State of affairs: Hepatitis Elimination Update 2020

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Global Hepatitis Programme

World Health Organization

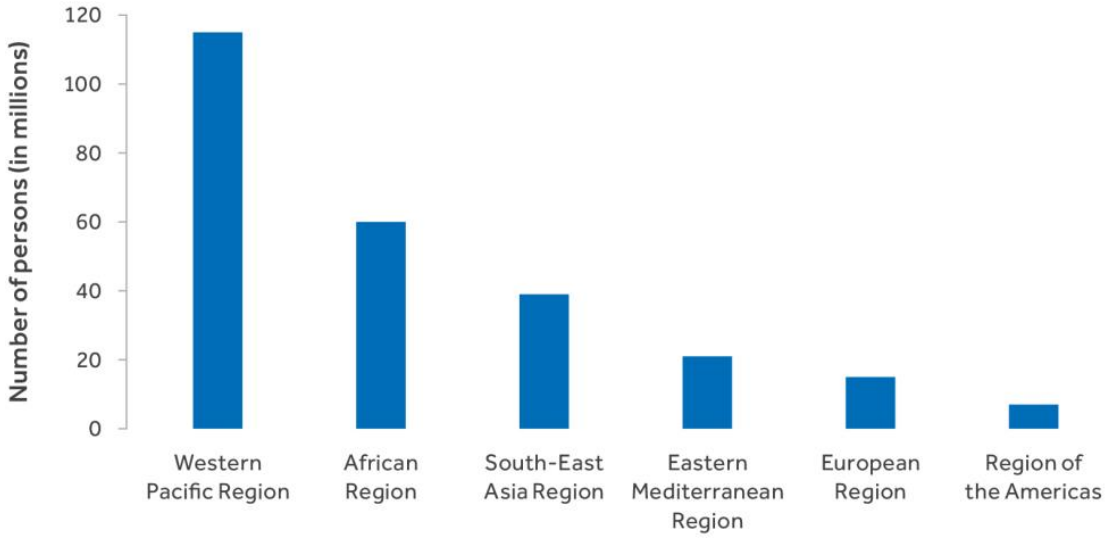
Outline

- **The global strategy** + progress on elimination of viral hepatitis
- **Impact of COVID-19**
- **What will it take?** – Simplification in service delivery
  - Simplified algorithms
  - Service Delivery (integration, decentralization, task-shifting)
  - Training of health workforce
  - Integration
- **Learning from champion countries**
- **New directions and opportunities** to support elimination
  - Diagnostic innovations
  - Comprehensive educate, test and treat model
  - Mobile same-day test and treat
- **What are the remaining major challenges** and how to overcome ?

The global strategy and progress on elimination Are we on track?

325 million people living with Hepatitis B and C globally

257 million people living with HBV



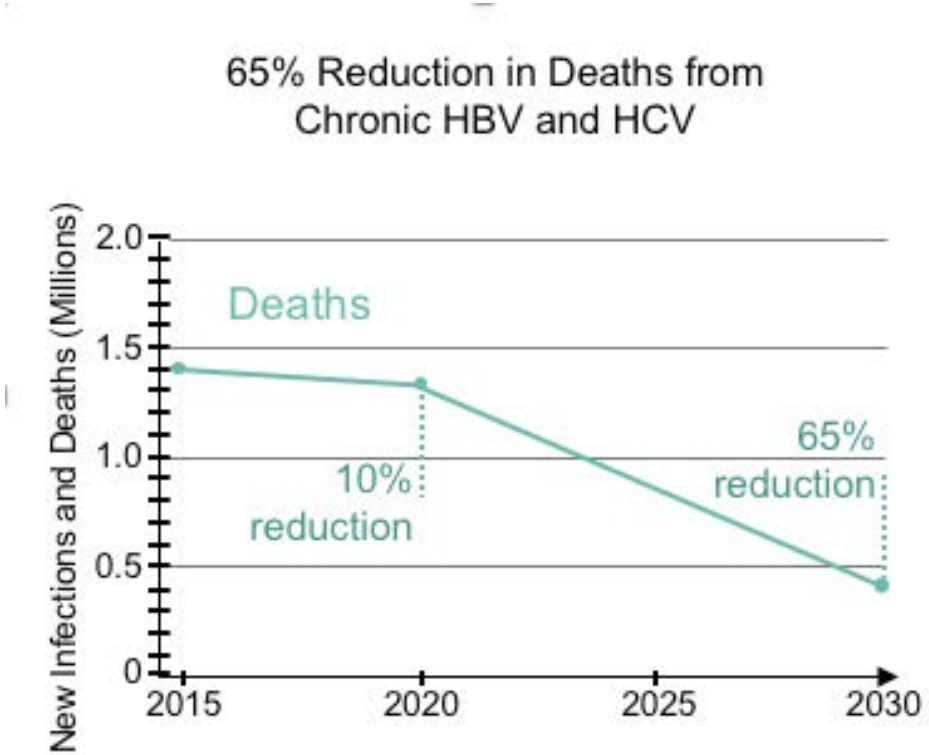
71 million people living with HCV

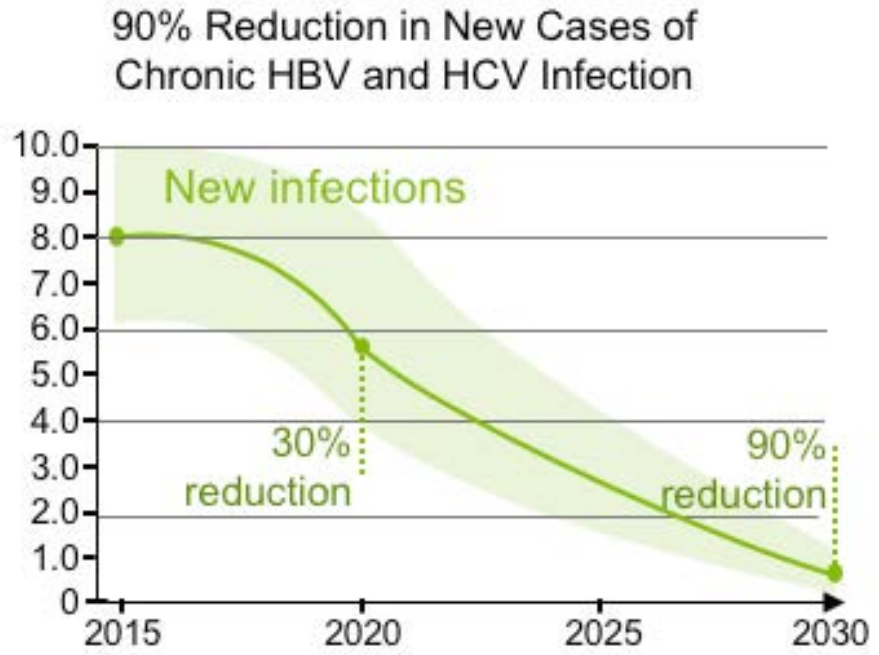
1.34 (2015) **million viral hepatitis deaths** **96%** **due to HBV and HCV**

Source: Global Hepatitis Report 2017. Global Health Estimates (GHE) 2016

Elimination targets - Keeping our eye on the prize

WHO targets for elimination of hepatitis as a public health threat, 2016





WHO global health sector strategy on viral hepatitis 2016–2021. Available at: http://www.who.int/hepatitis/strategy2016-2021/ghss-hep/en/ (accessed March 2018).

Impact targets consistent with scaling up six key service delivery interventions

	Interventions	Indicator	2015 baseline	Targets 2020	Targets 2030
1	Hepatitis B vaccination	HEPB3 coverage	84%	90%	90%
2	HBV PMTCT[a]	HEP vaccine birth dose coverage	39%	50%	90%
3	Blood safety	Donations screened with quality assurance	97%	95%	100%
	Injection safety	Proportion of unsafe injections	5%	0%	0%
4	Harm reduction	Syringes & needles distributed/PWID/year	27	200	300
5	Testing services	% HBV-infected diagnosed	9%	30%	90%
		% HCV-infected diagnosed	20%	30%	90%
	Treatment	% diagnosed with HBV on treatment	8%[b]	–[c]	80%[d]
		% diagnosed with HCV started on treatment	7%[b]	–[c]	80%[d]

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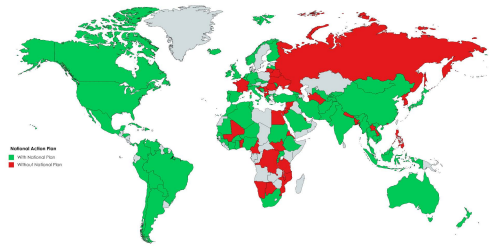
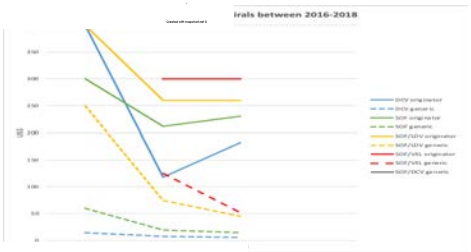
Progress to date



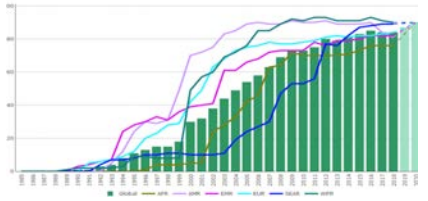
1. More national strategic plans (93 countries + 43 developing)



2. Achieved price reductions in drugs/ diagnostics (<$100 for HCV cure in 62% countries; Tenofovir<$30/yr)

3. WHO delivered on key global guidance, and Global Reporting process initiated

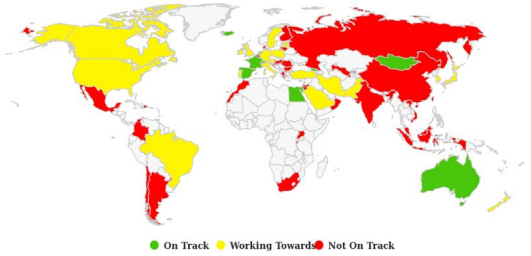
4. On track to achieve 2020 target of >90% HepB3 vaccine



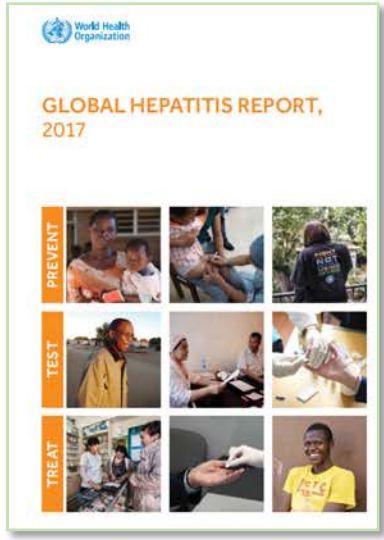
5. Around 5 m HCV treated and same for HBV

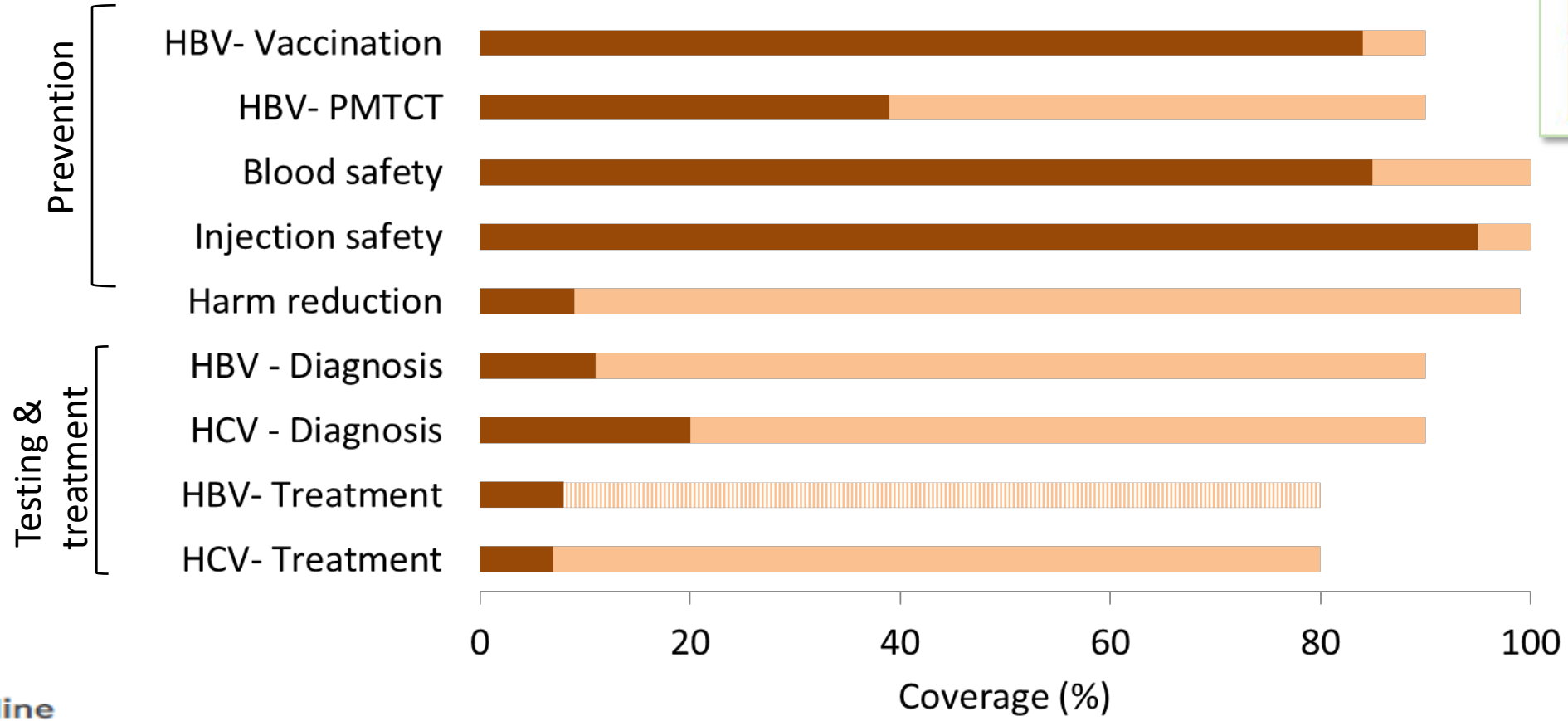
6. Champion countries moving towards elimination

- **Egypt:** 60m tested and 3.1m treated DAAs: <US$50/cure.
- **Mongolia**: innovative financing models in public and private sector
- **Pakistan:** Launch of Prime Ministers national initiative; Punjab micro-elimination
  France, UK, Iceland, Portugal: universal access to HCV treatment through national health insurance
- **Australia: "**universal 'treatment access; prisoners and PWID are priority populations; Nurse prescribing



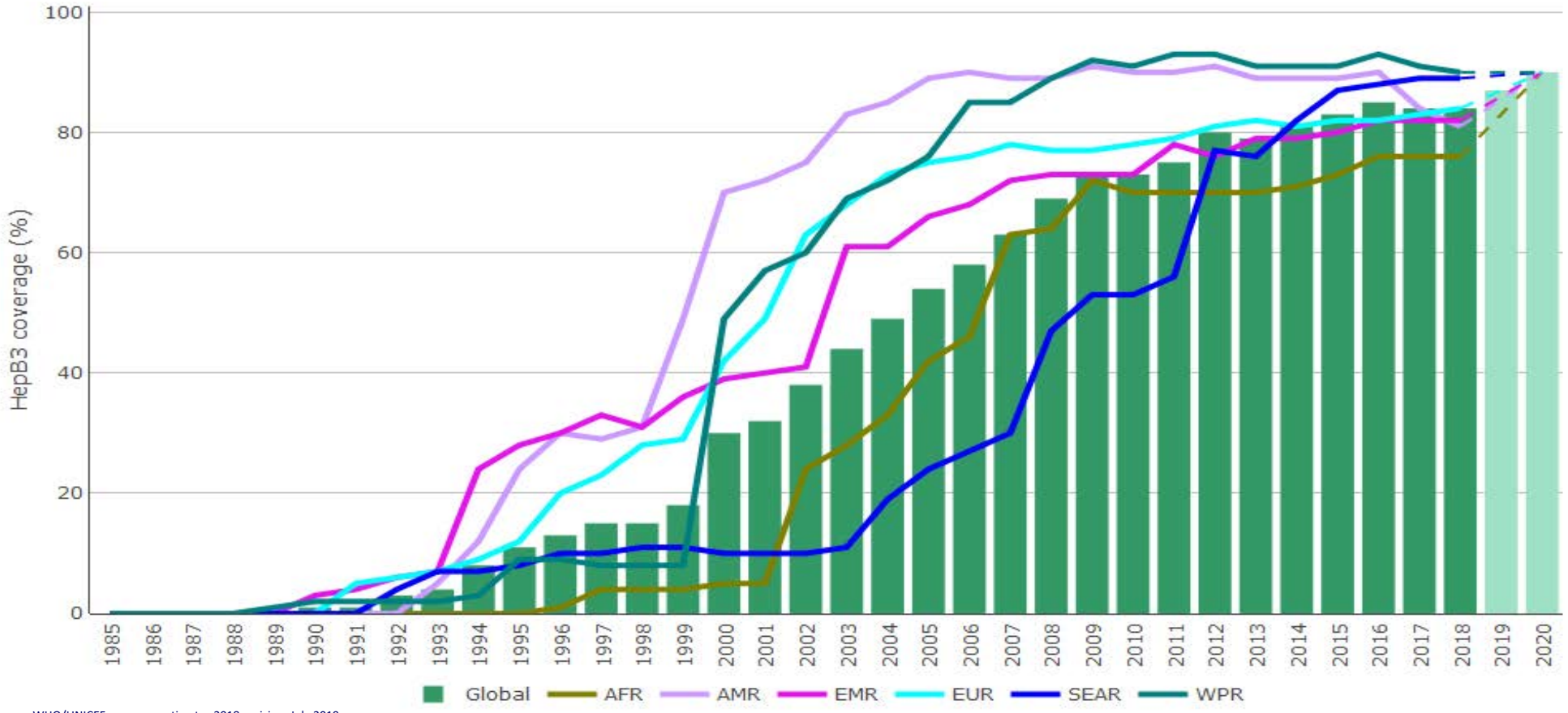
Where are we now?
Progress on Global elimination service delivery 2030 targets





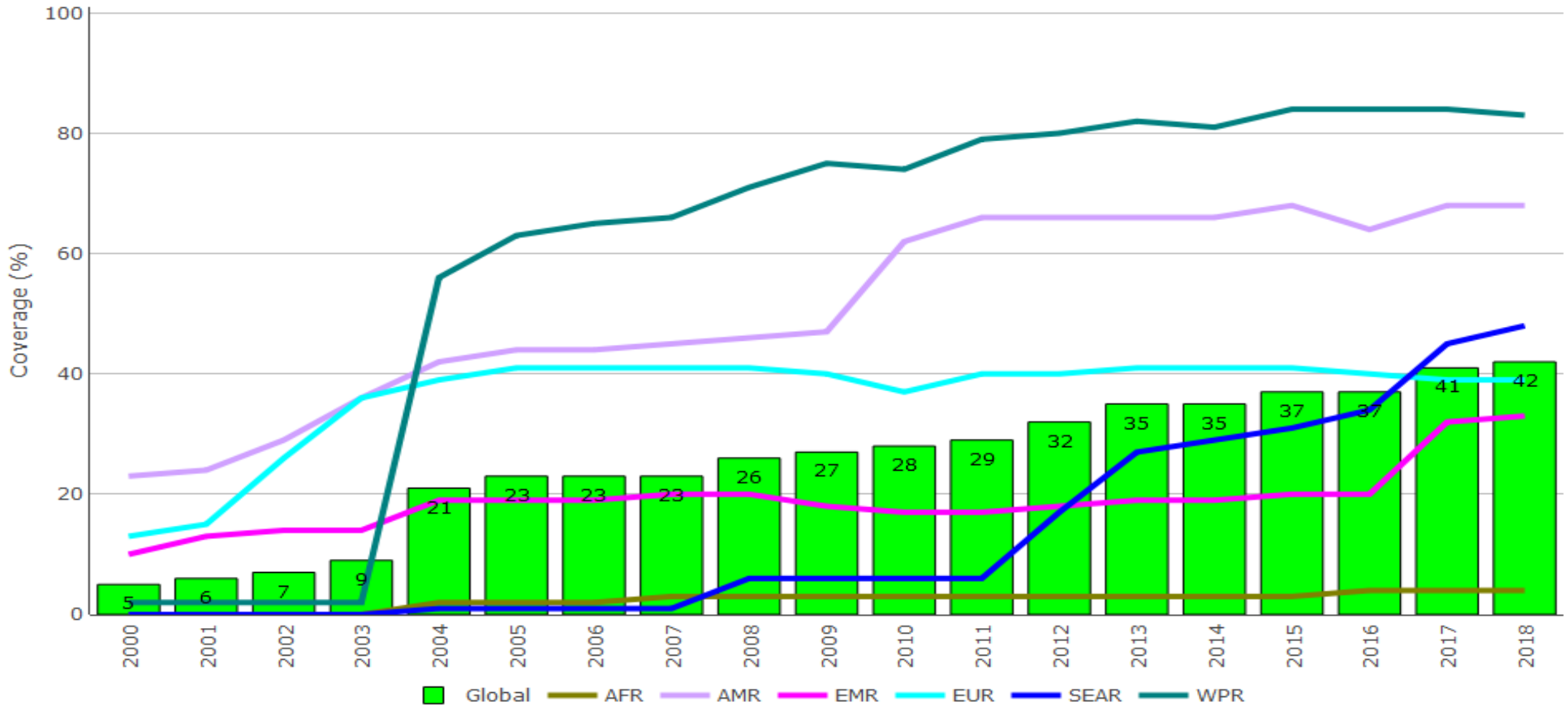
Global Hepatitis Report, *WHO* 2017

Global Immunization 1985-2018 and projections to reach 90% global coverage goals in 2020 - HepB3 coverage



Source: WHO/UNICEF coverage estimates 2018 revision, July 2019.
Immunization Vaccines and Biologicals, (IVB), World Health Organization (WHO).
194 WHO Member States. Date of slide: 08 July 2019.

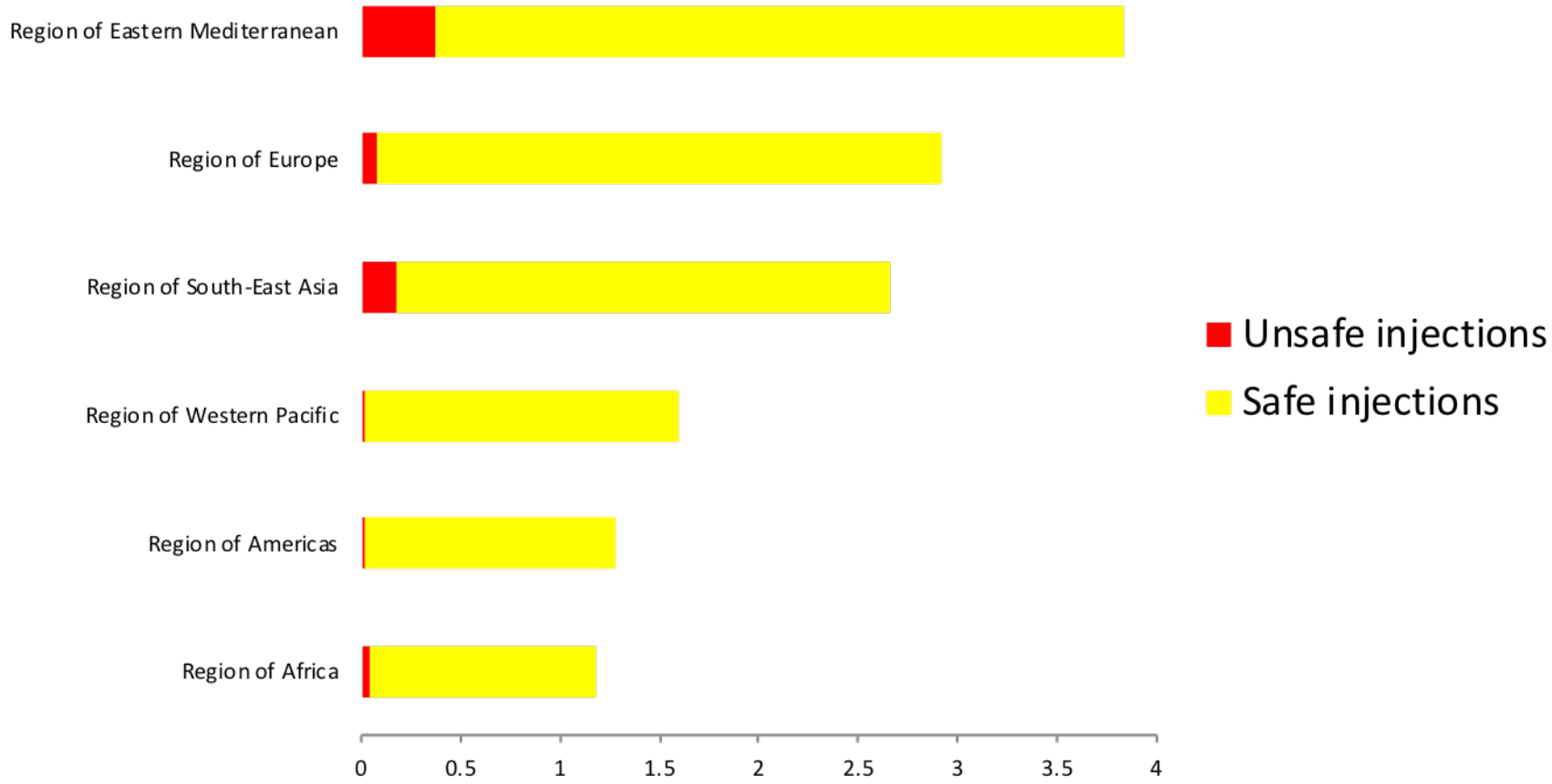
Global & Regional HepB birth dose coverage 2000-2018, Global coverage at 42% in 2018



Source: WHO/UNICEF coverage estimates 2018 revision, July 2019.
Immunization Vaccines and Biologicals, (IVB), World Health Organization (WHO).
194 WHO Member States. Date of slide: 08 July 2019.

Frequency and safety of health care injections reported in DHS, by WHO region, 2010-2017

- **New data: 3.9% Unsafe health care injections worldwide in 2010-2017**



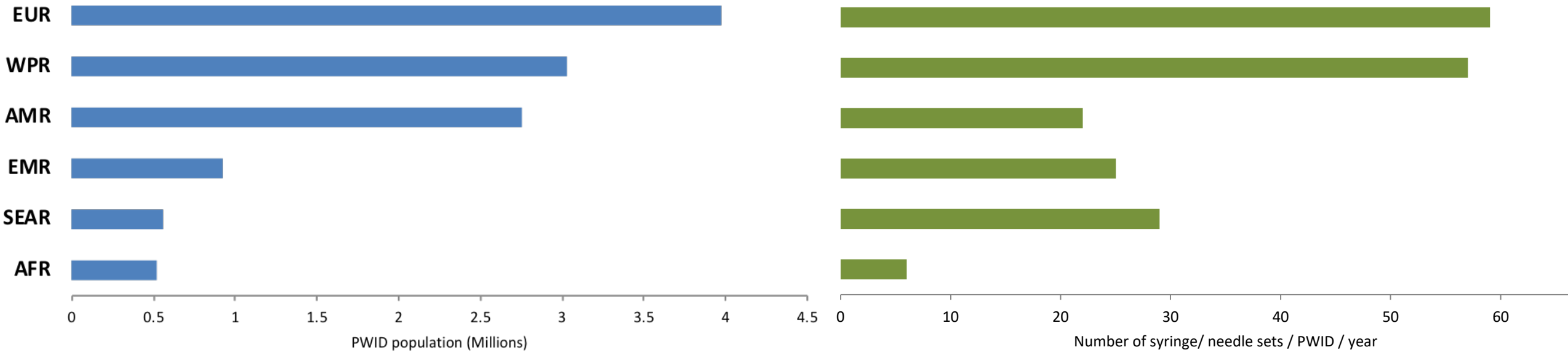
GET THE POINT
MAKE SMART INJECTION CHOICES

Source: Hayashi T. et al. WHO rapid review of DHS data, 2010-2017

Harm reduction: Still far from 300 needles/syringes per person/year

11.8 million persons
who inject drugs worldwide

27 syringe / needle set/
PWID / year



EUR: European Region, WPR: Western Pacific Region, AMR: American Region,
EMR: Eastern Mediterranean Region, SEAR: South East Asia Region, AFR: African Region

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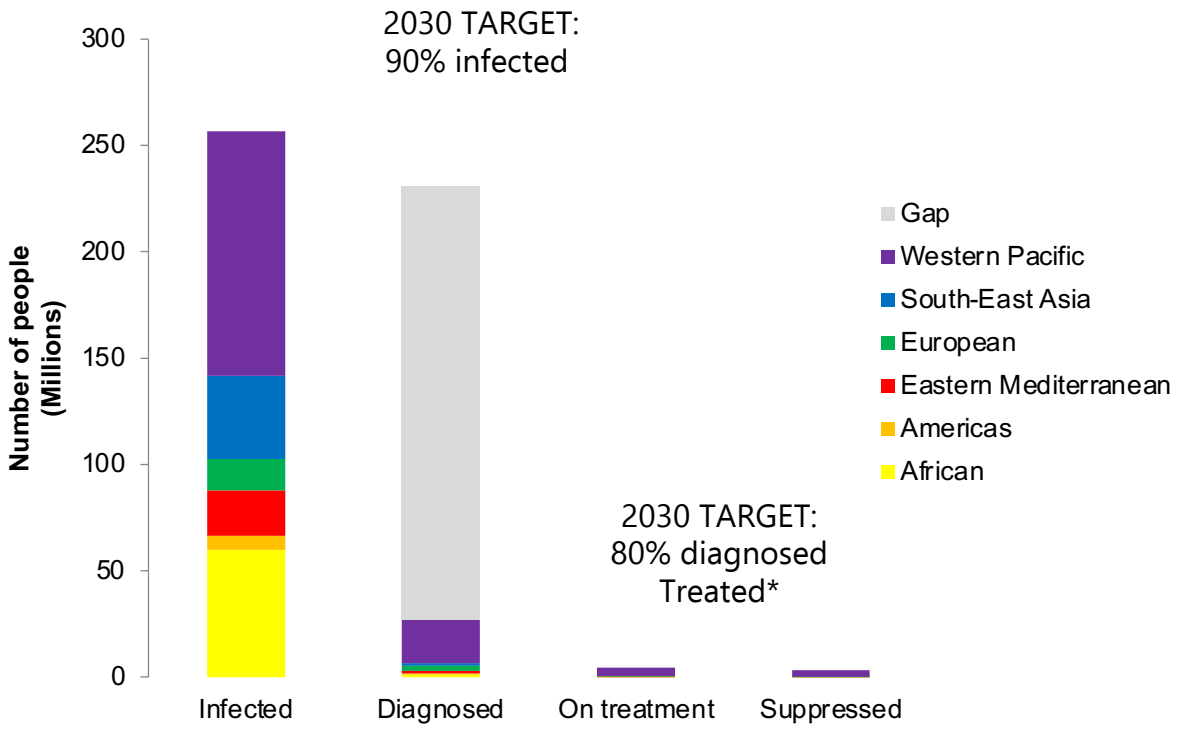
Cascade of care for HBV infection by WHO region, 2016

- No new data since 2016. Missed opportunities to use Tenofovir, available at $30 per year

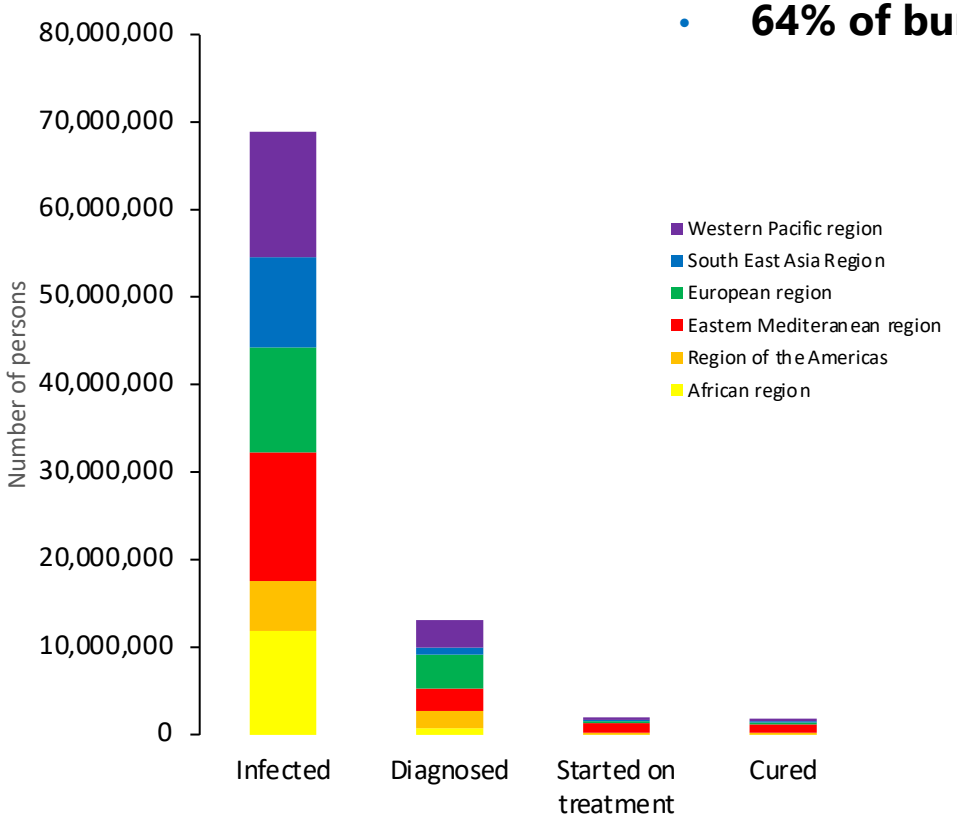


- Chronic HBV infection in children under 5 reduced from 4.7% to 1.3% and now 0.9% (immunization)
- 257 million people living with HBV
- Many infected people remain undiagnosed
- 4.5 million people were receiving HBV treatment in 2016 (1.7 million in 2015)

** Measurement of progress on the HBV treatment target is currently limited by the absence of data on the proportion of people who are eligible*

- Source: WHO based on Center for Disease Analysis/Polaris

Cascade of cure for HCV infection by WHO region, 2017



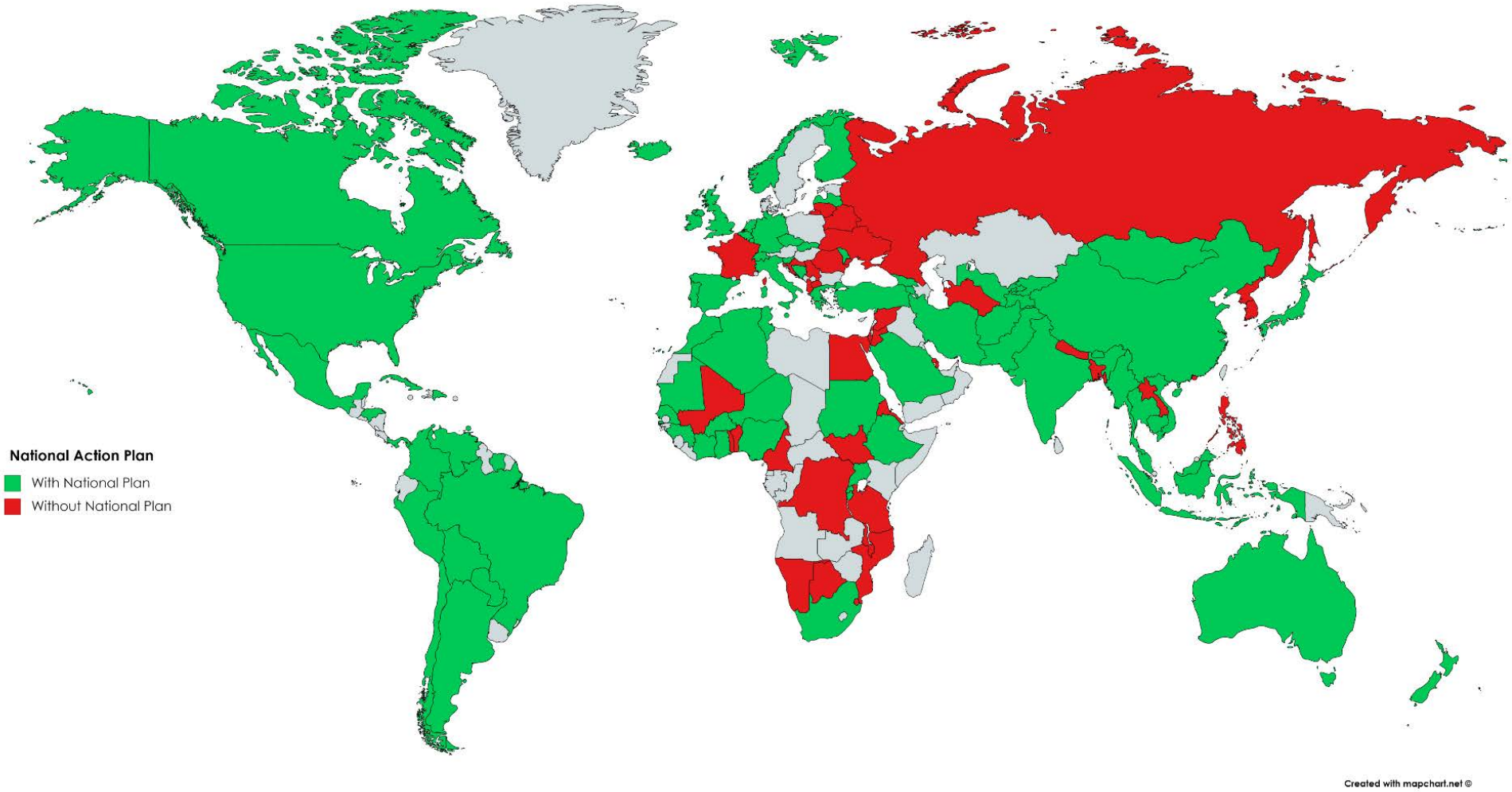
- **HCV: 71 million adults infected in 2015, cure available**
- **64% of burden in 14 countries**

- 2014: < 200 000
- 2015: 1.1 million
- 2016: 1.7 million
- 2017: 2.1 million

- **Total: ~5 million treated with DAA**
  Most treatments in ~10 'champion' countries: Australia, Brazil, China, Egypt, Georgia, India, Mongolia, Pakistan, Rwanda

- Source: Center for Disease Analysis/Polaris

Global status of countries with national hepatitis action plans, 2020



Note: 93 countries reported with National plans (10 out of 14 tier 1, and 11 out of 14 for tier 2)	41 countries are developing national plans.

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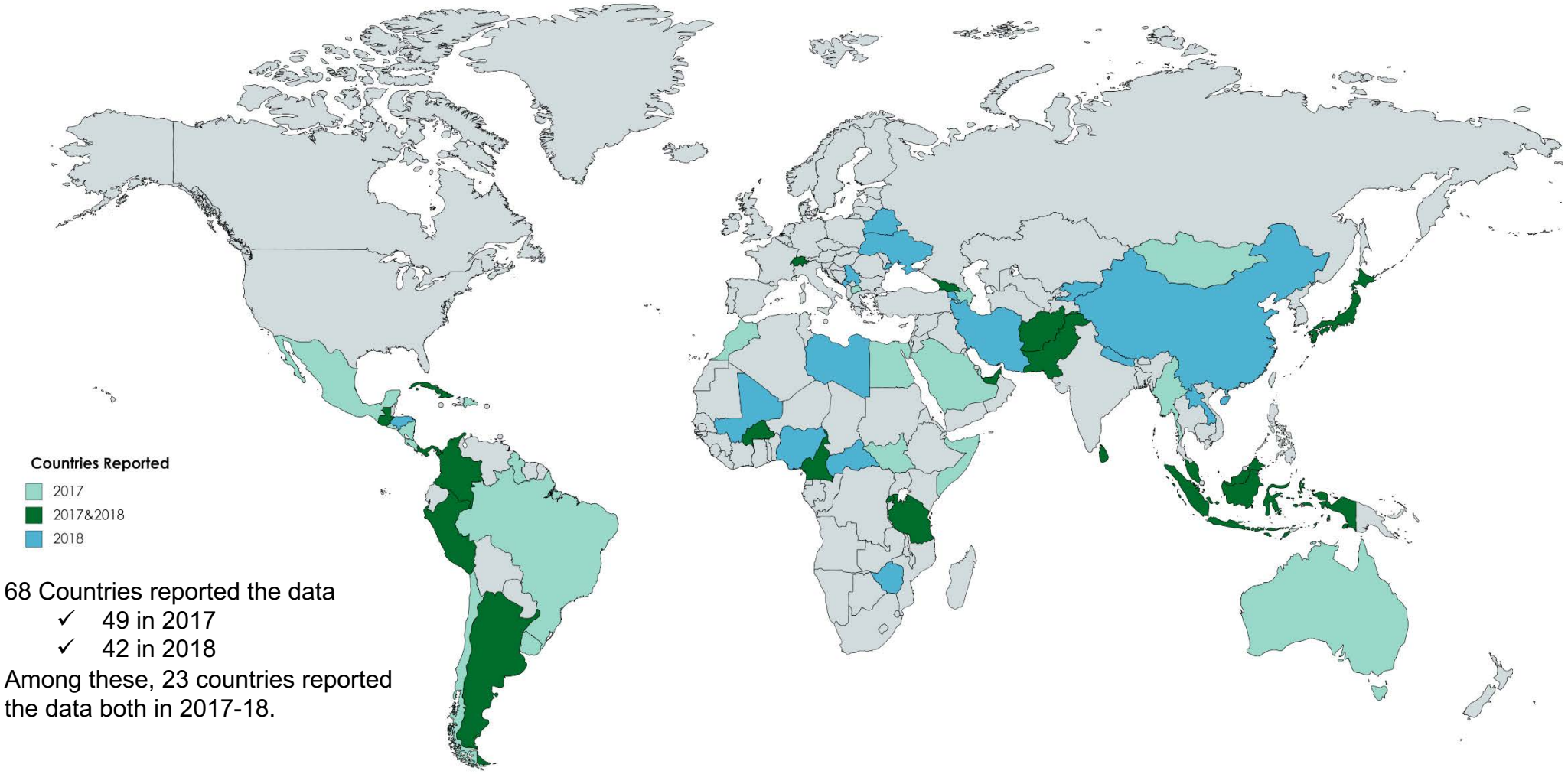
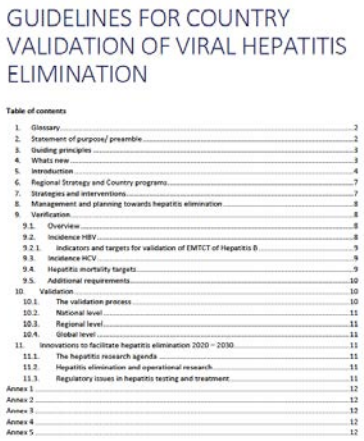
Distribution of countries reported data in 2017&2018, GRSH

WHO is developing global estimates for hepatitis(Incidence, mortality, cascade, prevention)



- ✓ 68 Countries reported the data
  - ✓ 49 in 2017
  - ✓ 42 in 2018
- ✓ Among these, 23 countries reported the data both in 2017-18.

WHO Framework for validation elimination of viral hepatitis


GUIDELINES FOR COUNTRY VALIDATION OF VIRAL HEPATITIS ELIMINATION

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Guidance for country validation of mother-to-child and early childhood transmission of hepatitis B

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- WHO has recognized the need (and several countries have requested) the establishment of a framework (global criteria and a governance process) for validation of elimination of viral hepatitis (focus on HBV and HCV) as a public health threat.
- The framework would aim to:-
  - be useful from a public health perspective
  - contribute to building national capacity
  - provide guidance on how to address different country contexts, including differences between countries according to their baseline level of endemicity
  - be implemented efficiently
  - motivate countries to take action on hepatitis elimination
  - where possible standardize validation processes across a range of diseases targeted by WHO for elimination
  - take advantage where possible of existing processes and data already available through routine M&E activities

Major Challenges

- **Staff re-deployed** and **services re-purposed** for COVID-19 response
- **Shutdown** of services e.g. immunization, MCH, primary care, outreach & NGO services, cancer, chronic care, Hepatitis and GI/endoscopy services, elective surgery
- **Financing re-directed** to pandemic management
- Exacerbation of **inequalities**: new groups of vulnerable
- Fear of exposure to COVID-19 in health facilities: **reduced service utilization,** ? Late diagnosis
- **Economic impact** tremendous, but long term impact unclear

COVID-19: major and wide-ranging impact on hepatitis programmes globally

Source: WHO COVID-19 dashboard

COVID impact on hepatitis response in Punjab prov ce – analysis of data before and after introduction of loc vn.

82 % reduction in new registration and screening for HBV/HCV (1st two weeks of lockdown)

65% reduction in initiation on treatment (1st two weeks of lockdown)

32 Hepatitis clinics inactive and 117 low activity

PCR sample collection and transportation halted

Engagement of Hepatitis PCR lab COVID-19 PCRs

Transportation of sample resumed 28th April 2020

Duration)	Registration	Total Screening	Screened +ve for HBV	Screened +ve for HCV	Sample Collected	Samples Detected	Total Initiated on Treatment
Pre-LockDown (9 Mar - 22 Mar)	17524	14396	1148	6273	8022	4348	3846
During LockDown (23 mar- 5 Apr)	3230 (82% reduction)	2416 (83% reduction)	120	724	960	1566	1327 (65 reduction%)
During LockDown (6 Apr-20 Apr)	6619 (62% reduction)	5169 (64% reduction)	257	1732	2094	343	2309 (40% reduction)
Post-Zoom Meeting (21 Apr- 4 May)	11577 (34% reduction)	10191 (29% reduction)	291	2340 (37%)	2233	1398	2589 (33% reduction)
Grand Total	38950	32172	1816	11069	13309	7655	10071

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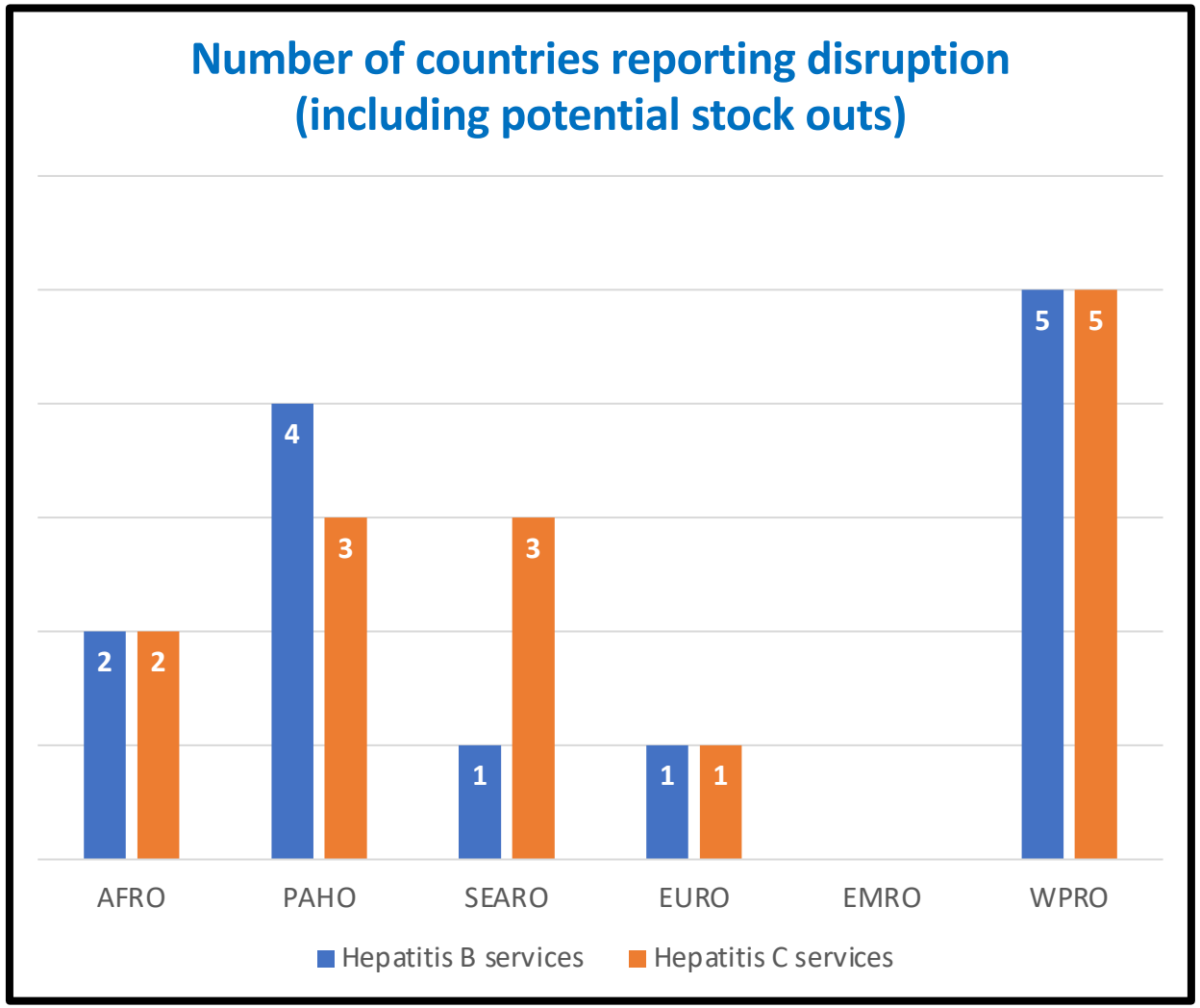
Disruption in Hepatitis Services



- Argentina: *Overall reduction in service provision across health sector has impacted HBV and HCV testing and treatment initiation. There is a stock out of DAAs, and procurement process initiated.*
- Thailand: *The key services among higher risk groups such as HCV, HBV screening test and IEC in the community cannot be carried out in COVID-19 context*
- Russian Federation: *Viral hepatitis in Russia is exclusively treated infectionists specialists who are all now on engaged in COVID-19 treatment, this affects the situation with diagnosis and treatment of viral hepatitis*

- **Hepatitis B**: Argentina, Belize, Botswana, Brazil, China, Ecuador, Ethiopia, Fiji,Kiribati Philippines , Russian Federation, Thailand, Vanuatu
- **Hepatitis C:** Argentina, Belize, Botswana, China, Costa Rica, Ethiopia, Kiribati, Philippines , Russian Federation, Thailand, Indonesia, Myanmar,

HHS Essential Services Survey May-June 2020

World Health Organization

What will it take?
The need for simplification

WHO Global Good practice principles for simplified service delivery (2018)

1. **Simple and standard algorithms** across the continuum of care.
2. **Decentralized** testing and treatment.
3. **Integration** of hepatitis testing, care and treatment with other services.
4. **Task-shifting** to support decentralized care.
5. **Strengthening the linkage** from testing to care.
6. **Engagement with community.**
7. **Efficient procurement and supply management of quality medicines and diagnostics**.
8. **Data systems to monitor** the quality of care and coverage

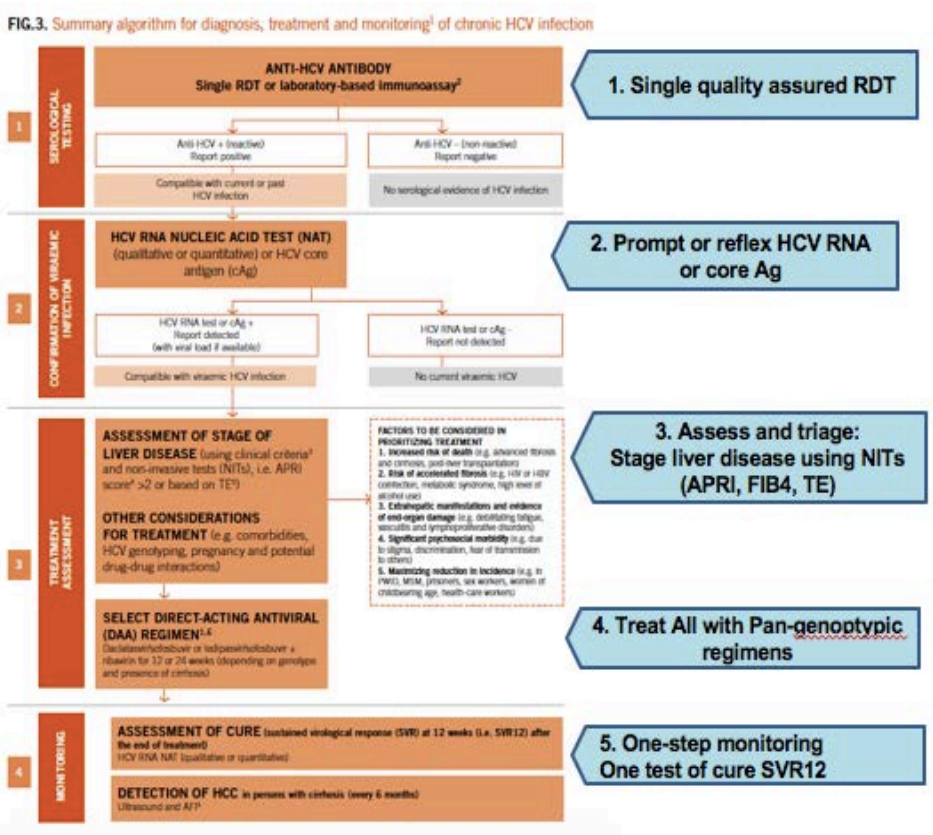
Service delivery in specific populations

- Persons who inject drugs
- People in prisons and other closed settings
- MSM and sex workers
- Adolescents and Children
- Migrant/indigenous populations
- Pregnant women

nd Treatment of Persons Diagnosed with Chronic Hepatitis, WHO 2018

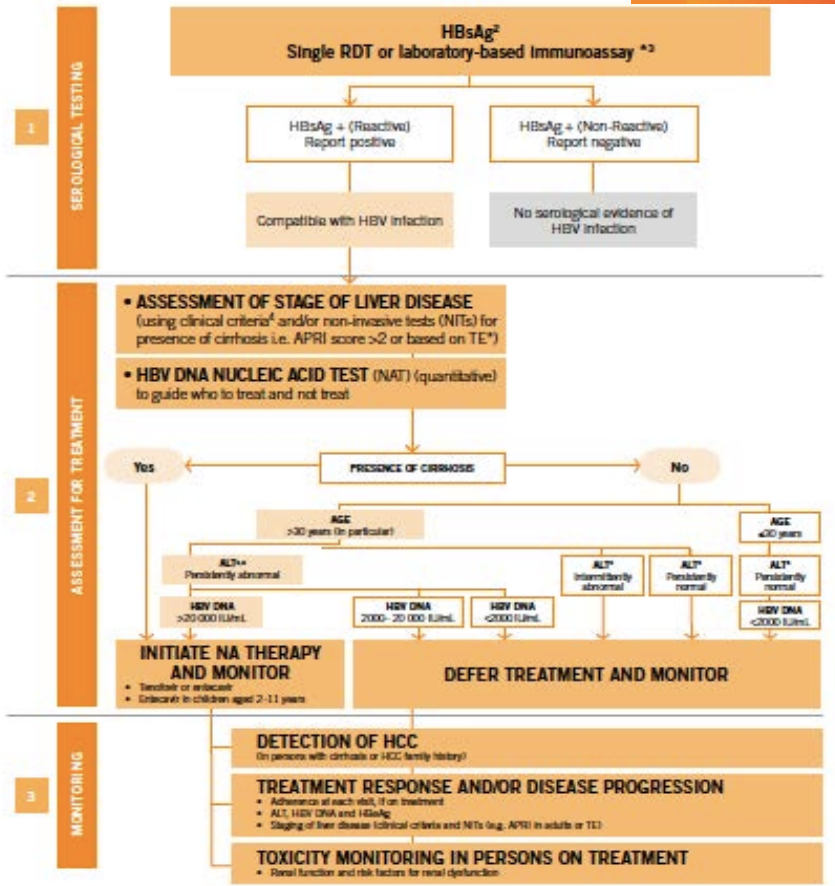
1. Use of simplified and standardized algorithms

HCV Algorithm



Five key steps

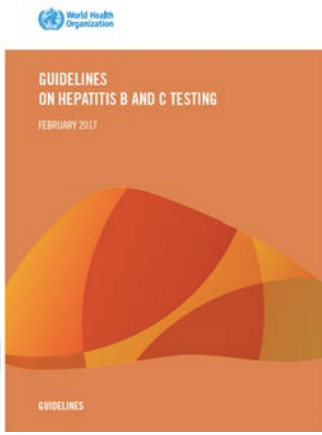
HBV Algorithm



Countries now adapting simplified algorithms for hepatitis testing, treatment and monitoring.

WHO Guidelines on hepatitis B and C testing

2. Develop a Case-Finding Plan
Who to test and Where to test?



TESTING SITES	TESTING APPROACHES	
	Routinely offered	Focused (Risk-based)
HEALTHCARE FACILITY TESTING		
Primary care settings	X	
Antenatal clinics	X	
HIV clinics	X	
TB clinics	X	
STI clinics	X	
Drug treatment and harm reduction services	X	
Inpatient and outpatient hospital settings	X	
Paediatric and adolescent clinics	X	
COMMUNITY-BASED		
Mobile/outreach testing for priority populations		X
Mobile/outreach for the general population (for example young people)		X
National testing campaigns/camps	X	X
Testing of family members		X
Partner testing (for all partners of people with viral hepatitis)		X
Mass media and social media	X	X
Home-based/ door-to-door testing	X	X
Workplace testing		X
School/educational institution testing		X

PHASE 1:
FOCUSED/TARGETED TESTING AND TREATMENT

Population	Setting (Facility/Community)	Approach
1. Higher risk populations		
HIV infected	HIV/ART clinic	Existing and new patients
PWID	Drug treatment/outreach	Existing and new clients
Prisoners	Prisons	
MSM	STI clinics/outreach	Promote testing locations in media
CSW	STI clinics/outreach	Promote testing locations in media
Multi-transfused/Haemophiliacs	Patient registers in specialist clinics	Existing and new referrals Adults, adolescents, children
Haemodialysis	Patient registers in dialysis	Existing and new referrals
2. Clinical suspicion	Hospital In and outpatients	Adults, adolescents, children
3. Pregnant women and children of +ve	Antenatal clinics	Screen children of +ve mothers
4. Health care workers	Pre-employment, medical and nursing students	HBV vaccination

PHASE 2:
TARGETED/ALL GENERAL POPULATION TESTING

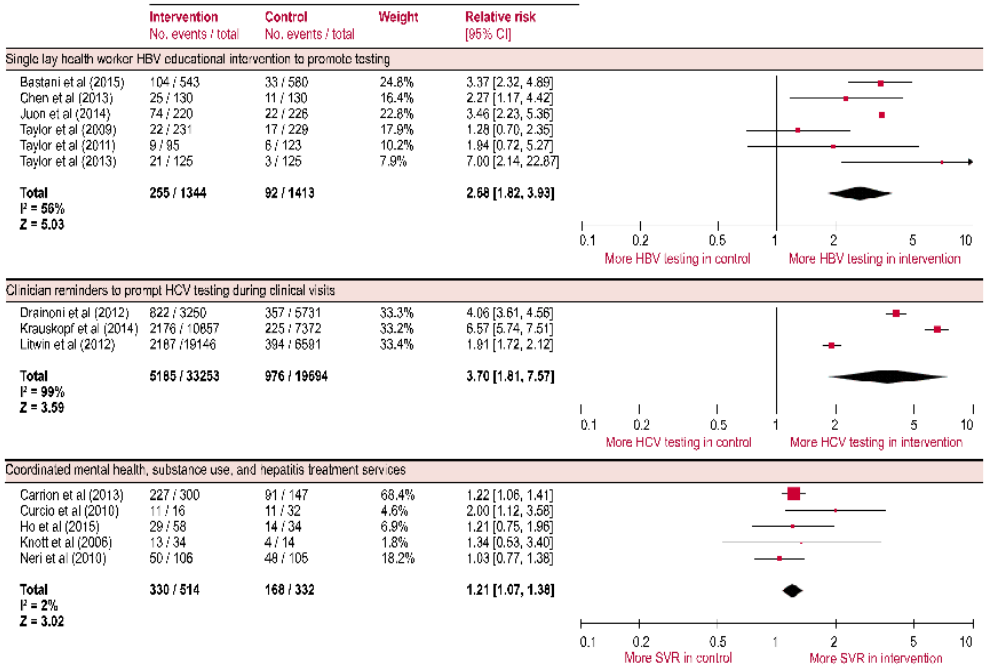
Population	Setting (Facility/Community)	Approach
Blood transfusions before 2001 + Unsafe injections + Tattoos	Outpatient clinic/Outreach	Awareness raising through posters, social media
Older age groups (>40-50 years)	Primary care, hypertension and diabetes clinics and other NCD screening, inpatients	Awareness raising through posters, social media
All (Birth-80 years)	Village based	Village based lay workers, primary care

3. Strengthening linkage from testing to treatment

Key message: Linkage to care (the completion of clinic visit after diagnosis) is key

➢ **WHO Recommended Strategies to Strengthen testing uptake and linkage to care** [2]

1. Provision of hepatitis testing and treatment as part of **integrated services** e.g. harm reduction sites, ART clinics.
2. **On-site rapid testing** with same-day results.
3. **Trained peer or lay health worker** support in community based settings.
4. **Clinician reminders** to prompt provider initiated, facility testing.
5. Immediate or **Reflex laboratory** based nucleic acid testing
6. Dried blood spots specimens for NAT ±serology
7. Providing **assistance with transportation**



And emerging evidence for…

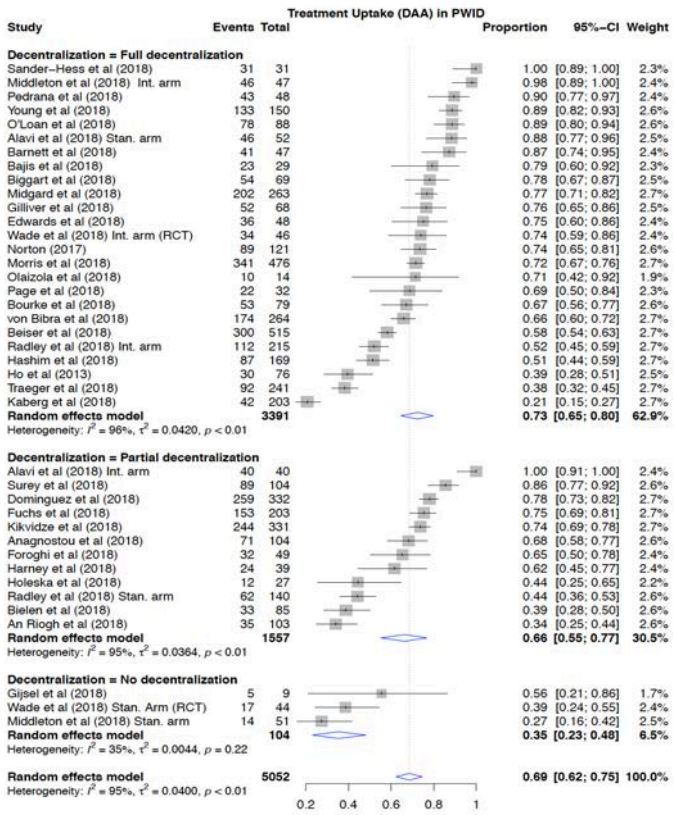
Decentralised viraemia testing and treatment

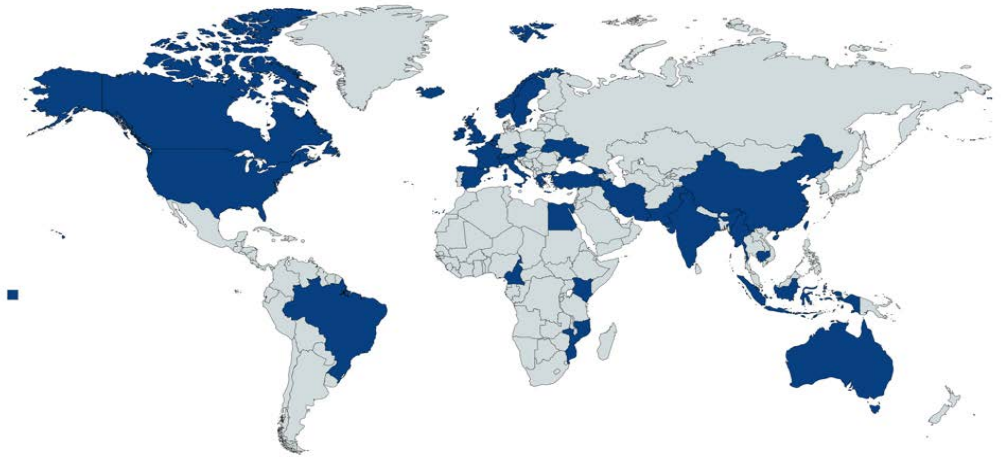
1. WHO hepatitis testing Guidelines, 2017; 2. WHO Guidelines for the care and treatment of HCV, 2018;

4. Moving treatment out of speciality clinics
De-centralised testing and treatment "one-stop shops"

WHO systematic review HCV – New compelling evidence to support decentralization

PWID





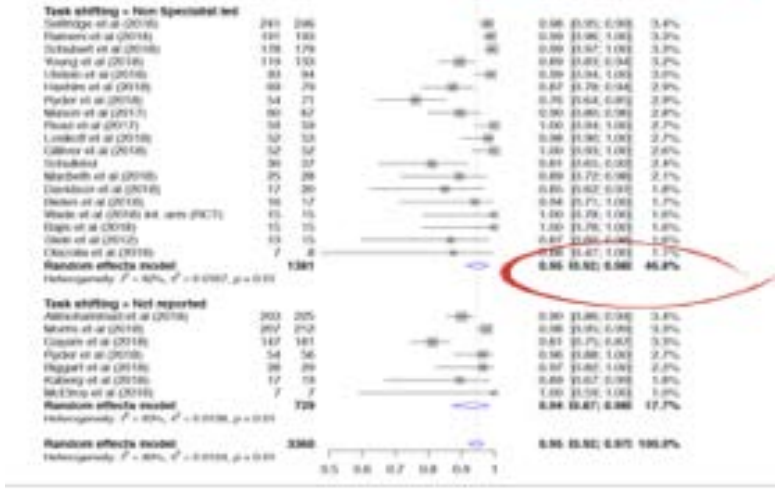
142 studies; 33 countries. High Income countries- 121 (86%)

LMIC- 21 (14%)

5. Task Shifting to non-specialist health workers to support decentralisation

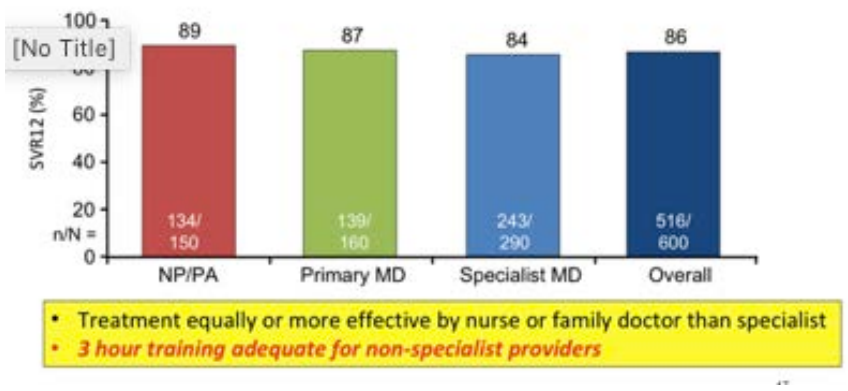
- Many countries affected by viral hepatitis face shortages in specialists in hepatitis management.
- Task-shifting is a pragmatic response to mitigate shortages in the health workforce.

New WHO Evidence:
Task-shifting of treatment to trained non-specialists achieves similar SVR12 compared to specialist care.[2]



In Punjab, India, training and mentoring for health workers is carried out using telehealth (*Project ECHO*) clinics and a 'WhatsApp' group chat.[3]

In a state with an estimated burden of around 650,000 chronic HCV patients,[4] **reliance on trained primary care physicians has been central in supporting care** across 22 district hospitals.



6. Simplified Training and Mentorship of Health Workers to achieve Task-shifting

Viral Hepatitis Training and Mentorship Toolbox

Online courses

Hepatitis C Online, U of Washington

Liver Learning, American Association for the Study of Liver Disease

Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM)

HBV and HCV Clinical Management, International Association of Providers of AIDS Care (IAPAC)

Onsite training

- Single to multi-day face-to-face training
- Curricula adapted to local context
- Clinical attachments

Telementorship

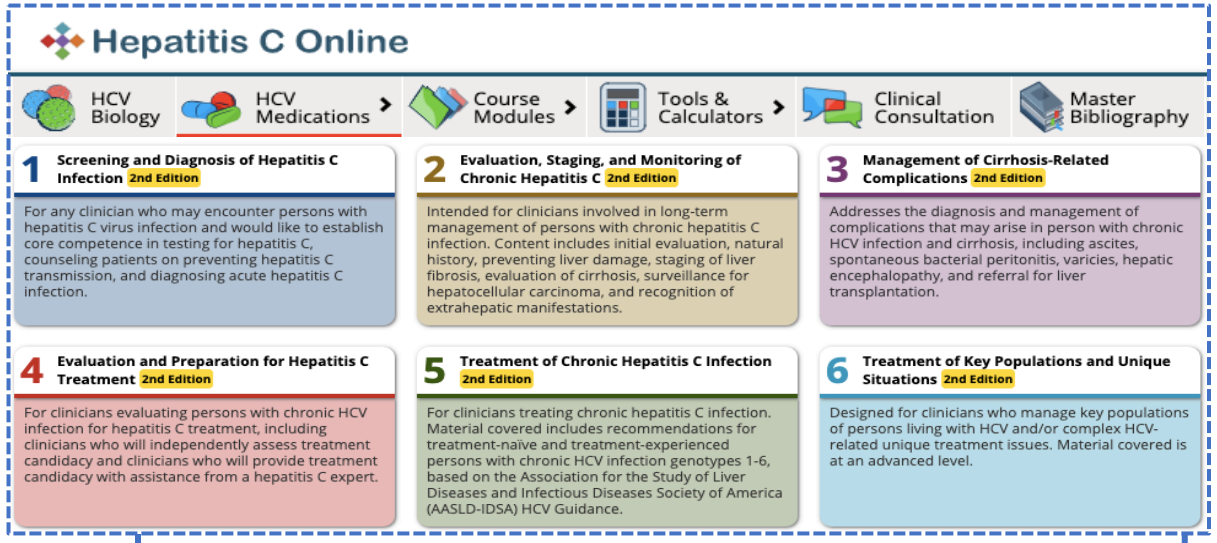
Specialists provide case-based mentorship to non-specialists via videoconferencing

Mobile messaging groups

WhatsApp groups used for:

- Clinical questions
- Major announcements
- Sharing journal articles

Online training – Examples



Hepatitis C Online, University of Washington

- 6 HCV modules, ~30min each
- Interactive online training
- Screening/diagnosis, staging / monitoring, management of cirrhosis, preparation for treatment, treatment, PWID & prisoners
- +Education credits and questions for self-assessment

International Association of Providers of AIDS Care, African Regional Capacity-Building Hub

- Train-the-trainer manual and accompanying slides for HBV and HCV clinical management.
- Materials downloaded in PDF form
- Website contains e-library
- Manual contains info on logistics of training setting up, agenda, tips on adult learning

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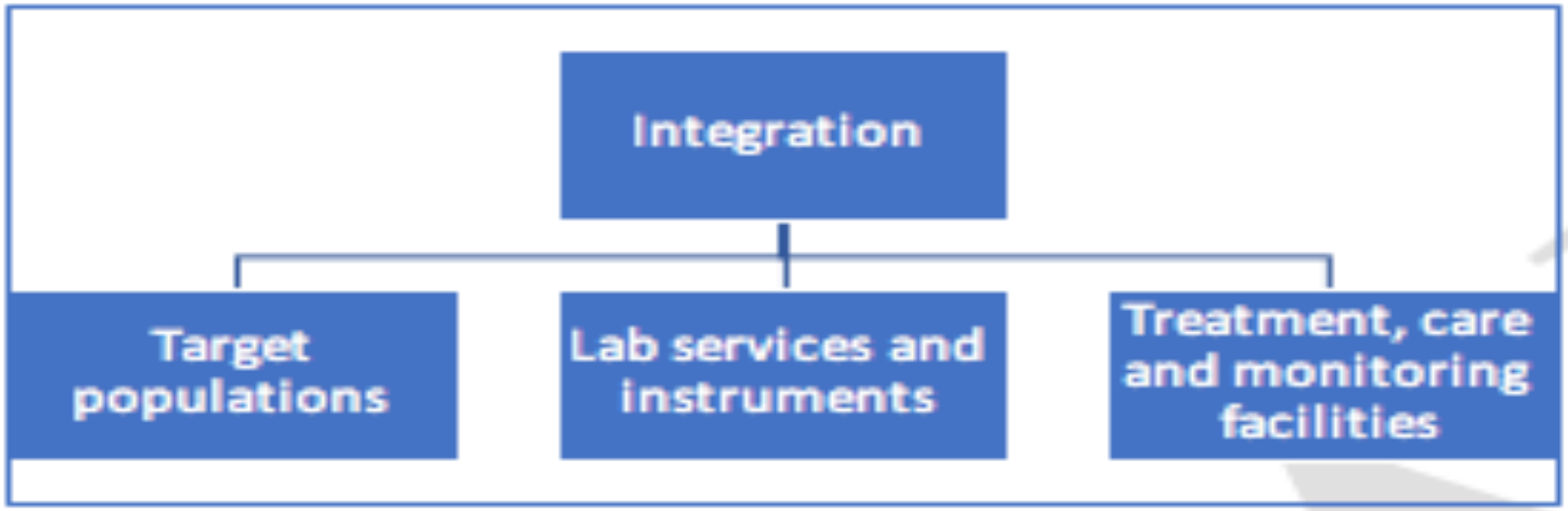
7. Opportunities for Integration



Integration with other testing settings or opportunities eg. HIV, antenatal or TB

Integrated combo serology (HIV/HBV/HCV RDTs), including self-testing

Build on and integrate existing multi-disease platforms (HIV, HCV RNA and HBV DNA)

HCV care at harm reduction sites

HIV, HCV and HBV care in prisons

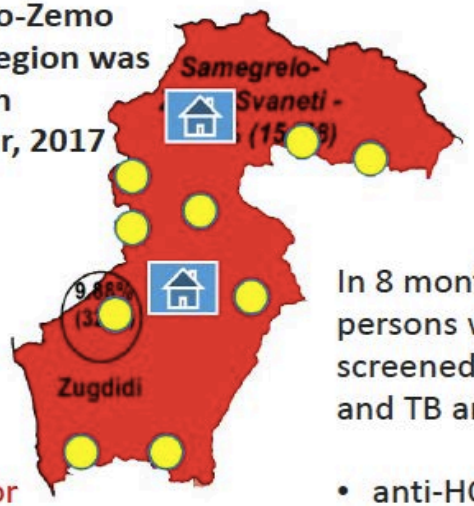
HCV and HBV care at HIV, and TB clinics

Integrated testing and treatment of HIV/HCV and TB in primary care and at HRS: Georgia

Concept: Three Diseases (HIV/HCV/TB) Under One Umbrella

- Integrated TB/HIV/HCV screening protocol approved
- 454 doctors and nurses trained
- Integrated multidisciplinary service monitoring groups established
- Municipal programs supporting pilot implementation approved

Pilot project in Samegrelo-Zemo Svaneti Region was lunched in November, 2017



Target for screening - 40% of local population

In 8 months 89,60 persons were screened on HCV, and TB among wh...

- anti-HCV+ 2350 cases
- anti-HIV+ 37 cases
- Presumptive TB 177 cases

Integrated delivery of hepatitis care with harm reduction

Case Example: Integration of harm reduction with treatment

Through the Medicins du Monde program in Kenya, PWID are able to receive HCV testing and treatment at **a drop-in center**, promoting a **client-centered approach**.

High retention and adherence are bolstered by

- Pre-treatment counselling
- Treatment navigation by peer-educators
- Psycho-social support[1]

Case Example: One-stop service

In countries, such as France, Bangladesh and Italy,[2] Integrated onsite testing, assessment, and treatment for PWID occurs in **opioid substitution therapy clinics** and **needle syringe exchange program sites.**

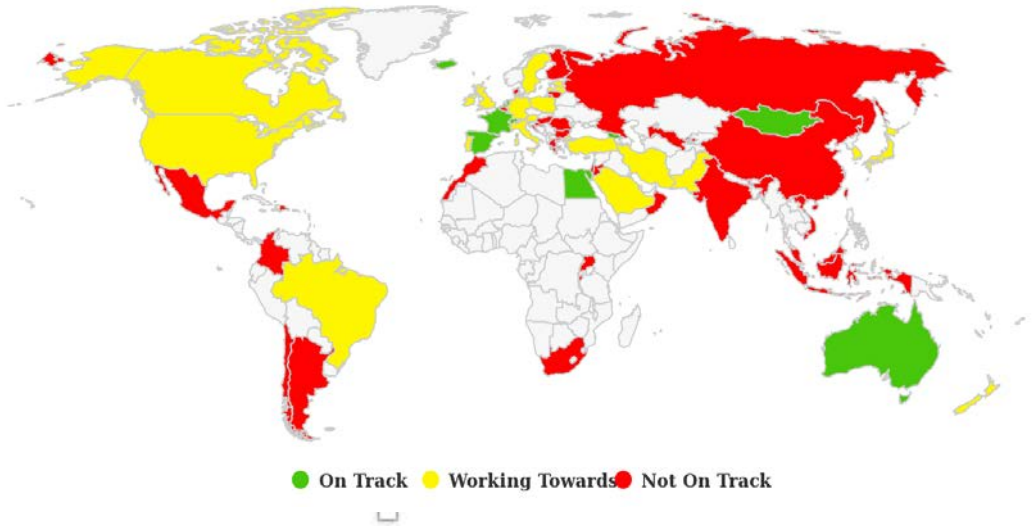
These sites also provide harm reduction and mental health services.

1. Lukhwaro et al. World Hepatitis Summit.2017; 2. Rahman et al. World Hepatitis Summit. 2017

Learning from Champion countries

Learning from ‘Champion’ Countries: Towards elimination of hepatitis C

Over 5 million million people treated with DAAs



Brazil’s Fight against Hepatitis C — Universalism, Local Production, and Patents

Elize M. da Fonseca, Ph.D., Kenneth Shadlen, Ph.D., and Francisco I. Bastos, M.D., Ph.D.

Controlling hepatitis C in Rwanda: a framework for a national response

Aimable Mbituyumuremyi,[a] Jennifer Ilo Van Nuil,[b] Jeanne Umuhire,[c] Jules Mugabo,[d] Mutagoma Mwumvaneza,[a] Jean Damascene Makuza,[a] Justine Umutesi,[a] Sabin Nsanzimana[a] & Neil Gupta[e]

National treatment programme of hepatitis C in Egypt: Hepatitis C virus model of care

W. El-Akel, M. H. El-Sayed, M. El Kassas, M. El-Serafy, M. Khairy, K. Elsaeed, K. Kabil, M. Hassany, A. Shawky, A. Yosry, M. K. Shaker, Y. ElShazly, I. Waked, G. Esmat, W. Doss

- **Australia:** universal access to HCV treatment to all persons with chronic HCV infection; prisoners and PWID are priority populations
- **France, Iceland, Portugal, England and Scotland:** universal access to HCV treatment under the national health insurance system
- **Egypt:** National Plan of Action - DAAs less than US$120 / cure – largest treatment programme to date (2 million people treated with DAAs)
- **Georgia:** hepatitis C elimination programme with plan for >25 000 people treated per year
- **Mongolia:** innovative financing models in public and private sector
- **More than 80 countries have national hepatitis plans.**

World Health Organization

Learning from ‘Champion’ Countries: Towards elimination of hepatitis

SEVEN GOOD PRACTICES AND LESSONS LEARNED IN THE GLOBAL VIRAL HEPATITIS RESPONSE

EASL CONFERENCE 2019 BRIEF

WHO-EASL SPECIAL SYMPOSIUM
GOOD PRACTICES AND LESSONS LEARNED FROM GLOBAL VIRAL HEPATITIS SCALE-UP

DATE: 2-4PM, SATURDAY 13TH APRIL
VENUE: STRAUSS 1-2

FRAMEWORK FOR GLOBAL GOOD PRACTICES AND LESSONS LEARNED IN VIRAL HEPATITIS RESPONSE PROJECT

PLANNING THE RESPONSE

GOVERNANCE	1.	Political Leadership
	2.	Hepatitis Champions and Strong Partnerships
	3.	Community Engagement and Leadership
STRATEGIC PLANNING	4.	Defining the epidemic to inform the response
	5.	Comprehensive National Plans
	6.	Mapping of Laboratory Infrastructure and Capacity
	7.	Investment case development
	8.	National Health Insurance and other financing options

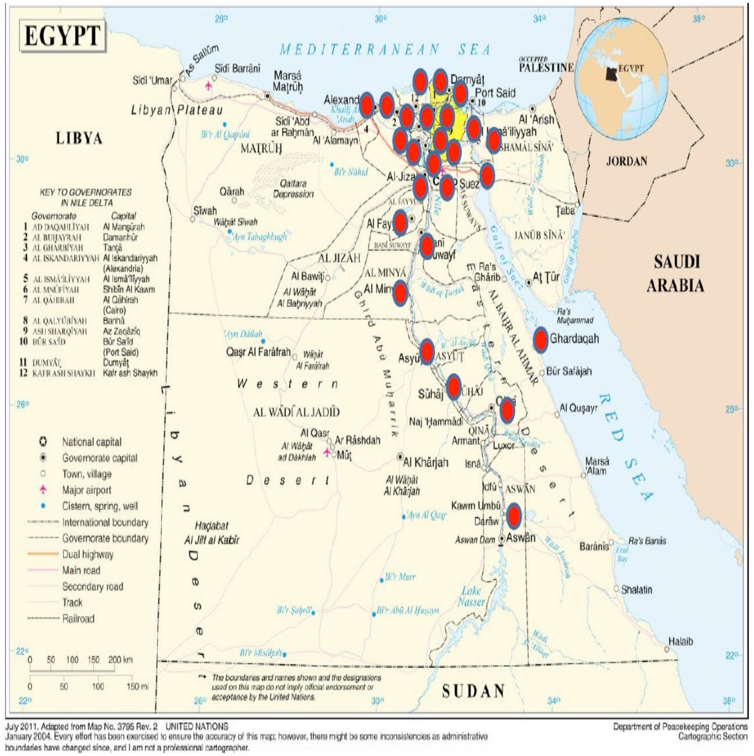
DRIVING THE RESPONSE

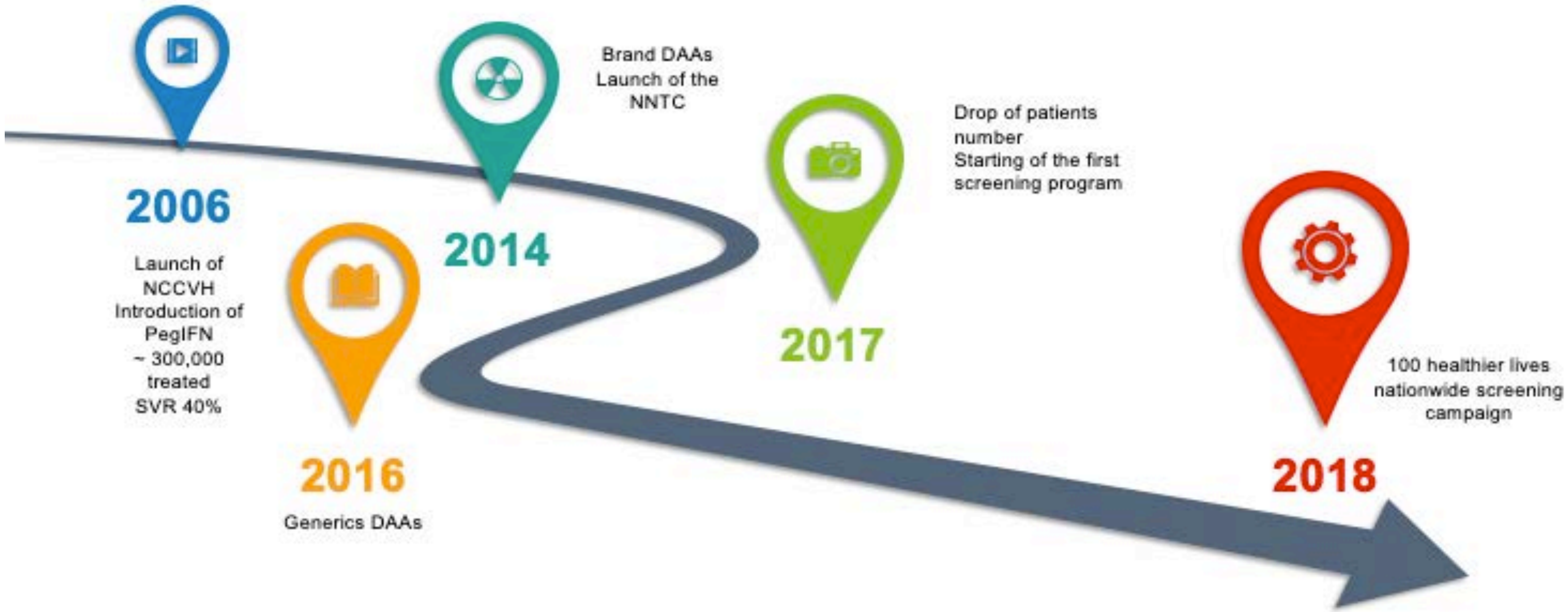
DRUGS AND DIAGNOSTICS ACCESS	9.	Registration strategies
	10.	Forecasting and Quantification for Supply Planning
	11.	Optimizing procurement
SERVICE DELIVERY	12.	Simplified Service Delivery
	13.	Integration with Harm reduction among people who inject drugs
	14.	Training the Health Workforce

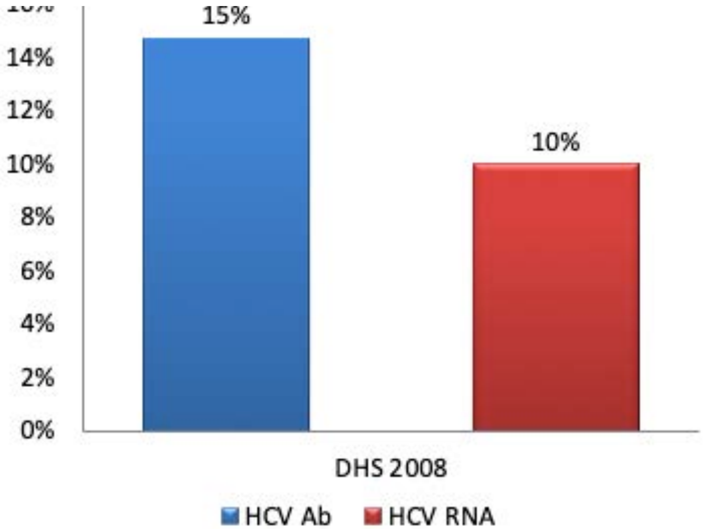
EVALUATING THE RESPONSE

15.	Information systems to monitor performance

Egypt – on a fast-track to HCV elimination

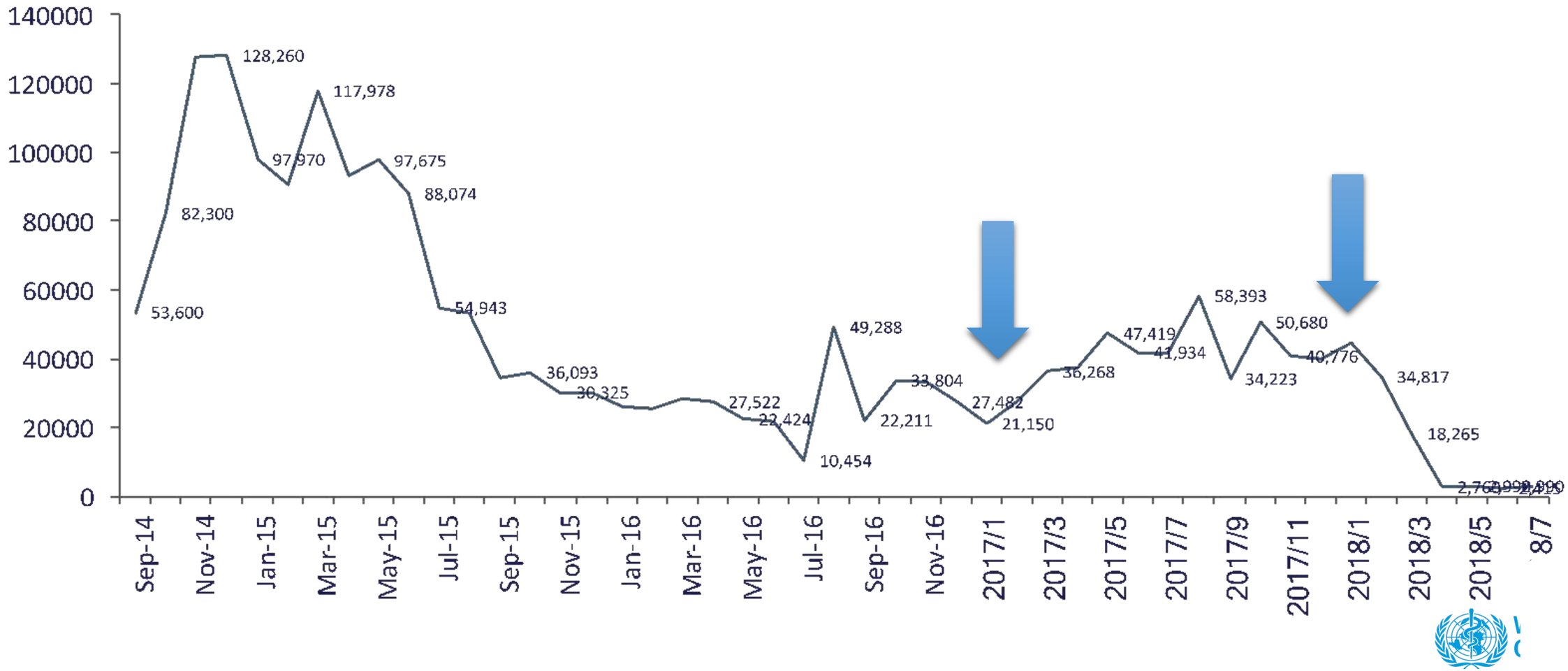






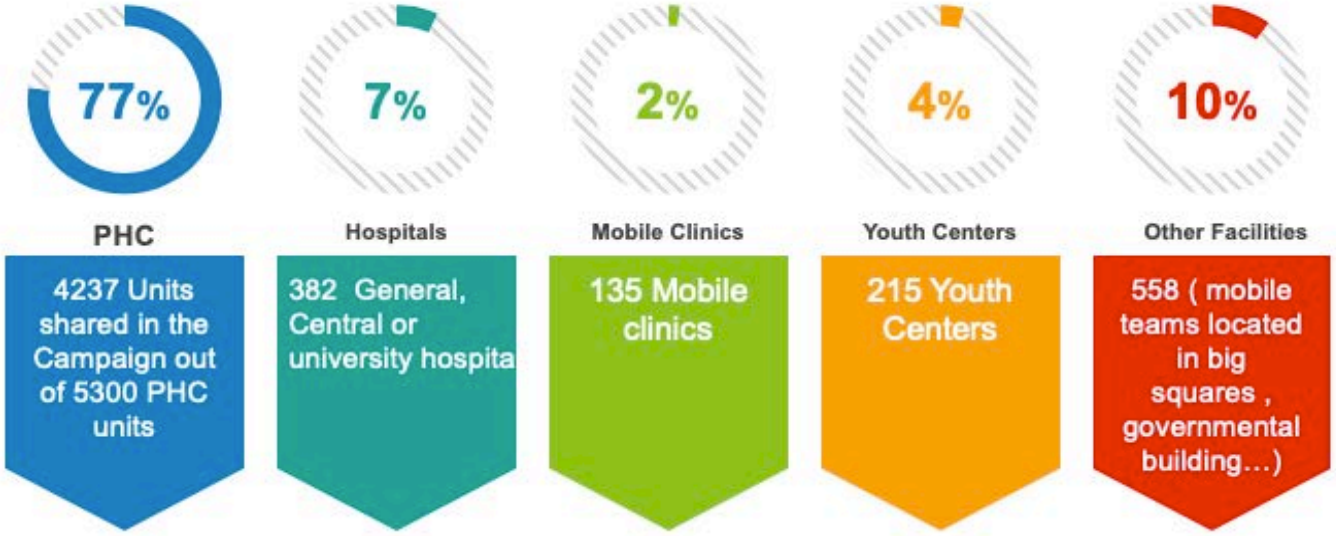
January 2018: Program Losing Momentum

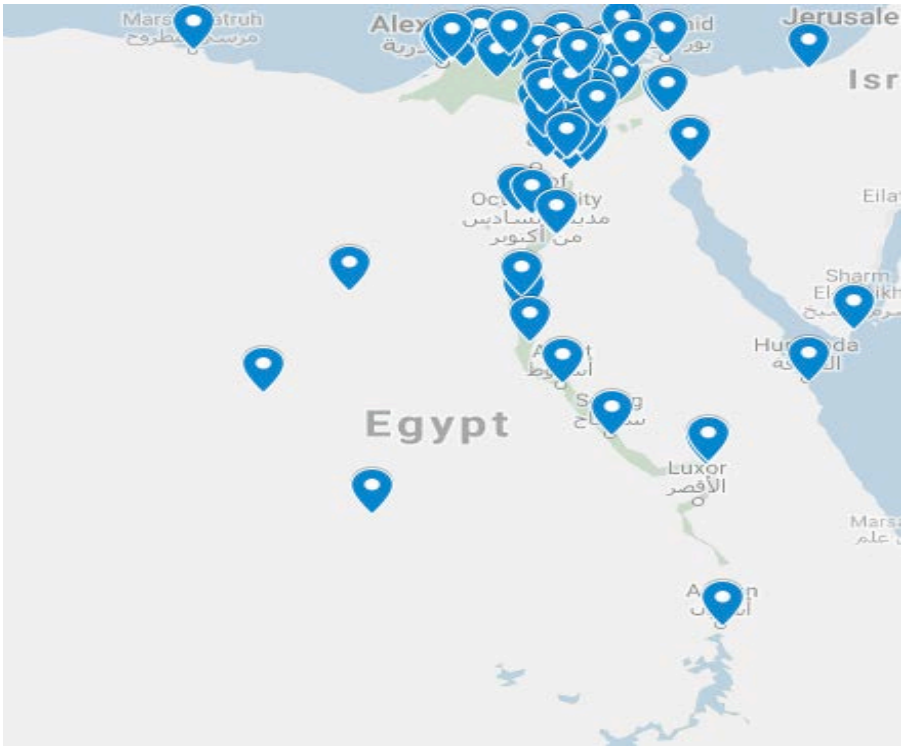
Still have 2-3 million with undiagnosed HCV infection untreated



100 million healthier lives screening initiative

Phase	Working sites	Teams
One (Oct-Dec 2018)	1412	5484
Two (Dec –Feb 2019)	1849	6486
Three (Mar-Apr 2019)	2455	8049
Total	5716	20019





123
MoH Viral Hepatitis Treatment Centers

Rwanda – journey towards HCV elimination

- Population (2016): ~13 million
- GDP (2016): US$702
- HIV prevalence (2015): 2.9% (200,000)
- HCV prevalence: - Blood donors 0.8%- 3.2%;

  Pregnant women: 2.6% ; PLHIV: 4.7%

The Journey towards VH elimination

2011
- Hepatitis unit created by GOR

2012
- National TWG created
- VL testing introduced in 1st facility

2013
- VH Guidelines developed
- Screening in 2 facilities

2015
- National Policy adopted
- NOP developed
- First patient's treated with SOF/Ribavirin

2016
- Screening of PLHIV
- ELISA in 13 sites
- Standardized patient file

2017-2018
- Massive screening~ 1,000,000
- RDTs introduced
- 15,000 patients cured for HCV
- 1800 on HBV treatm

2018-2023
Elimination phase

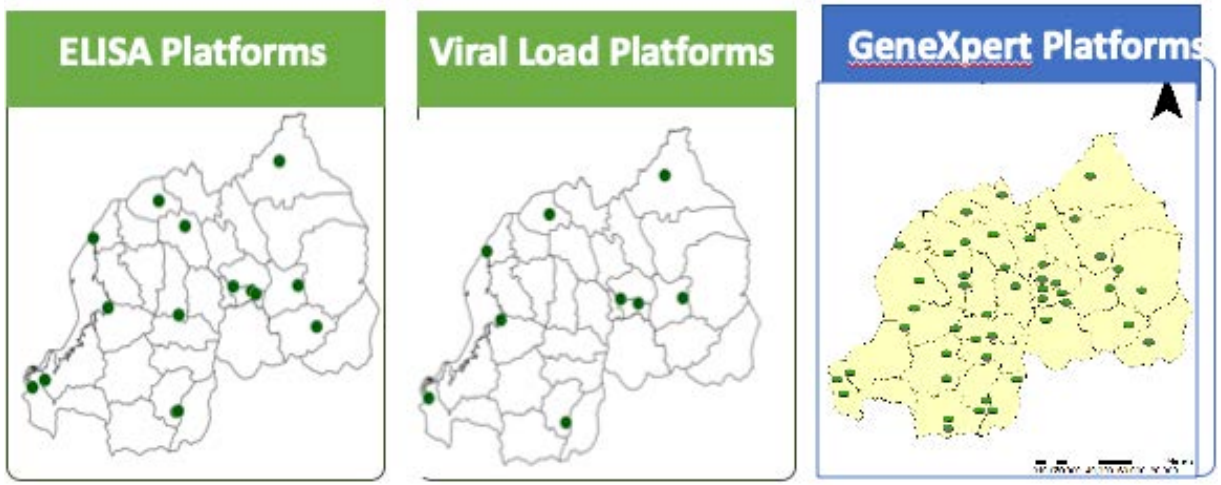
Integration of Testing, Diagnostics and Service Delivery

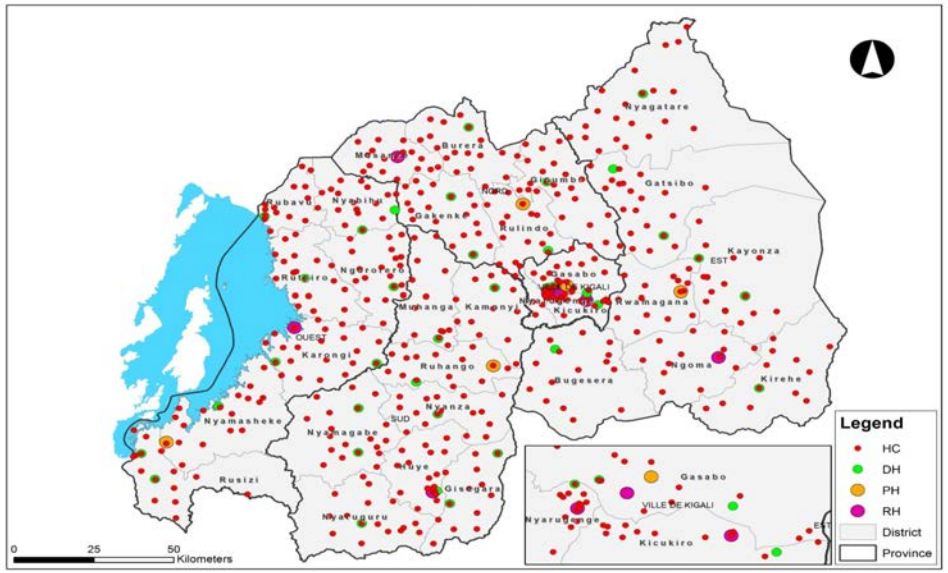
Collaboration with TB program

- Engaging in discussions with TB program to integrate viral load testing with GeneXpert
- Leverage on existing sample transport systems

Collaboration with HIV program

- Shared testing platforms with HIV
- Use existing facilities, procurement, infrastructure and staff for decentralized service delivery





Health
ization

Smart procurement for HCV elimination

Elimination Launch was a catalyst to achieve the best commodity price
Leveraging the negotiated commodity price for hepatitis to other diseases (HIV, HBV, HPV)

- **Costing of commodities**

-
- Prevalence estimation from high risk groups
- Costing models developed
- Volumes of commodities calculated

- **Price negotiations**

- In Country registration expedited to allow options + competition; Volumes shared
- Price Negotiations : - $60 per DAAs cure
  - <$10 per viral load test
  - <$1 per RDT
  - Total cost of cure ~ $80

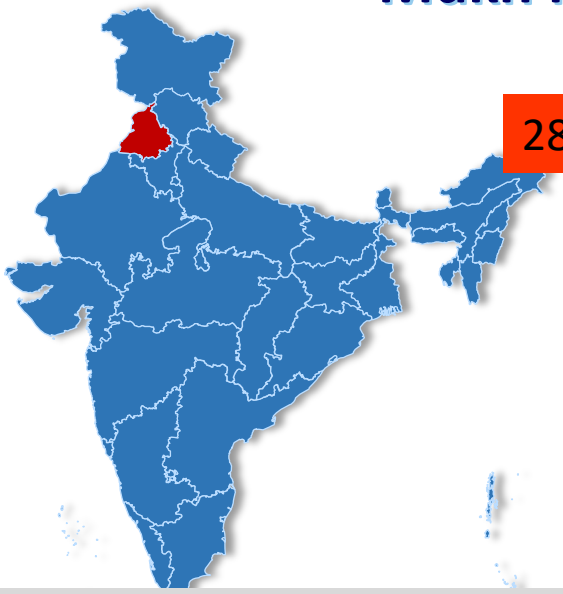
- **Commodity procurement**

New single source contracts signed to accelerate procurement

World Health Organization

Free treatment of hepatitis C in Punjab, India

Mukh Mantri Punjab Hepatitis C Relief Fund (MMFHCRF)



28 million

3.29%

600,000 (HCV RNA +)

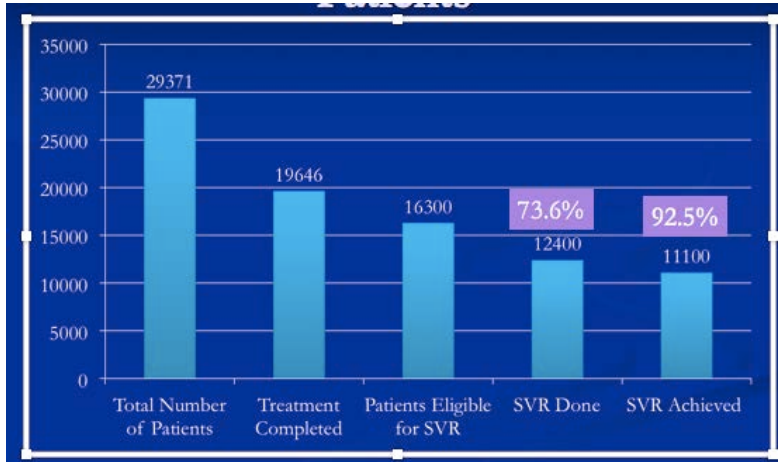
71% GT3

Risk Factors

- Unsafe injections
- Dental/surgical equipment

Key features

- **Launched** 18 June 2016
- **Setting**: 25 sites (22 Civil Hospitals in each district + 3 Government Medical Colleges) in Punjab
- All ≥ 18 years; All GTs, cirrhotics + noncirrhotics
- **Treatment regimen:** ($115-200)
  - GT1 /4 (SOF/LED ± RBV)
  - GT3 (SOF/DAC ±RBV)



Capacity building of Healthcare workers -crucial to scale up of treatment access

Hub: PGIMER, Chandigarh, Punjab

Spokes: 25 centers (3 GMCs + 22 District Hospitals)

Training of non-specialists: 4 hr Hep C Workshop. Approximately, 250 physicians have been trained

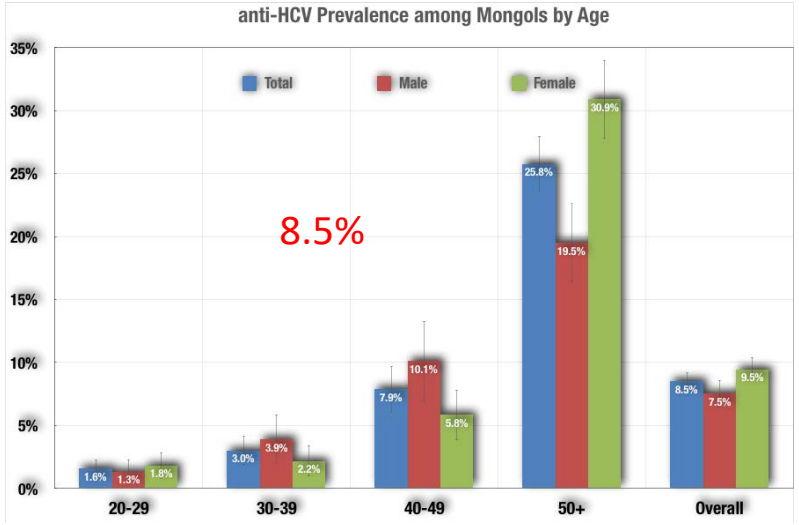
Ongoing support: Case discussions, didactic lectures, What's App Group

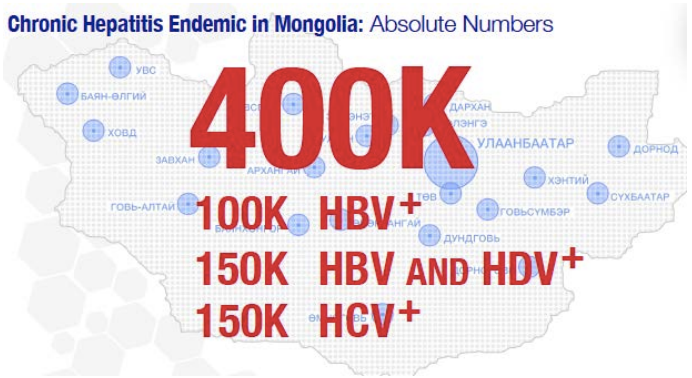
Utilizes Extension for Community Health Outcomes (ECHO) platform

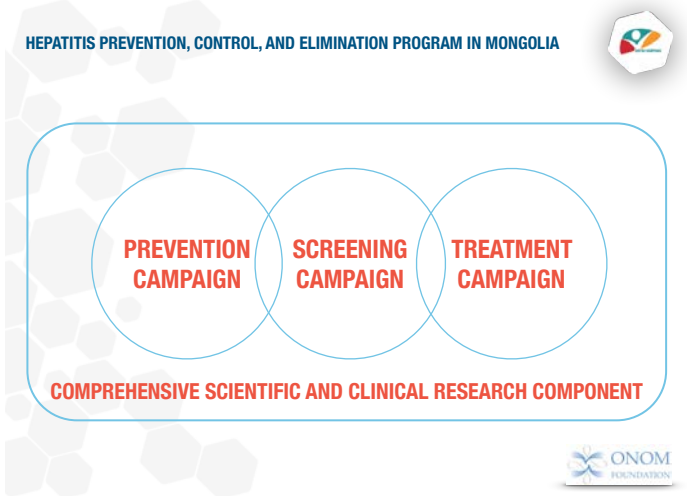
Hepatitis Prevention, Control and Elimination Program in Mongolia

MISSION-2020

- TO ELIMINATE CANCER-CAUSING HEPATITIS C VIRUS IN MONGOLIA BY 2020
- TO SIGNIFICANTLY REDUCE HEPATITIS-INDUCED LIVER CIRRHOSIS AND HEPATOCELLULAR CARCINOMA MORTALITIES IN MONGOLIA







Key features

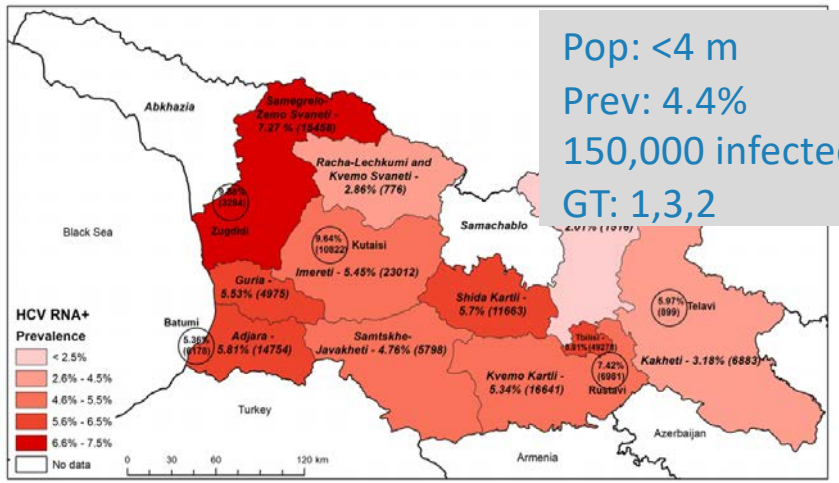
- Decentralized population screening campaign using on-site rapid tests
- 567 1º+2º healthcare facilities
- Aim to screen 2.2m Mongols ≥15 yr
- 2017: 277,000 screened; 45,000 HCV Ab +; 30,000 HCV RNA, 18,000 DAA (SOF/LED – 98%1b)

Success factors

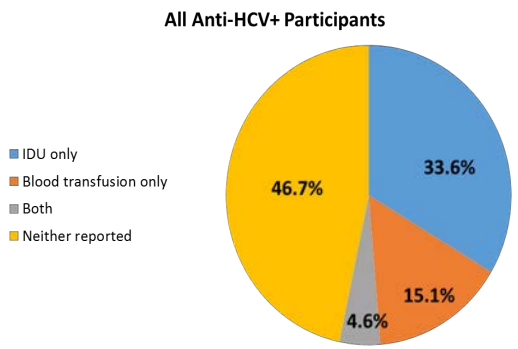
- Strong advocacy (Onom)
- Bipartisan political engagement
- Economic investment case
- Partnerships (CDC/WHO/MOH/NIH)
- Funding: National Health Insurance
  - 98% population covered
  - 60-80% treatment reimbursed ($150 with $85 subsidy. Patient cost=$65)
  - HCV VL now included
  - Public and private sectors covered

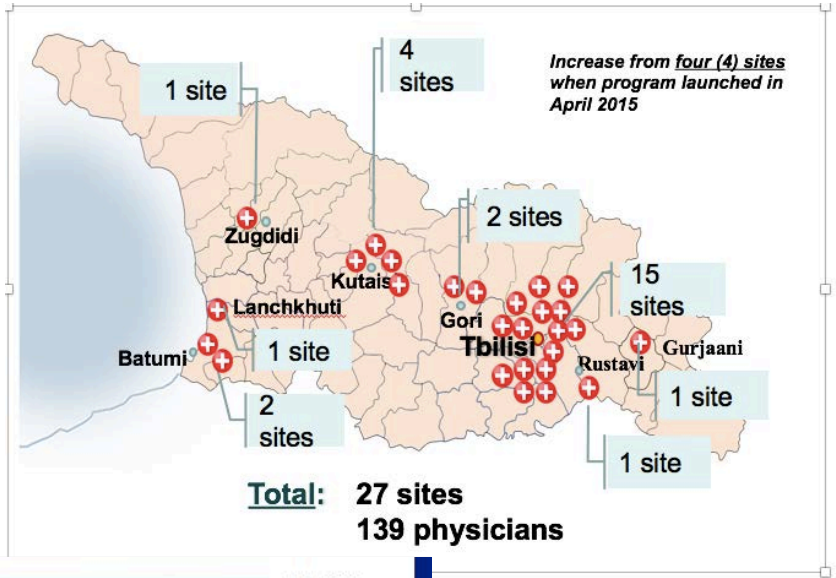
Dashtseren et al. Endemic prevalence of hepatitis B and C in Mongolia: A nationwide survey among Mongolian adults. JVH 2017

Georgia Hepatitis C Elimination Program



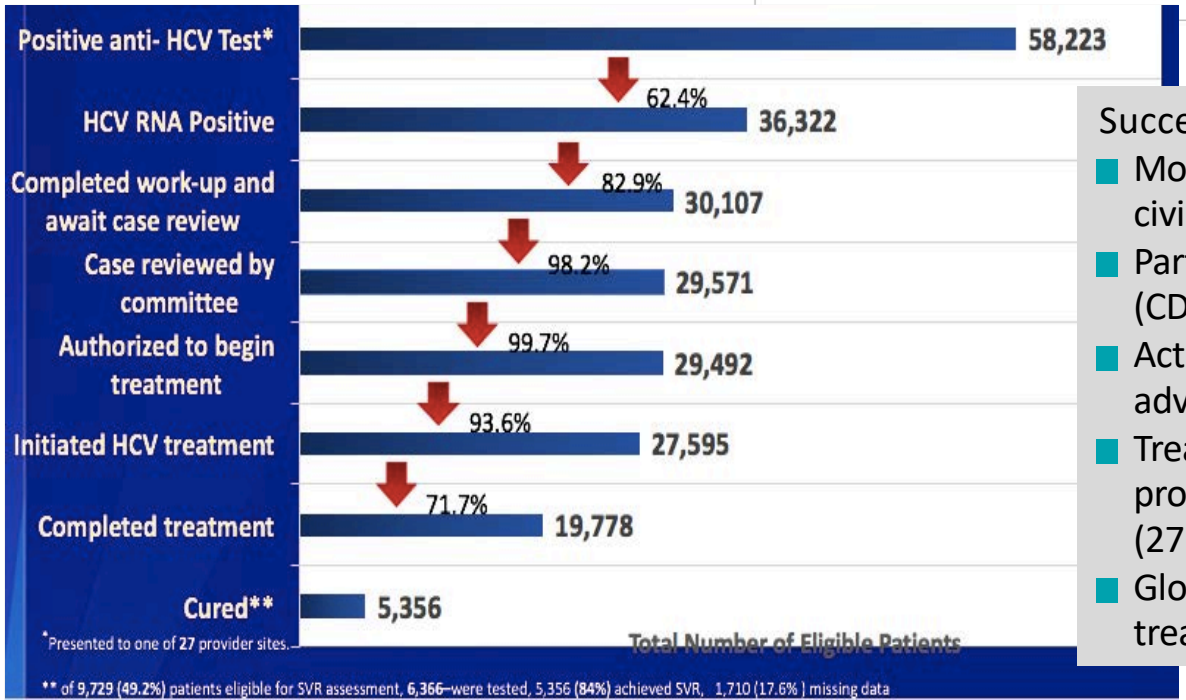
Pop: <4 m
Prev: 4.4%
150,000 infected
GT: 1,3,2





Key features

- High demand for action from the public - many families affected
- April 2015: HCV Elimination Program launched
  - Goal: reduce 5% HCV prevalence to 0.5%
- Treatment program began in prison system
- Initial phase focused on treatment of those with advanced liver disease
- June 2016: Treatment for "ALL"



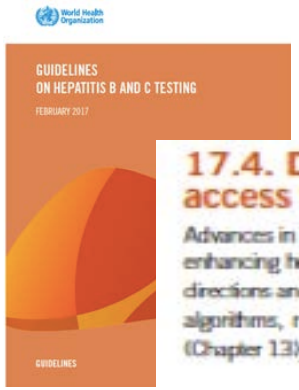
Success factors

- Motivated government and civil society
- Partnerships (CDC/WHO/MdM)
- Active community advocacy
- Treatment capacity to provide scale-up existed (27 sites, 139 doctors)
- Global Fund supported HCV treatment in HIV

National Seroprevalence Survey, 2015

What’s coming next?
Innovations and opportunities

Diagnostic Innovations and Opportunities

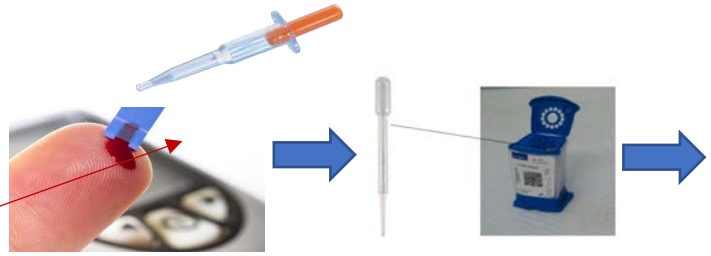


17.4. Diagnostic innovations to promote access to testing

Advances in hepatitis virus detection technology have created new opportunities for enhancing hepatitis testing, as well as monitoring the response to treatment. Future directions and innovations in testing include simplified single virological assay testing algorithms, near patient or POC assays for NAT and core antigen, DBS sampling (Chapter 13), multiplex/polyvalent platforms, and self-testing.

1. Role of point-of-care HCV viral load in improving linkage
2. Low cost HCV core Antigen RDT for confirmation of viraemic infection
3. Dried blood spots specimens for viral load ±serology
4. HCV self-testing
5. Diagnostic integration - Use of integrated multi-disease platforms (HIV, HCV RNA and HBV DNA)

Minivette capillary tube

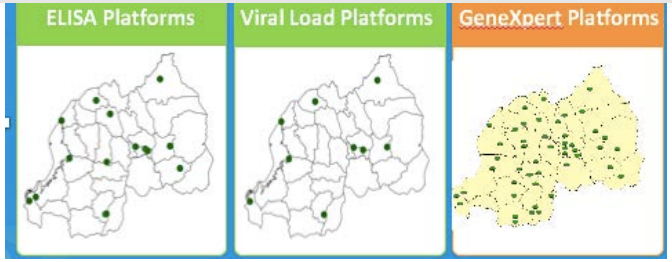


Finger-prick

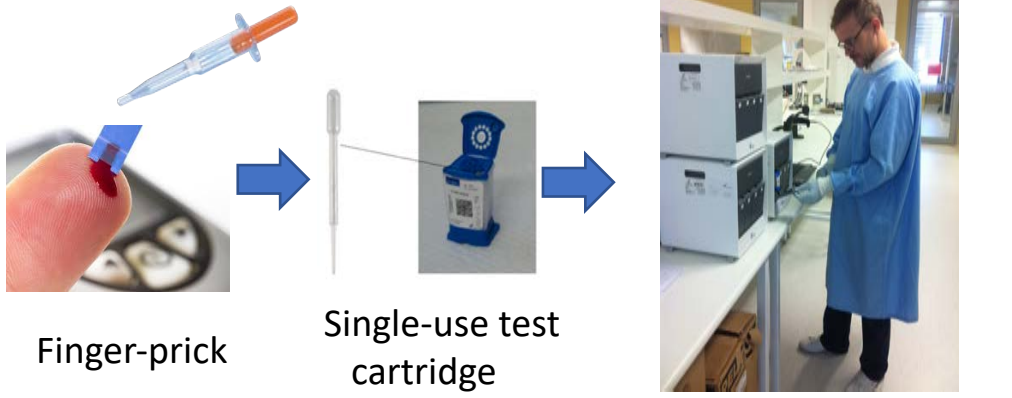
Single-use test cartridge

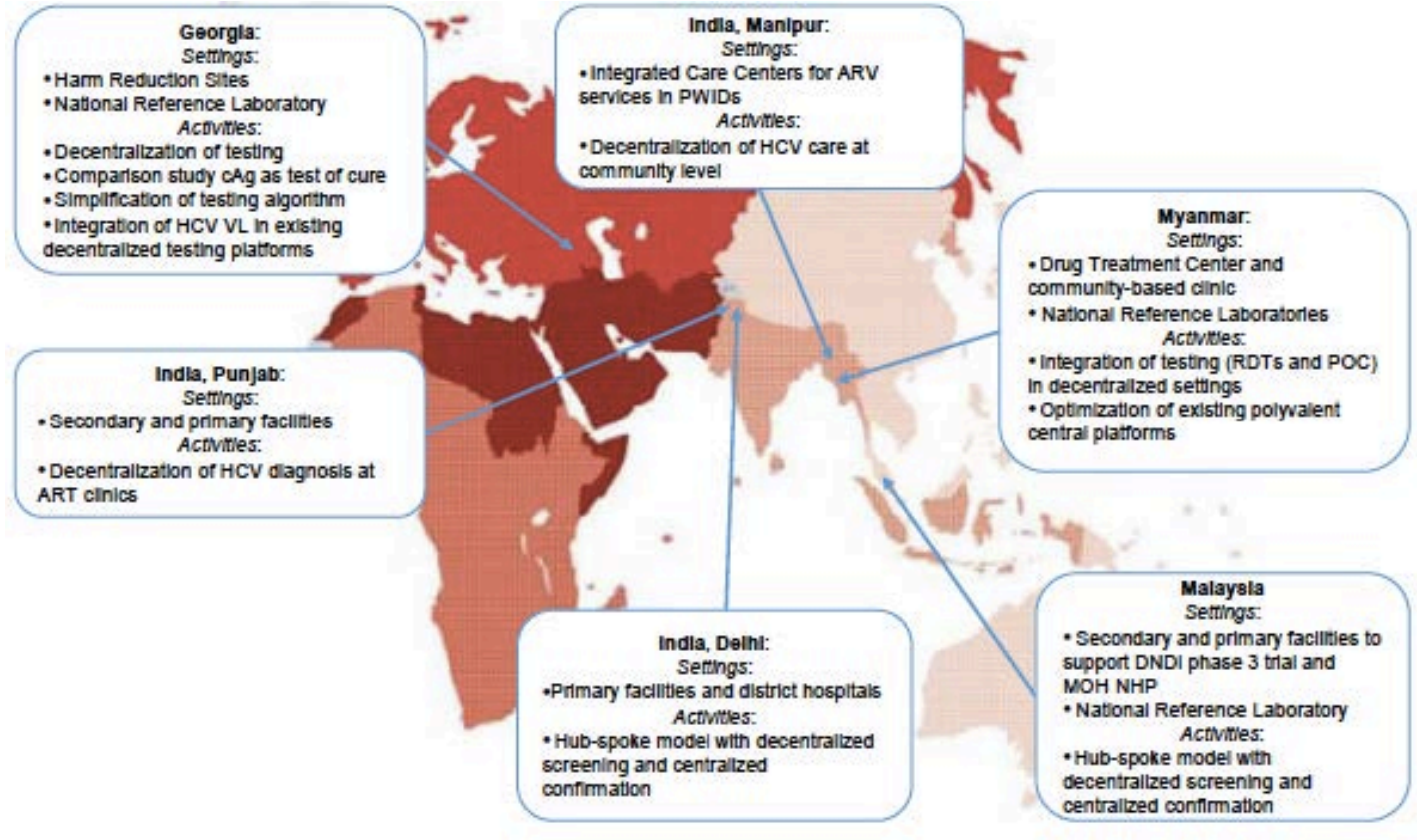
GeneXpert machine

Build on substantial existing lab and diagnostics capacity: Multiplatform testing (HIV/TB)



Role of Point-of-care viral load in improving linkage

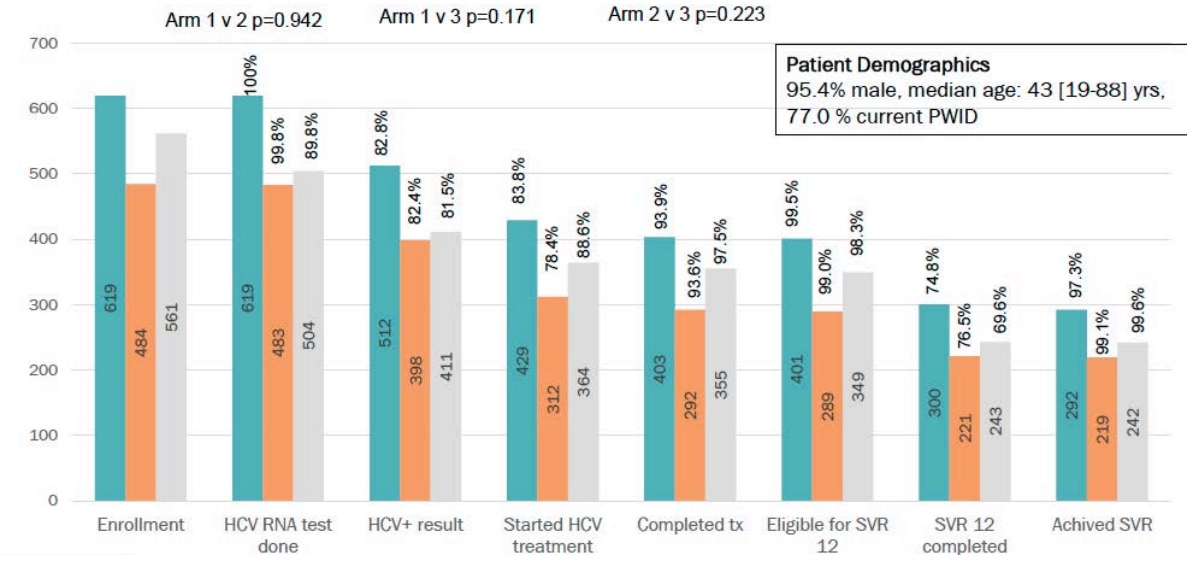




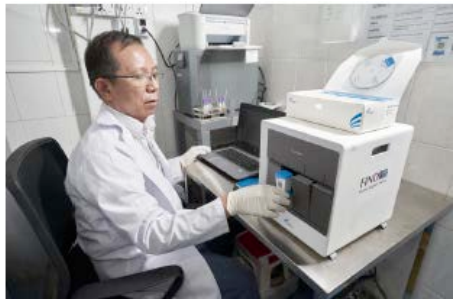
"One-stop shop" determines impact of PoC viral load in improving linkage: Projects in Georgia and Myanmar

Georgia

TAT	HCV screening and sample collection VL	VL Sample collection and completion of testing	Total Time RNA Sample to Return to patient
Arm 1	Same day	1 hr 52 min	2 hr 17 min
Arm 2	1.4 days	5.5 days	21.5 days
Arm 3	3.7 days	6.4 days	18.6 days



Myanmar



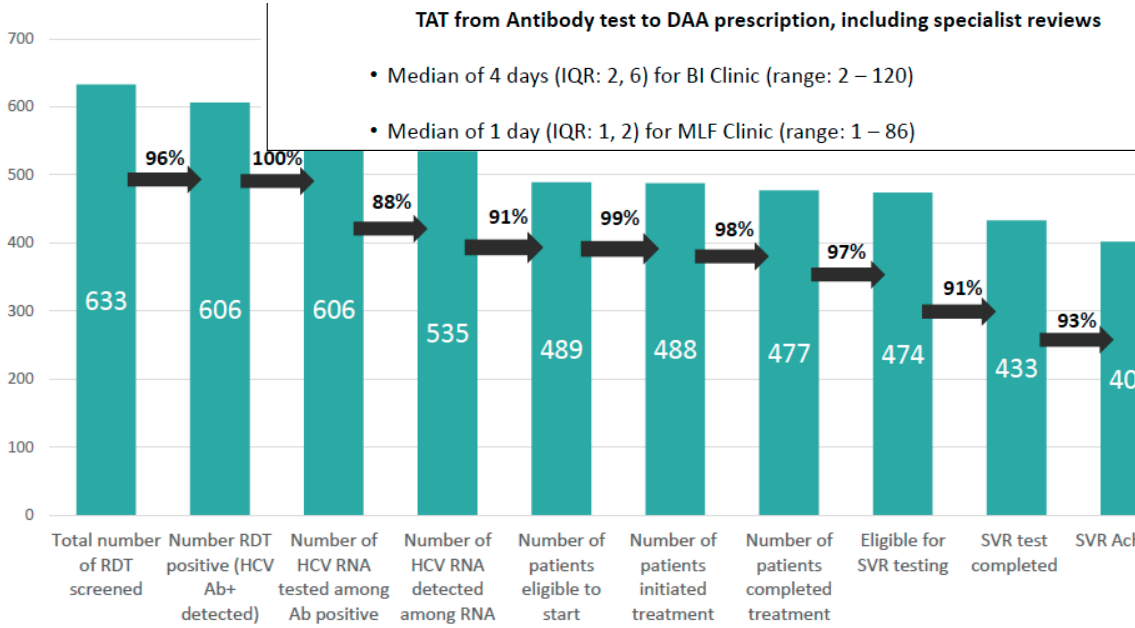
Hepatitis C - prevalence

- Population of 53 million[1]
- 2.7% anti-HCV antibody positive [2]
- 56% anti-HCV antibody positive among people who inject drugs [2]
- Most common genotypes: GT3, GT6 [2]

Results - Cascade of Care

TAT from Antibody test to DAA prescription, including specialist reviews

- Median of 4 days (IQR: 2, 6) for BI Clinic (range: 2 – 120)
- Median of 1 day (IQR: 1, 2) for MLF Clinic (range: 1 – 86)



FIND/WHO pilot feasibility studies on HCV self-testing + combo RDTs

HCV self-testing

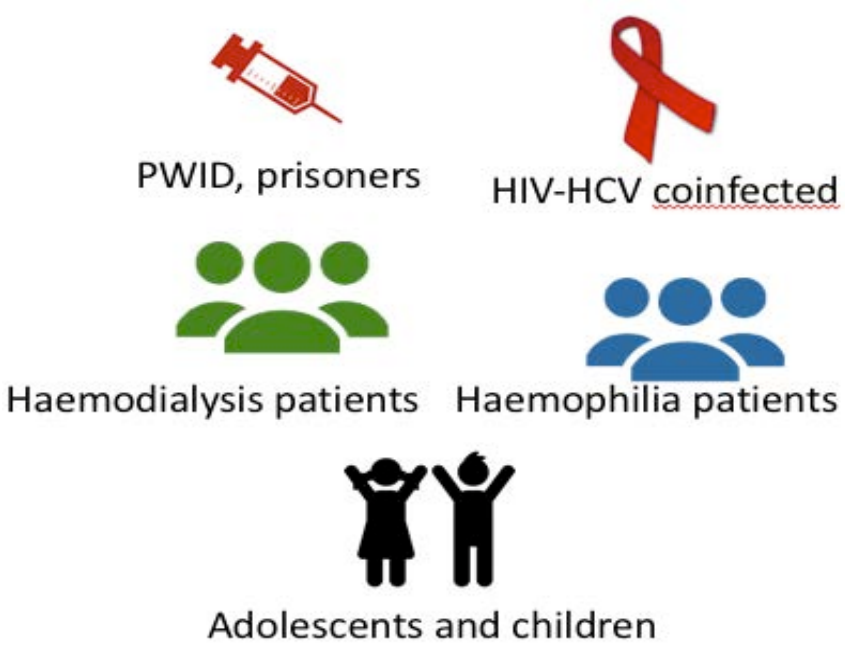
- Several countries in different geographic regions:
  - China: Guangdong Center for Skin Disease & STI Control – MSM population
  - Egypt: Egyptian Liver Research Institute and Hospital – General population
  - Kenya: UW-Kenya – PWID population
  - Georgia: NCDC – general population, MSM, PWID
  - Vietnam – community clinic, high risk population
- District hospitals and harm reduction sites
- 100-150 participants per site
- OraQuick HCV rapid diagnostic test modified for self-testing

Combo testing – studies to evaluate impact

	Combo Detection			Stringent Regulatory Authority or WHO pre-qualification status			
	HCV	HIV	HBV	Combo	HIV-only	HCV-only	HBV-only
Artron	x	x	x	CE (not for whole blood version)	CE	CE	CE
Biosynex	x	x	x	None (approved in Cameroon, registration ongoing in Senegal & Ivory Coast	CE	Not available	Not available
Maternova	x	x	x	None	CE	Not available	Not available
MedMira	x	x	x (HBc)	RUO-only	Health Canada	Not available	Not available
	x	x					
Spectrum	x		x	None	None	None	none
Euro Genomas	x		x	CE	CE	CE	CE
CTK Biotech	x		x	None	None	None	None
Qualpro Diagnostics	x	x		None	None	None	None
Premier Medical Corp (combo in development)	x	x		n/a	CE & PQ	CE	CE

Different approaches to implement simplified service delivery models to achieve elimination

- **Micro-elimination** in specific populations (prisoners, PWID, HIV-infected)

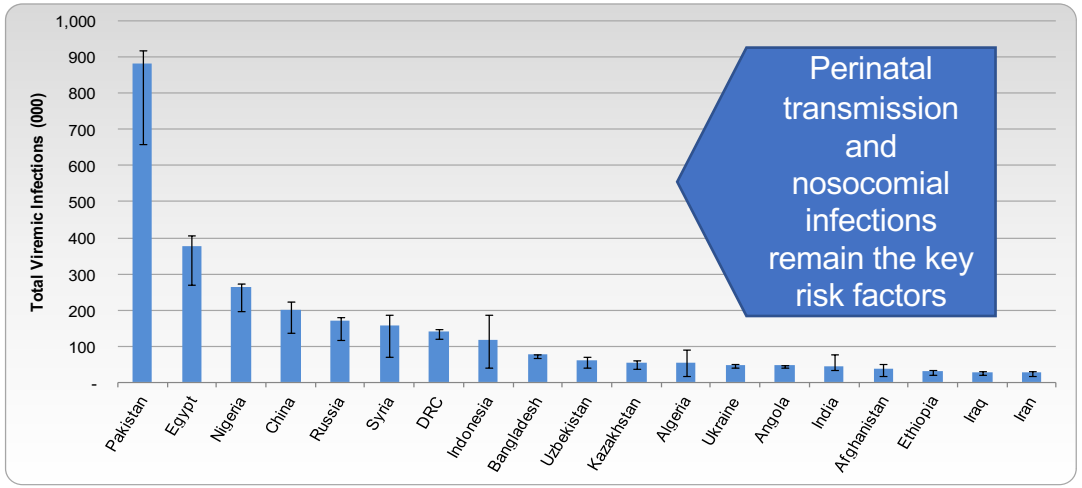


- **Hard-to-reach populations:** Mobile/Same-Day HCV + HBV test and treat

World Health Organization

Treating Hepatitis C infection in children?

HCV Epidemiology in Children



- Globally, estimated 3.5 (3.1-3.9) million children between 1- 15 years are HCV-viraemic
- 19 countries account for 80% of all infections
- Histological course of chronic hepatitis C is unpredictable
  - Risk of cirrhosis: 1-2%
  - Few children with HCC described

Source: Polaris Observatory (http://polarisobservatory.org; El-Sayed and Razavi, (2015). P1263. J Hepatol;62:S831–S832.

Why treat children?

1. Global hepatitis strategy and and 2030 goal for elimination - opportunity to consider paediatric treatment needs and options
2. Important burden of infection in some settings
3. Reduce development of chronic liver disease (cirrhosis and hepatocellular carcinoma)
4. Reduce horizontal transmission within families and school
5. Give child the opportunity to grow up free of potential stigma and psychological consequences
6. Reduce economic burden of managing chronic liver disease in adults and costs are lower in children
7. Absence of comorbidities, better compliance, better tolerance, higher SVR rates

Community-based “Educate, test and treat” approach across 73 villages

A village without hepatitis C in Egypt: will micro-elimination lead to macro-elimination?

An educate, test, and treat programme towards elimination of hepatitis C infection in Egypt: a community-based demonstration project

Gamal Shiha, Ammal M Metwally, Reham Soliman, Mohamed Elbasiony, Nabiel N H Mikhail, Philippa Easterbrook

Summary

Background Egypt has one of the highest prevalences and burdens of hepatitis C virus (HCV) worldwide, and a large government treatment programme. However, identifying and treating people who are infected in rural communities can be a substantial challenge. We designed and evaluated a comprehensive community-led outreach programme for prevention, testing, and treatment of HCV infection in one village in northern Egypt, with the goal to eliminate HCV infection from all adult villagers, and as a model for potential adoption in rural settings.

Methods A community-based education and test-and-treat project was established in Al-Othmanya village. The programme consisted of community mobilisation facilitated by a network of village promoters and establishment of partnerships; an educational campaign to raise awareness and promote behavioural changes; fundraising for public donations in the local community; and comprehensive testing, diagnosis, and treatment. For the educational campaign, we used public awareness events, house-to-house visits, and promotional materials (eg, booklets, cartoons, songs) to raise awareness of HCV and its transmission, and changes in knowledge, attitudes, and practices were measured through the use of a survey done before and after the educational campaign. Comprehensive testing, linkage to care, and treatment was offered to all eligible villagers (ie, those aged 12–80 years who had not previously been treated for HCV). Testing was done by use of HCV antibody and hepatitis B surface antigen (HBsAg) rapid diagnostic tests, with HCV-RNA PCR confirmation of positive cases, and staging of liver disease by use of transient elastography. HCV-RNA-positive participants were offered a 24-week course of sofosbuvir (400 mg orally, daily) and ribavirin (1000–1200 mg orally, daily) with an assessment of cure (sustained virological response) at 12 weeks after completion of treatment (SVR12).

Findings Between June 6, 2015, and June 9, 2016, 4215 (89%) of 4721 eligible villagers were screened for HCV antibodies and HBsAg. Of these participants, 530 (13%) were HCV antibody positive and eight (<1%) were HBsAg positive. All HCV-antibody-positive individuals had an HCV-RNA assay, and 312 (59%) were HCV-RNA positive. All 312 completed a full baseline assessment with staging of liver disease, and 300 (96%) were given 24 weeks of sofosbuvir and ribavirin treatment within a median of 2·3 weeks (IQR 0·0–3·7) from serological diagnosis. 293 (98%) of the treated participants achieved SVR12. 42 (13%) HCV-RNA-positive participants had cirrhosis as determined by transient elastography, of whom 12 (29%) were diagnosed with hepatocellular carcinoma on the basis of α-fetopro… after educat… transmissio…

Interpretatic… testing, link… practices to … rural setting…

Funding Egy…

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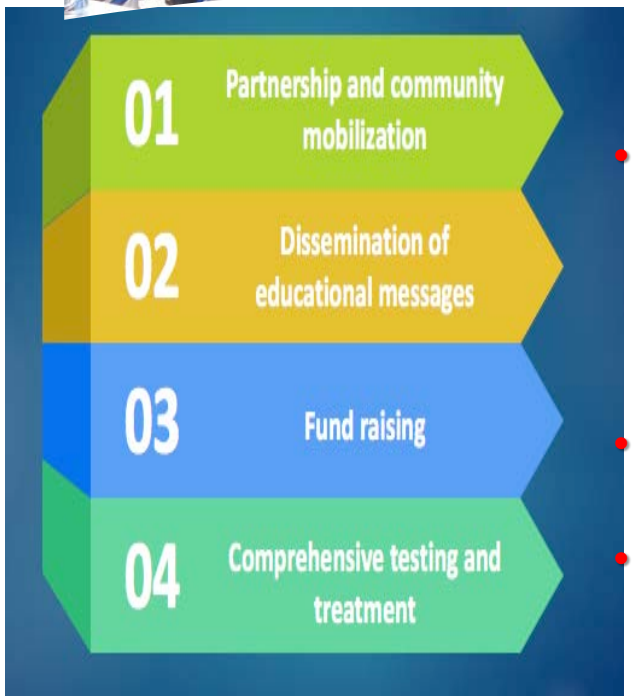
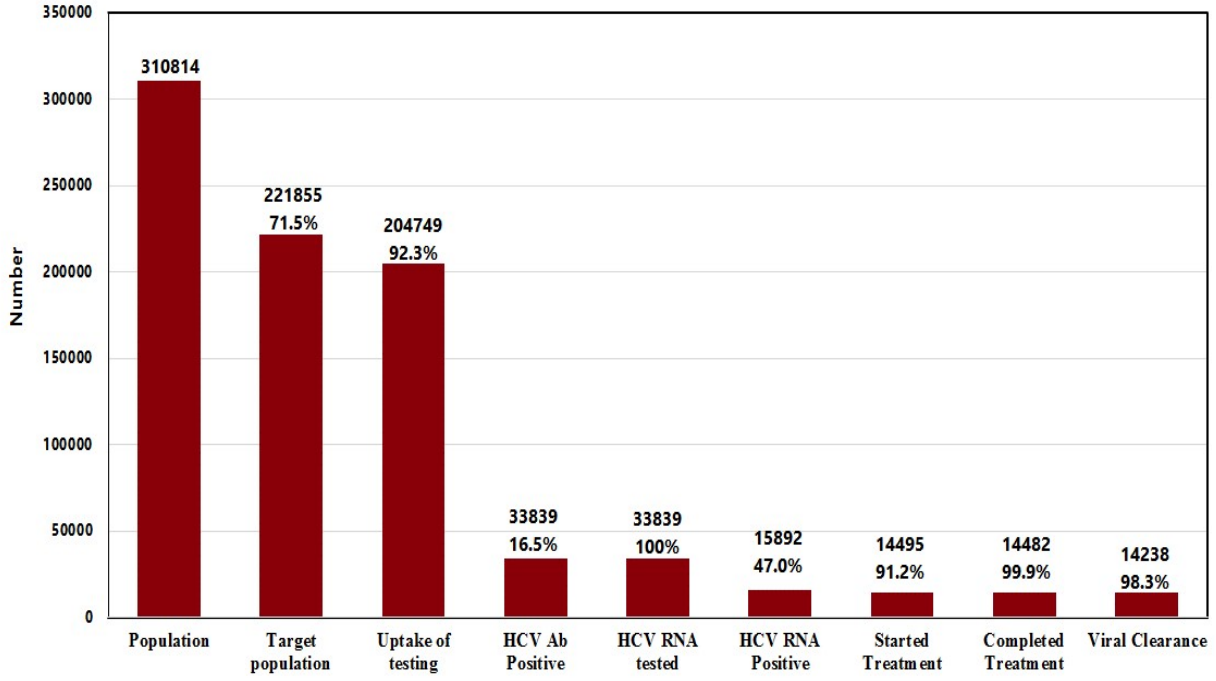


- **Community mobilization** facilitated by network of village promoters to implement an educational and testing campaign;
- **Educational campaign** with dissemination of educational messages about safer practices to reduce transmission, through public events, house-to-house visits, and use of promotional materials
- **Fundraising for public donations** in local community;
- **Free testing, linkage to care and treatment** for all eligible villagers (aged 12–80 years not previously treated)

Feasible and effective as model for village micro-elimination

1. High coverage across HCV cascade



Treatment coverage and cure of **85%** of estimated 17137 infected villagers aged 12-80 years across 73 villages.

Shiha et al, J Hepatol 2019

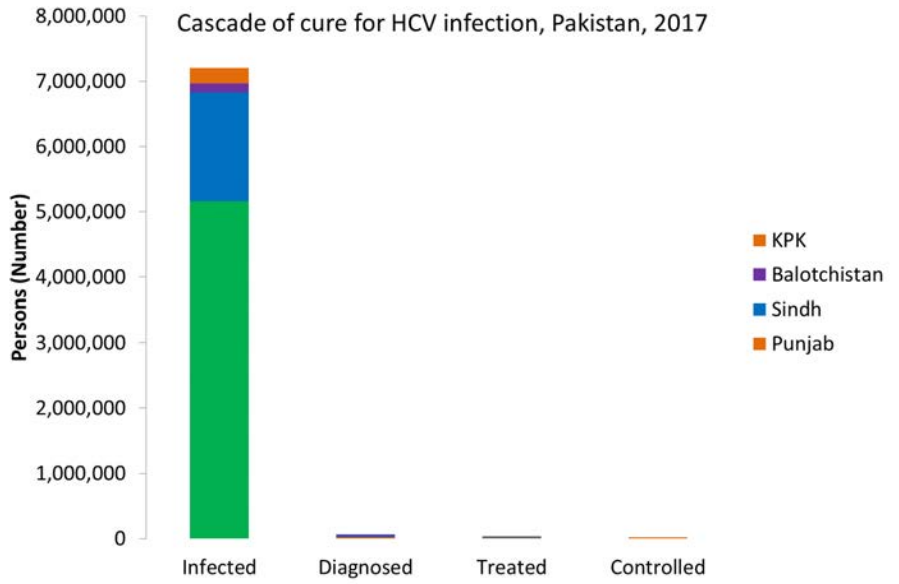
2. Improvement in KAP post educational campaign

	Before intervention	After intervention
Awareness and knowledge of behaviours that can lead to HCV transmission		
Use of previously used syringes	2635/3575 (74%)	3260/3575 (91%)
Sharing of shaving equipment or nail cutters, or both	2077/3575 (58%)	2831/3575 (79%)
Sharing of toothbrush with other family members	561/3575 (16%)	2470/3575 (69%)
Use of non-sterilised equipment during dental procedures	794/3575 (22%)	3525/3575 (99%)
Self-reported adoption of practices to prevent HCV transmission		
Use of their own shaving instruments at the barber shop†	1210/1859 (65%)	1493/1845 (81%)
Checking for use of sterilised tools at dental clinic‡	757/2145 (35%)	2107/2139 (99%)
Informing the dentist if they have or previously had HCV§	88/312 (28%)	233/312 (75%)
Not sharing nail cutters and scissors among family members	1891/3575 (53%)	3563/3567 (>99%)
Not sharing loofah and sponge for personal cleaning among family members	2803/3575 (78%)	3563/3567 (>99%)
Not sharing shaving tools with other family members¶	1028/1859 (55%)	1843/1845 (>99%)
Not sharing toothbrush with other family members	3393/3575 (95%)	3563/3567 (>99%)

3. >90% reduction in incidence of new infections

Newly screened	% Coverage	Negative	Positive PCR	Incidence rate / 1000 py	95% C.I.
3662	99.4%	3660	2	0.18	0.031-0.602
4228	96.2%	4221	7	0.68	0.272-1.392
2971	96.4%	2968	3	0.41	0.105-1.122
482	97.0%	481	1	0.85	0.042-0.418
985	97.7%	984	1	0.17	0.028-0.559
637	98.0%	636	1	0.64	0.032-3.159
4121	95.8%	4119	2	0.2	0.050-0.792
1513	95.6%	1513	0	0	0.0-0.0
1217	94.1%	1215	2	0.67	0.168-2.681
19816	96.7%	19797	19	0.37	0.241-0.593

Pakistan – just starting on a fast-track to HCV elimination

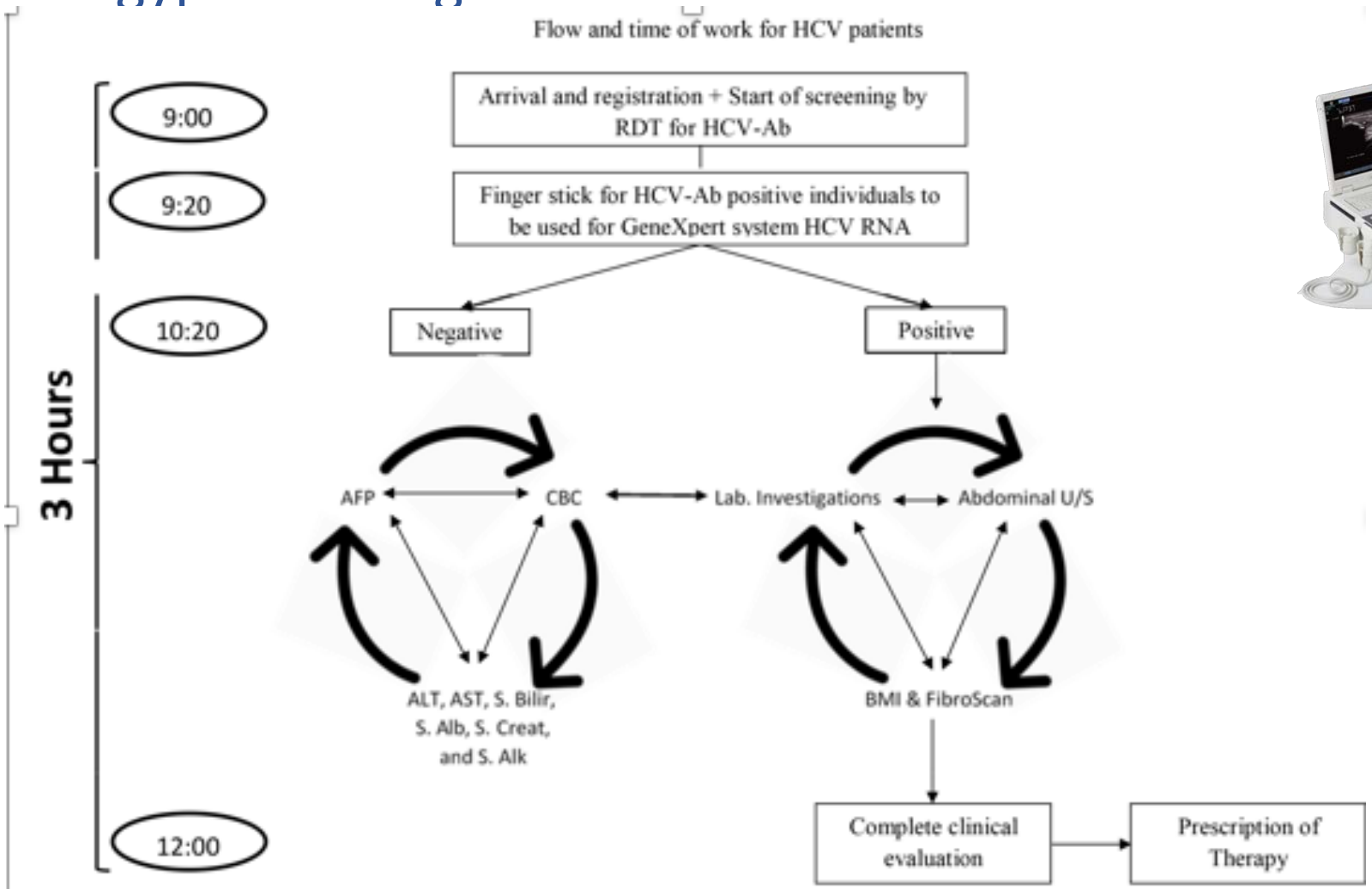


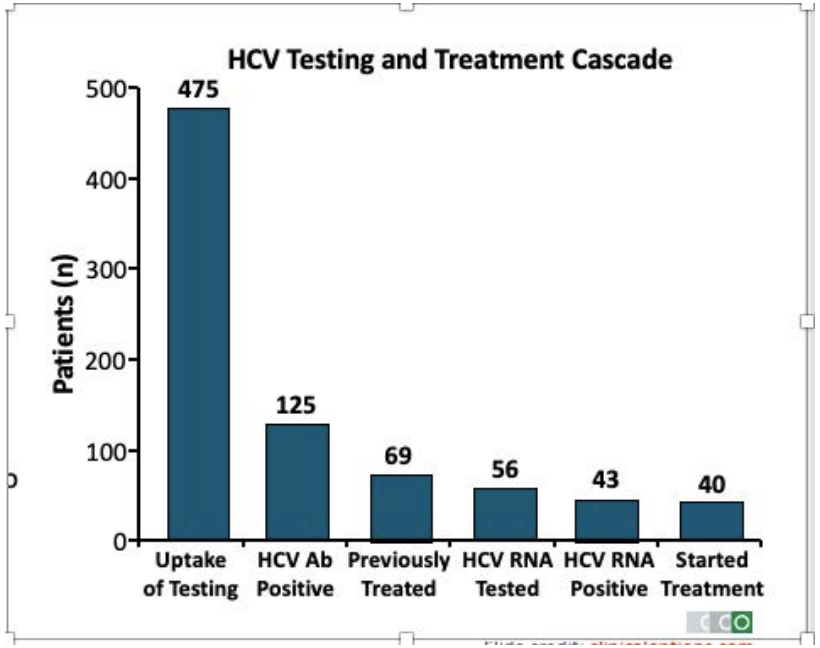
One time Population Screening and 90% linked to testing and treatment

- Total Population=200 million
- Screen 140 million (exclude<12 years)
- Assume 10% anti-HCV pos = 14 million
- Assume 90% NAT tested = 12.6 million
- Assume 80% NAT pos =10.1 million and will require treatment to cure

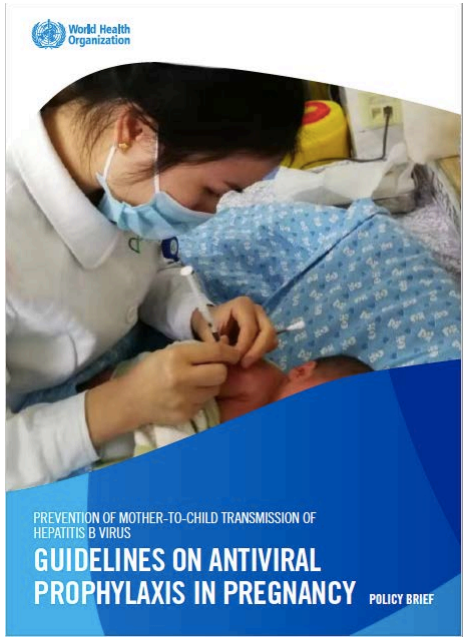
Model for hard-to-reach populations

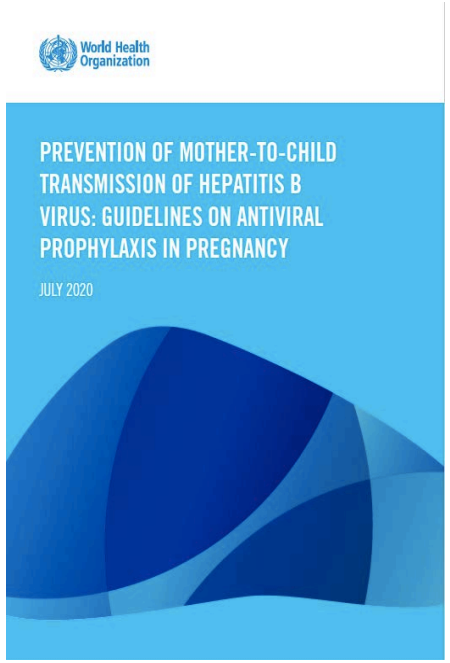
Pilot Study of Mobile Same-Day HCV/HBV Test and Treat in Egyptian Village

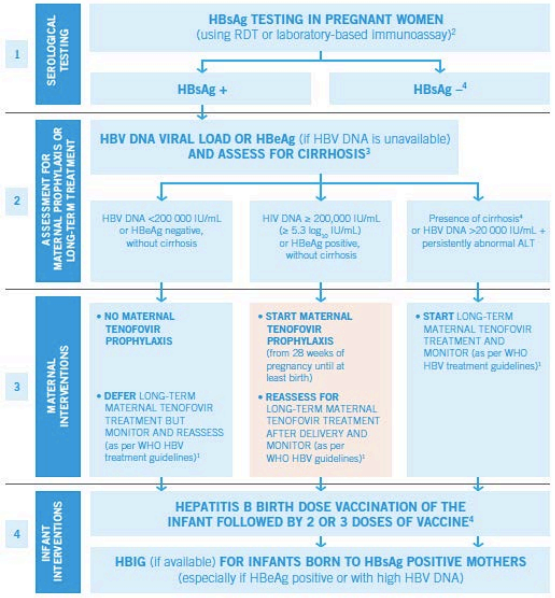




New WHO guidelines on PMTCT of hepatitis B







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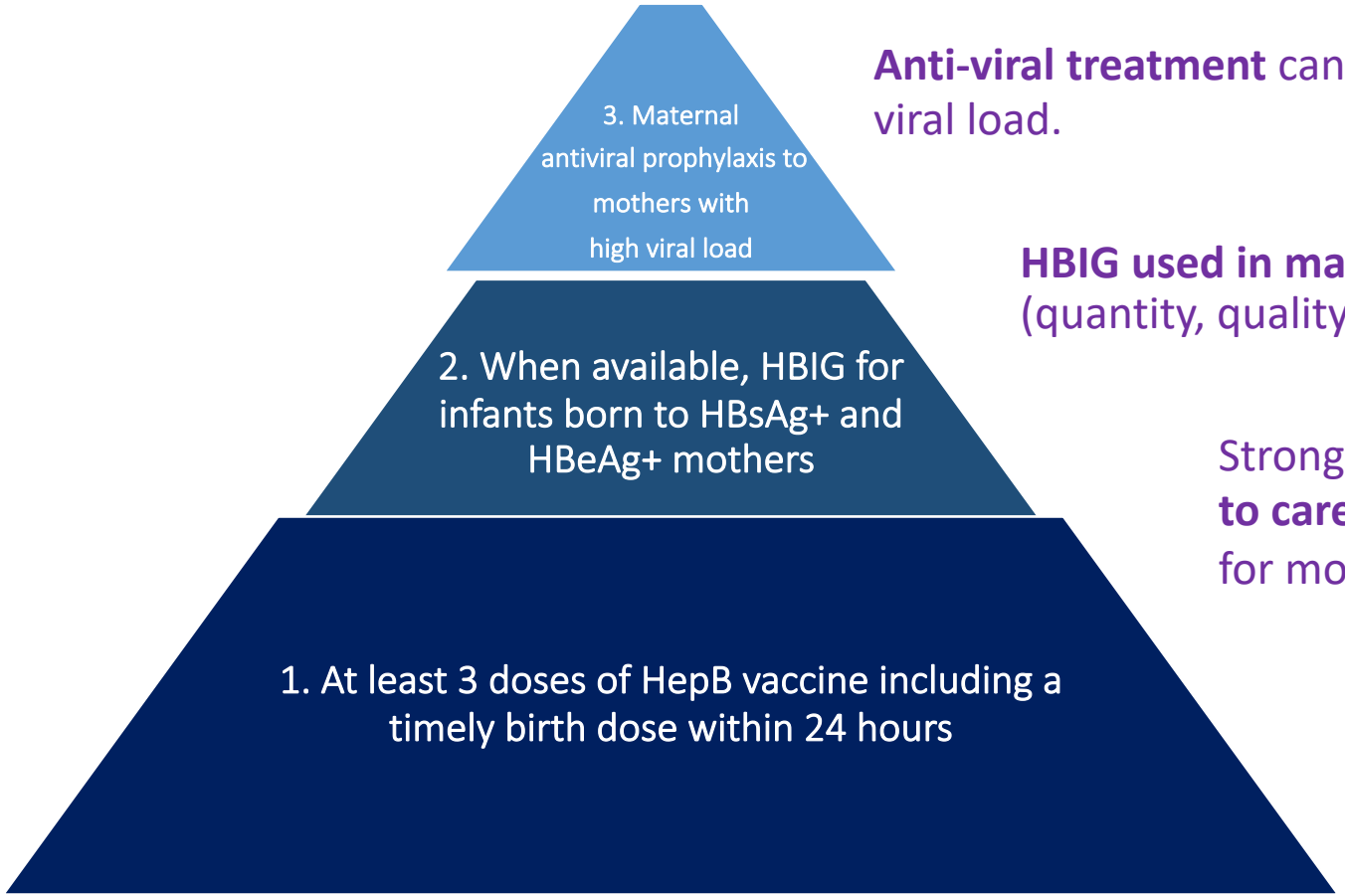
Incremental approach to prevention of HBV infection at birth and in the first years of life

Interventions at base of pyramid benefit the largest number and are necessary for those at the top of the pyramid to be effective



Anti-viral treatment can make a difference for subgroup of women with high viral load.

HBIG used in many high income countries, but supply issues (quantity, quality) in most LMICs

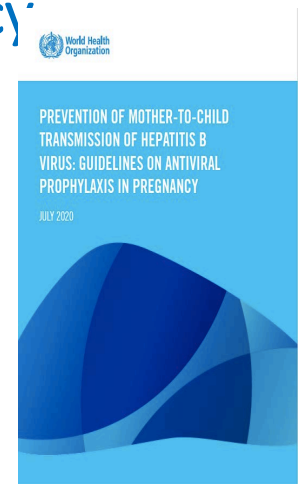
Strong **system for HBsAg testing in pregnant women and link to care** is foundation for additional interventions and allows for monitoring of impact.

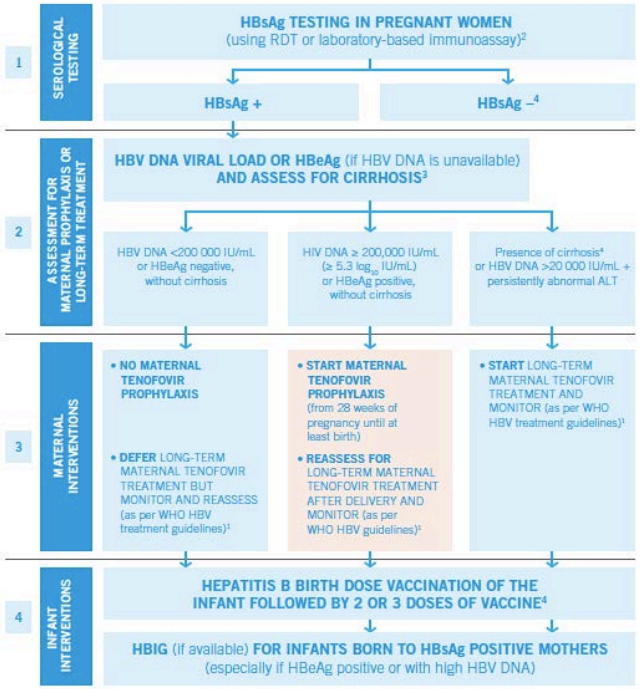
Three doses of vaccine reduces new infections in neonates and infants. Universal timely BD is main defence against perinatal infection for all infants.

New WHO recommendations on prevention of mother-to child transmission of HBV: Guidelines on antiviral prophylaxis in pregnancy (July 2020)

- Pregnant women testing positive for HBV infection (HBsAg positive) with an HBV DNA 200,000 IU/mL (≥ 5.3 log10 IU/ml)* **receive tenofovir prophylaxis from the 28th week of pregnancy until at least birth**, to prevent mother to child transmission of HBV. This is in addition to three doses of HBV vaccination, including timely birth dose (*conditional recommendation, moderate quality of evidence*)

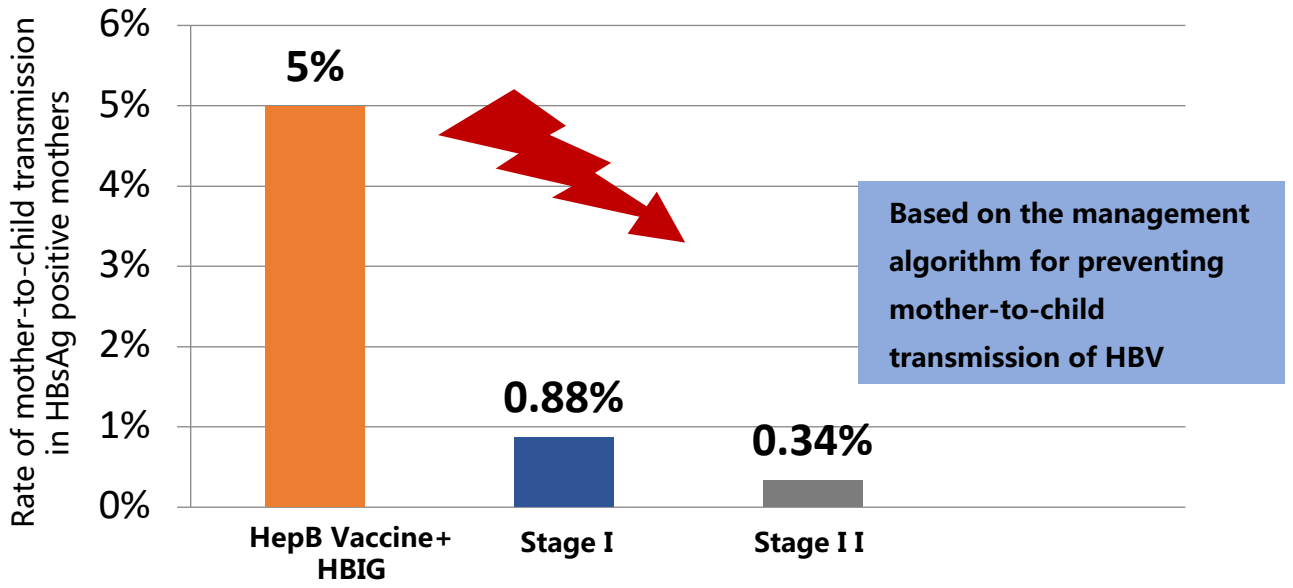
- In settings in which antenatal HBV DNA testing is not available, **HBeAg testing can be used as an alternative to** HBV DNA testing to determine eligibility for tenofovir prophylaxis, to prevent mother to child transmission of HBV (*conditional recommendation, moderate quality of evidence*)





Impact of antivirals on MTCT rate in Shield Project in China

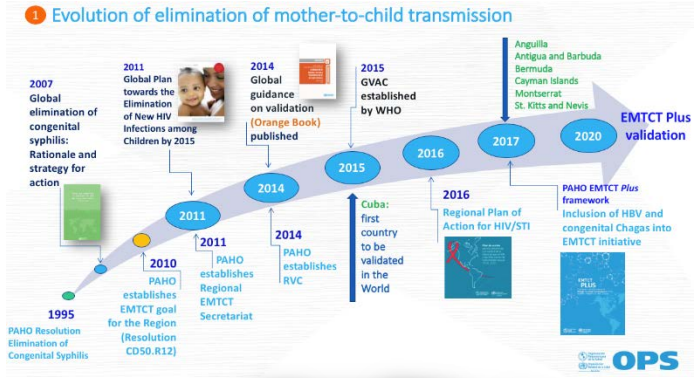
	Sites	No.	MTCT rate
Stage I	10	1008	0.88%
Stage I I	132	30700	0.34%*

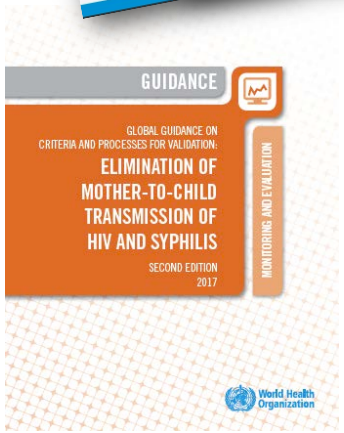


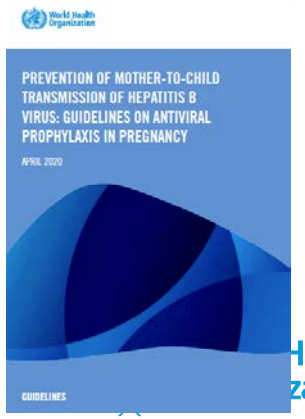
JL Hou et al. JCTH 2020 *Interim analyses (as of Dec. 2019)

Opportunities to advance the HBV EMTCT agenda
Validation of viral hepatitis elimination meeting June 2020

- Triple elimination of HIV, syphilis and HBV in PAHO and WPRO and now globally
- Planned 2020 update to the "Orange book" - *Global guidance on criteria and processes for validation of elimination of mother-to-child transmission of HIV and syphilis*
- Updated 2019 HIV testing recommendations for routine testing for HIV, syphilis and HBsAg in pregnant women
- New 2020 PMTCT guidelines on use of antivirals in HBsAg positive women with high HBV DNA viral load

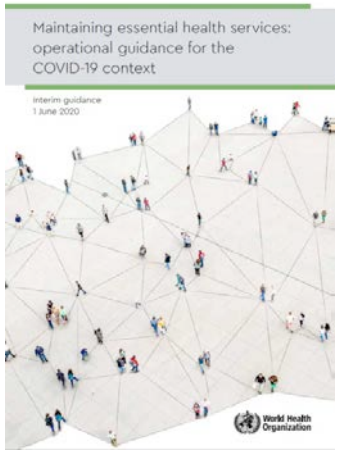






COVID-19 - Opportunities

- **Health is a public good**: importance of health for social and economic development
- Universal Heath Coverage: **UHC now more than ever**
- **Innovations in delivery** of services: courier, telehealth, virtual communities, solutions-focused private sector, novel service approaches to most vulnerable, investments in data systems and surveillance, IPC, laboratory
- Engaging and **empowering communities** with **rise in health literacy**
- **Decentralization** of services through primary care
- Re-focus on **addressing social determinants**, inequality and the most vulnerable



Source: WHO maintaining essential health services operational guidance for the COVID-19 context; WHO community based health care & covid-19; EURO 16 health systems policy recommendations to respond to COVID-19. IPC: infection prevention and control

Challenges and strategies to overcome

- **HCV:** Rapid introduction of simplified care model is key
- **HBV:** Gaps in partner activity; Treatment indications less clear; Simplified care models are needed
- **Guiding countries on integration with other disease areas (UHC)**
- **Opportunities for more efficient procurement:** country support for forecasting, drug registration, procurement, price negotiation
- **Gaps in prevention:** Hepatitis B birth-dose in Africa. Gaps in access to harm reduction services
- **No global funder -** sustainable financing towards Universal Health Coverage (UHC) – primarily a country responsibility, as major global funding unlikely; reduce out of pocket costs
- **Innovations:** Use of PoC viral load, Combo testing, HCV Self-testing, low cost POC core antigen test

World Health Organization

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FRAMEWORK FOR GLOBAL GOOD PRACTICES AND LESSONS LEARNED IN VIRAL HEPATITIS RESPONSE PROJECT

PLANNING THE RESPONSE

GOVERNANCE	1. Political Leadership
	2. Hepatitis Champions and Strong Partnerships
	3. Community Engagement and Leadership
STRATEGIC PLANNING	4. Defining the epidemic to inform the response
	5. Comprehensive National Plans
	6. Mapping of Laboratory Infrastructure and Capacity
	7. Investment case development
	8. National Health Insurance and other financing options

DRIVING THE RESPONSE

DRUGS AND DIAGNOSTICS ACCESS	9. Registration strategies
	10. Forecasting and Quantification for Supply Planning
	11. Optimizing procurement
SERVICE DELIVERY	12. Simplified Service Delivery
	13. Integration with Harm reduction among people who inject drugs
	14. Training the Health Workforce

EVALUATING THE RESPONSE

15. Information systems to monitor performance

World Health Organization