★ Lithuania
★ Luxembourg	★ Malta	Mongolia
★ Netherlands	New Zealand	Rwanda
★ Slovakia	★ Slovenia	Taiwan

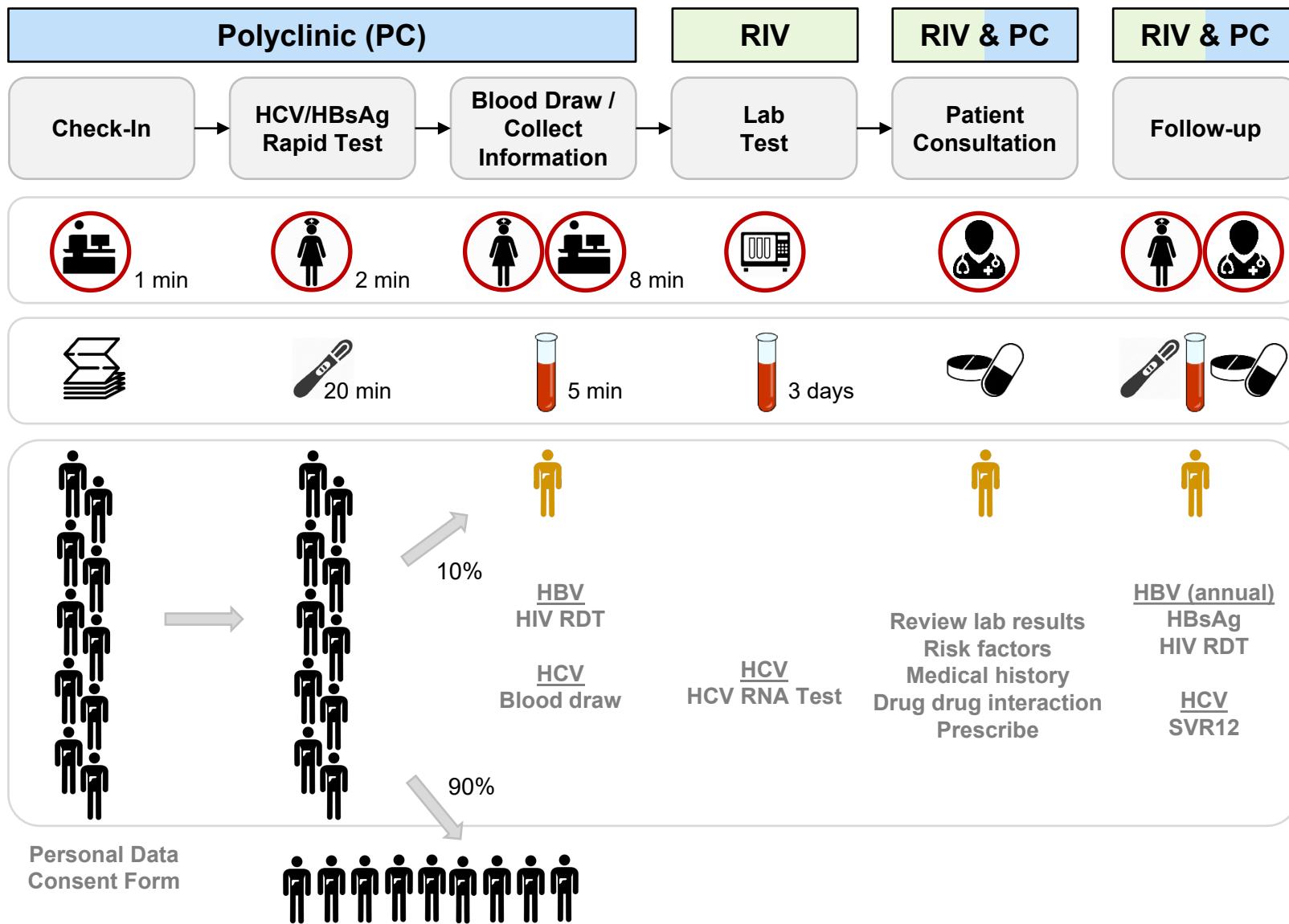
Globally, countries on track to meet the WHO targets score higher in 7 out of 8 elimination policy attribute scores



We found that there is a hierarchy of decision support activities that enable countries to make informed decisions and support hepatitis elimination



Simplified test and treat programs show countries that elimination is feasible - Uzbekistan

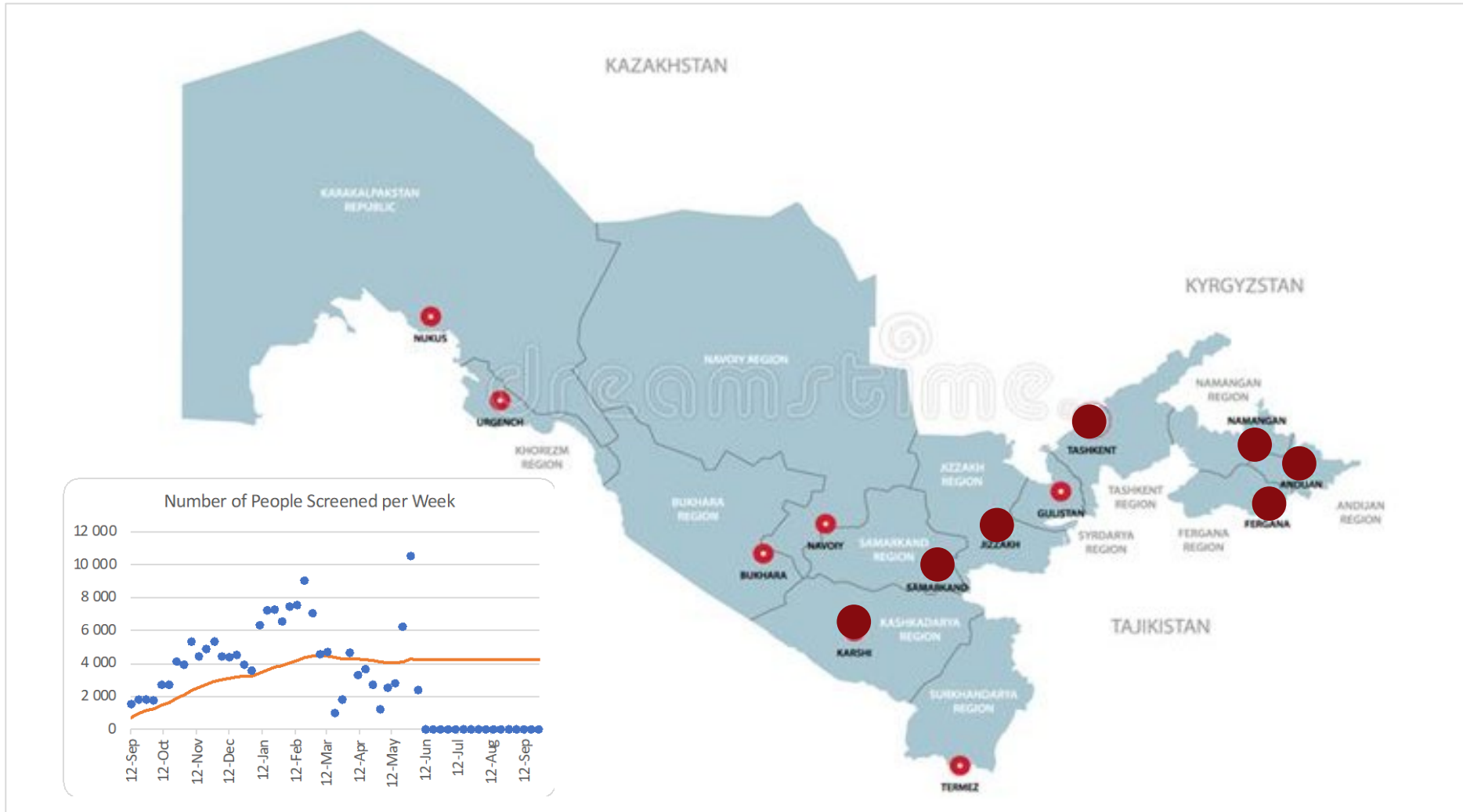


Under the UHEP program, the patients receive screening and laboratory tests for free and only those who can afford to pay will pay for medicine

	Cost - Today (USD)	Cost – UHEP (USD)
Hepatitis B		
Screening	\$3.5 – 5.5 /person	Free
Laboratory Tests	\$50 – 75 /person	Free
Treatment (20% of patients)	\$330 – 400 /patient/year	Free
Treatment (80% of patients)	\$330 – 400 /patient/year	\$180 /patient/year
Hepatitis C		
Screening	\$1.8 – 3.0 /person	Free
Laboratory Tests	\$40 – 58 /person	Free
Treatment (20% of patients)	\$350 – 555 /patient	Free
Treatment (80% of patients)	\$350 – 555 /patient	\$204 /patient/year

By purchasing in volume and substantially reducing supply chain costs, UHEP reduces the price of treatment by 40-60%.

In 2021, a national screening program for chronic hepatitis was launched in seven regions of the Republic of Uzbekistan – 400,000 people screened



**RESOLUTION OF THE PRESIDENT OF THE REPUBLIC OF UZBEKISTAN #243 DATED
MAY 16, 2022 "On improving measures to combat the spread of some topical
viral infections"**



**O‘ZBEKISTON RESPUBLIKASI PREZIDENTINING
QARORI**

2022 yil « 16 » май

№ ПҚ–243

**Айрим долзарб вирусли инфекциялар тарқалишига қарши курашиш
чора-тадбирларини такомиллаштириш тўғрисида**

2022 йил 18 март куни ўтказилган Ўзбекистон Республикаси

The way forward

- Data driven decision support only has an impact in about 10% of the countries. The rest of the countries are worried about financing or do not know where to start.
- Demonstration projects are very impactful in showing countries how to implement a viral hepatitis elimination program.