HIV Learning Network
The CQUIN Project for Differentiated Service Delivery

icap Global Health

Testing for HIV, hepatitis B, and syphilis during pregnancy and postpartum: WHO guidance and policy uptake

Magdalena Barr-DiChiara, World Health Organization

Leveraging DSD Strategies to Optimize HIV Testing and Linkage Services
March 13-16, 2023 | Nairobi, Kenya

Dual HIV/syphilis rapid diagnostic tests can be used as the first test in antenatal care and for key populations

WHO recommendations and implementation guidance

All **pregnant women should be tested for HIV, syphilis and hepatitis B surface antigen** (HBsAg) at least once and as early as possible, ideally at the first antenatal care visit

Dual HIV/syphilis rapid diagnostic tests (RDTs) can be considered as the first test in HIV testing strategies and algorithms in ANC settings.

Dual HIV/syphilis rapid diagnostic tests (RDTs) may be considered for use among key populations and can increase access to both HIV and syphilis testing services.

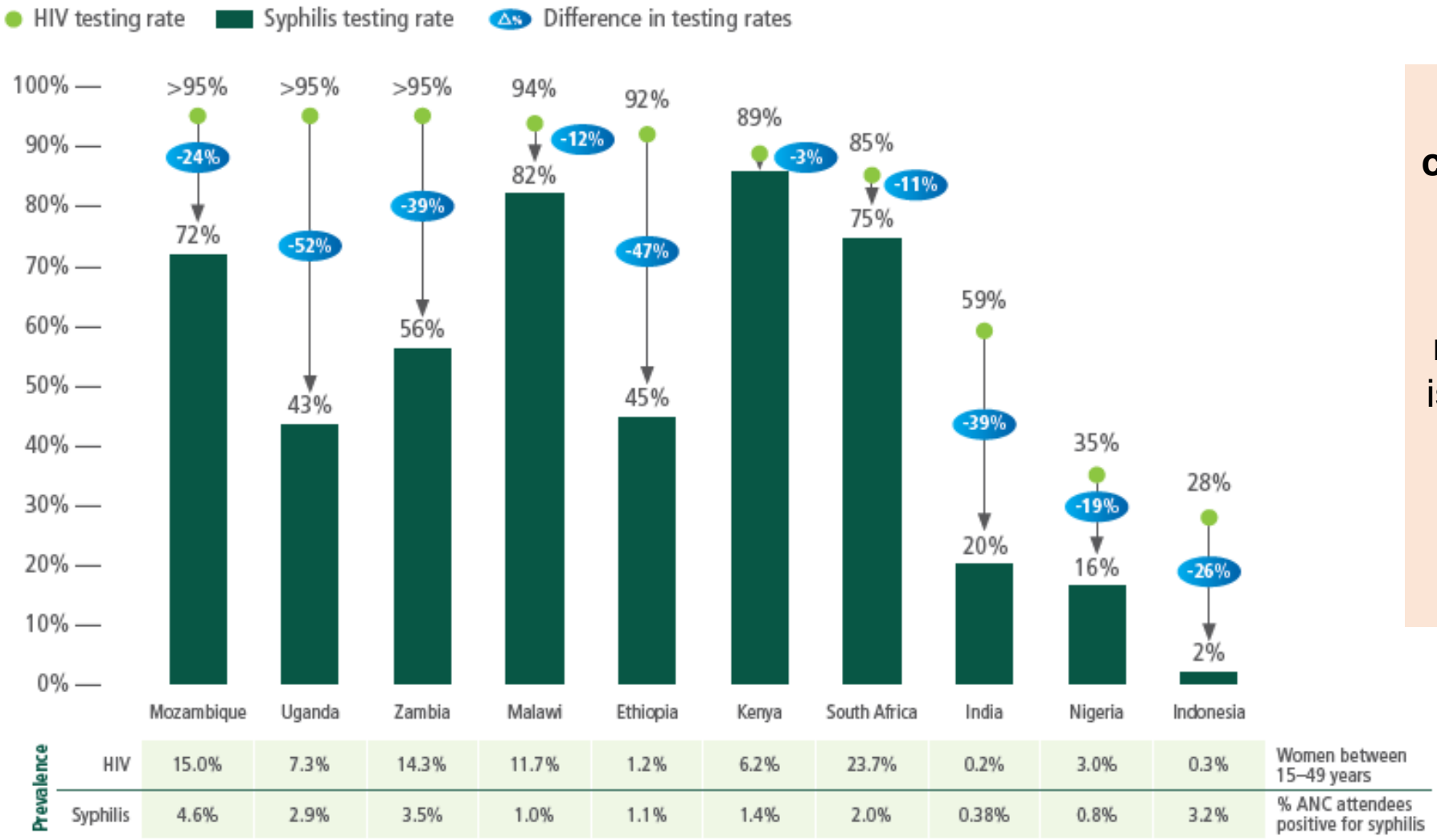
Further testing to confirm syphilis diagnosis or offer of treatment depends on local epidemiology, past treatment history, available resources and confirmatory testing capacity, and national protocols.

Mathematical modeling among key populations in Viet Nam shows that using dual HIV/syphilis RDT is cost saving compared to separate HIV and s[illegible] tests at current coverage.

https://www.who.int/publications/i/item/dual-hiv-syphilis-rapid-diagnostic-test
https://www.who.int/publications/i/item/9789240052390

World Health Organization

Differences in coverage of testing for HIV and syphilis in pregnant women visiting ANC in 10 countries, 2016–2018



Prevalence	Mozambique	Uganda	Zambia	Malawi	Ethiopia	Kenya	South Africa	India	Nigeria	Indonesia	
HIV	15.0%	7.3%	14.3%	11.7%	1.2%	6.2%	23.7%	0.2%	3.0%	0.3%	Women between 15–49 years
Syphilis	4.6%	2.9%	3.5%	1.0%	1.1%	1.4%	2.0%	0.38%	0.8%	3.2%	% ANC attendees positive for syphilis

ANC = antenatal care

Source: Storey A, Seghers S, Pyne-Mercier L, Peeling R, Newman Owiredu M, Taylor M. Syphilis diagnosis and treatment during antenatal care: the potential catalytic impact of the dual HIV and syphilis rapid diagnostic test. Lancet Glob Health. 2019; 7(8): e1006-e1008.

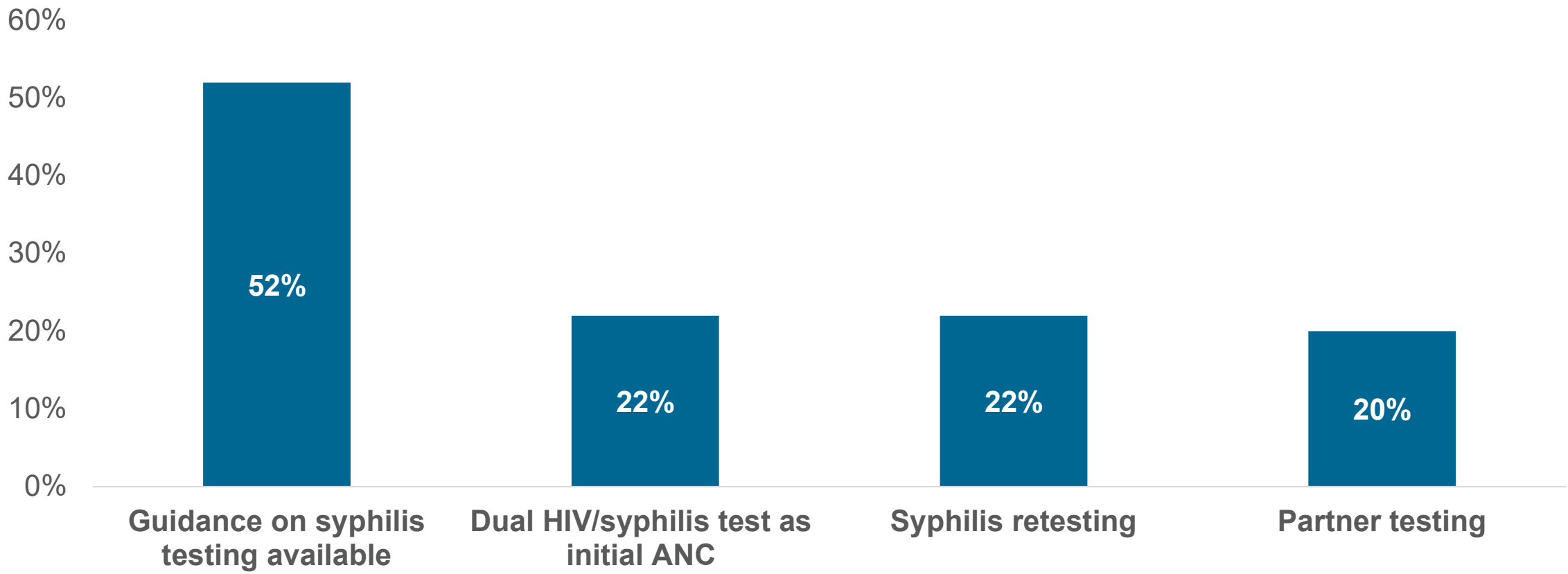
Syphilis testing coverage: considerably lower coverage than HIV

Introducing dual HIV/syphilis rapid tests as first test in ANC is cost-saving in both high and low HIV burden settings

Dual HIV/syphilis RDs can help close the gap!

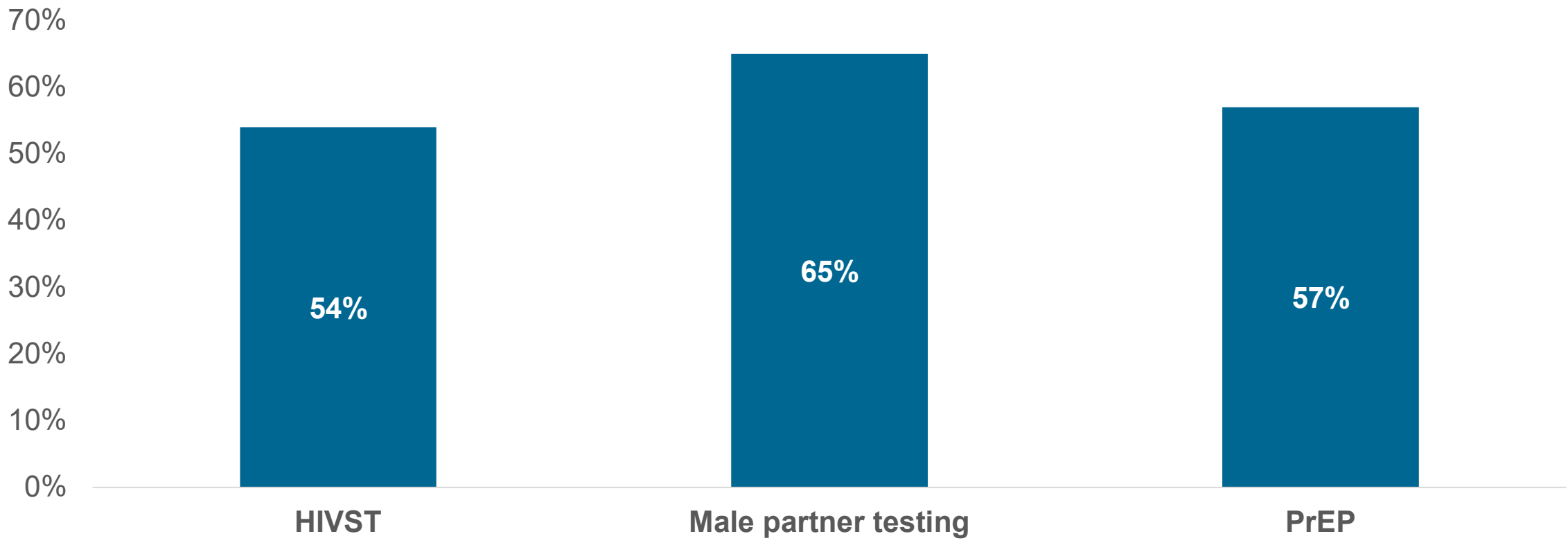
World Health Organization

Percent of African region countries with maternal syphilis testing policies, 2022



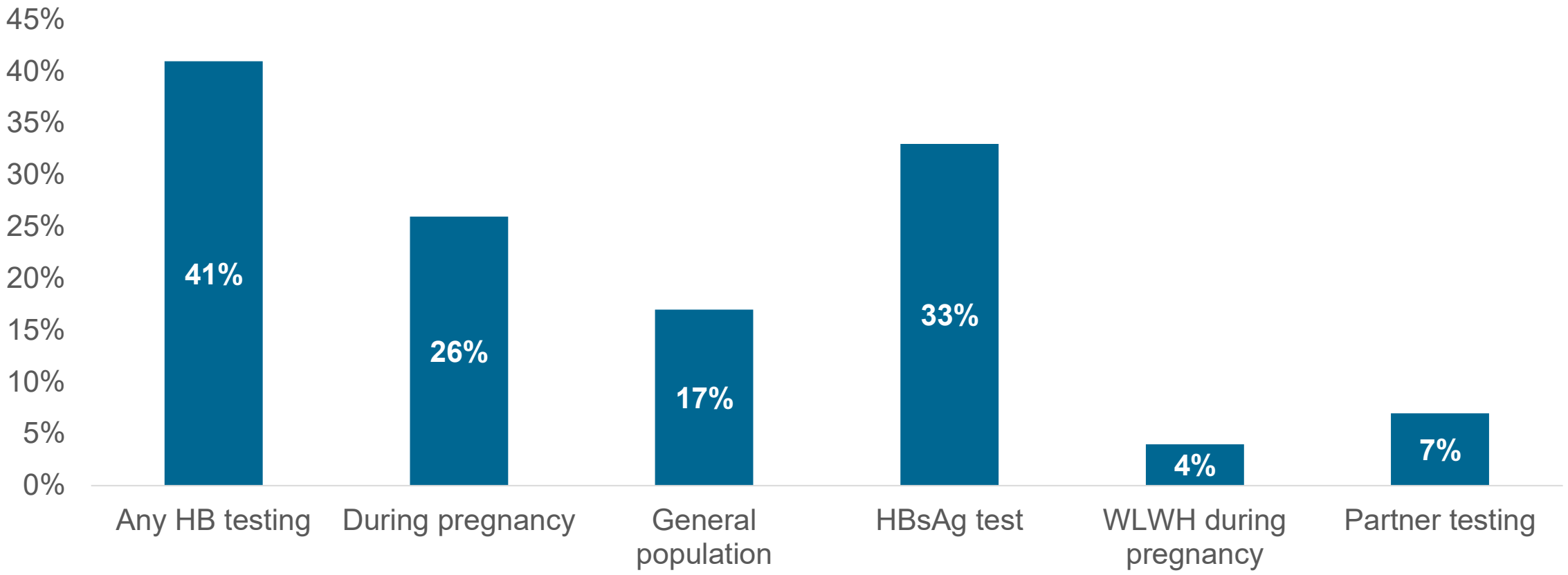
Credit: Alison Drake, University of Washington

Percent of African region countries with HIV testing & PrEP guidance, 2022



Credit: Alison Drake, University of Washington

Percent of African region countries with maternal hepatitis B virus testing policies, 2022



WLWH=Women living with HIV

Credit: Alison Drake, University of Washington

PMTCT services are differentiated in many settings

Strategic principles for HIV testing services

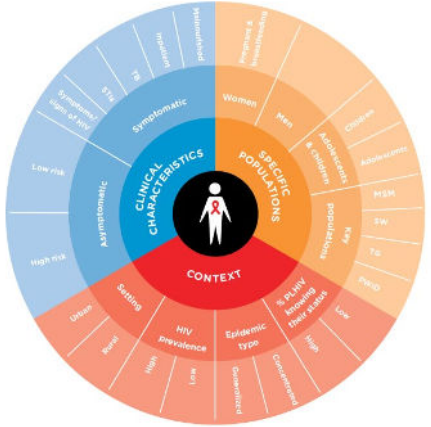
HTS approaches need to consider three dimensions for implementation:

1. Mobilizing and creating demand for testing
2. Testing service delivery
3. Linkage to post-test services

	Mobilizing and creating demand	HTS implementation	Linkage to care
When	Continuous, intermittent or focused	Time of day and frequency	Time period for linking and frequency of monitoring
Where	Location of mobilization activities	Health facility, other facility, community	Location of linkage activities
Who	Who does the mobilizing? Who is the focus for messages and mobilization?	Who does the HIV testing? Who is the focus for testing?	Who supports linkage to prevention or ART initiation?
What	What package of services and demand creation interventions?	What HTS approach?	What linkage intervention?

Source: WHO 2019; IAS 2018

Approaches are then adapted based on the context, population and epidemic

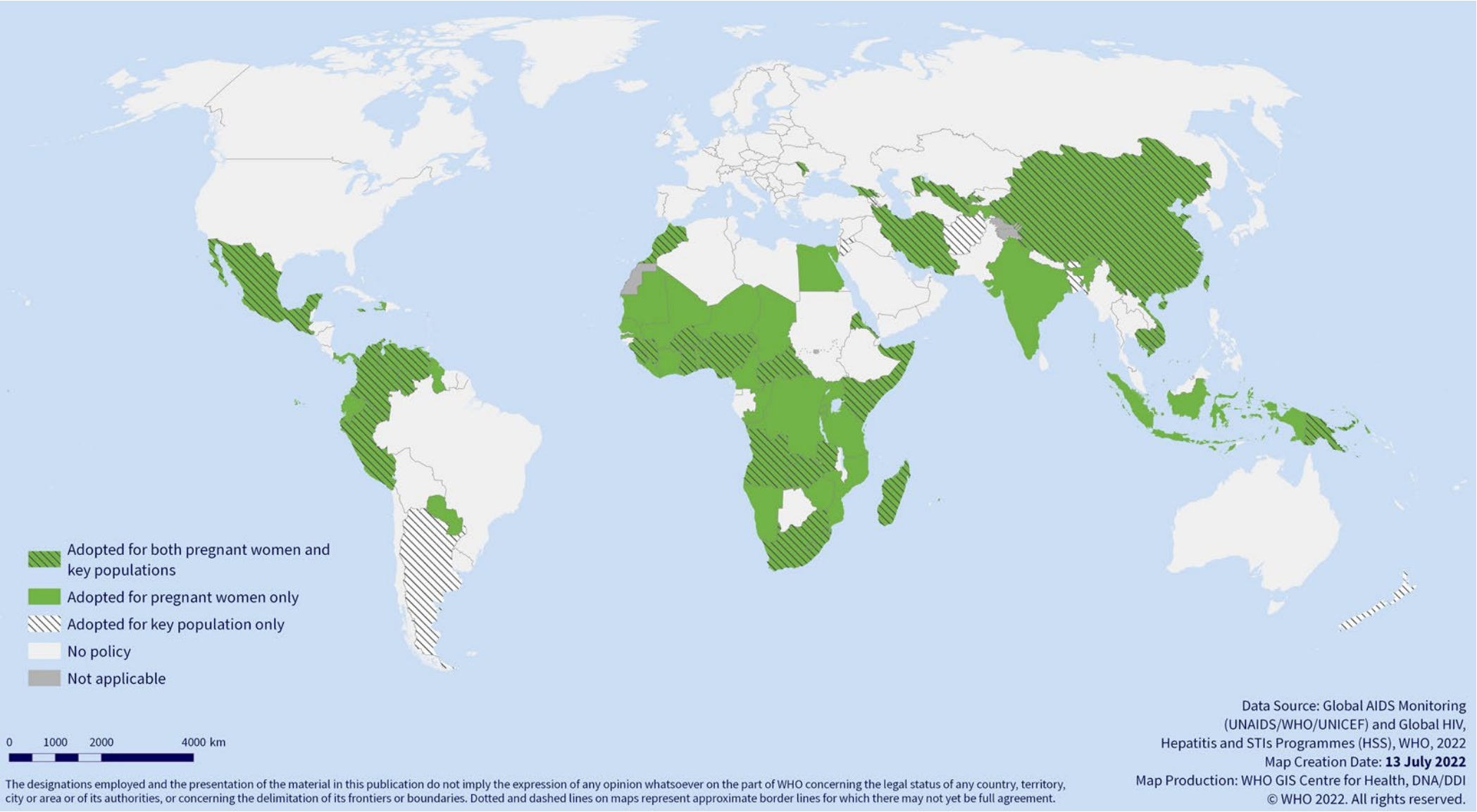


5 Cs for testing services

WHO 5Cs encourage all testing to include:

- Consent
- Confidentiality
- Counselling (pre-test information and post-test messages)
- Correct results and
- Connection (linkage)

National programmes are rapidly adopting WHO guidance on use of dual HIV/syphilis RDT for pregnant women and key populations



Recommended time points for HIV retesting during pregnancy and postpartum

Setting	Time points		
	Early in pregnancy *(first antenatal care visit)*	**Late in pregnancy** *(third trimester ANC visit)*	**1 additional postpartum retest** *(14 weeks, six-month or nine-months post-partum)*
High HIV burden settings	All	All	Can be considered for those at ongoing high risk
Low HIV burden settings	All pregnant women as part of EMTCT, otherwise focused on those at high ongoing risk	Can be considered for those at high ongoing risk	Can be considered for those at high ongoing risk
Among key population groups and their partners	All settings	All settings	All settings

Source: WHO, 2019. https://www.who.int/publications/i/item/978-92-4-155058-1

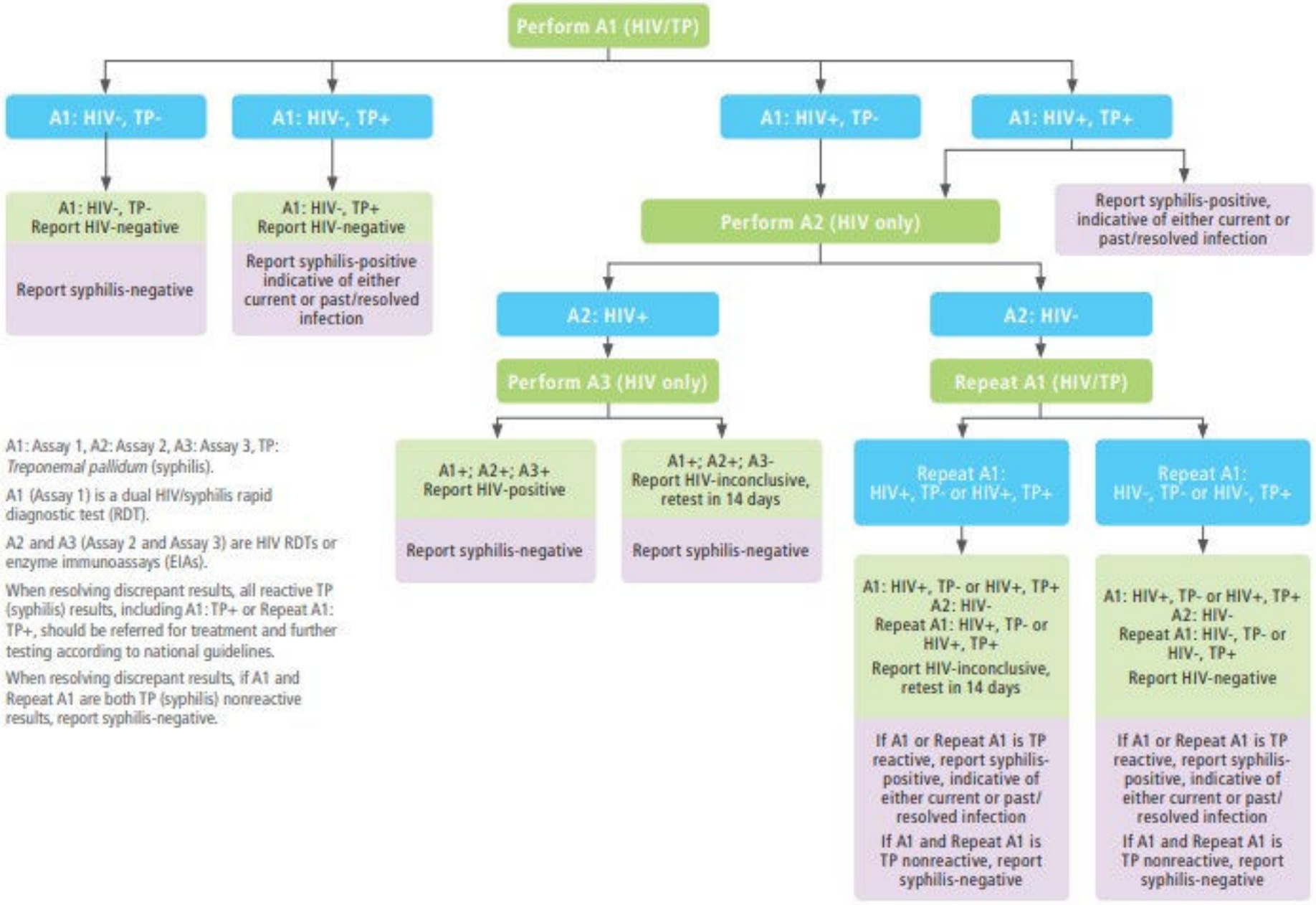
Testing for couples, partners and household contacts

- Couples and partners should be offered voluntary HIV testing services with support for mutual disclosure (strong recommendation, low-quality evidence).
- Provider-assisted referral should be offered to all people with HIV as part of a voluntary comprehensive package of testing, care and prevention (strong recommendation, moderate-quality evidence).
- Extending provider-assisted referral to the biological children of people with HIV may also be considered as part of a voluntary provider referral package.
- Testing of sexual partners, children and other family members, and close household contacts of those with HBV is recommended.
- Partner services and treatment are essential service components for syphilis.

Sources: https://www.who.int/publications/i/item/978-92-4-155058-1, https://www.who.int/publications/i/item/978-92-4-000270-8; https://www.who.int/publications/i/item/9789241549981

World Health Organization

Testing strategy for dual detection of HIV and syphilis infection for ANC settings



A1: Assay 1, A2: Assay 2, A3: Assay 3, TP: *Treponema pallidum* (syphilis).

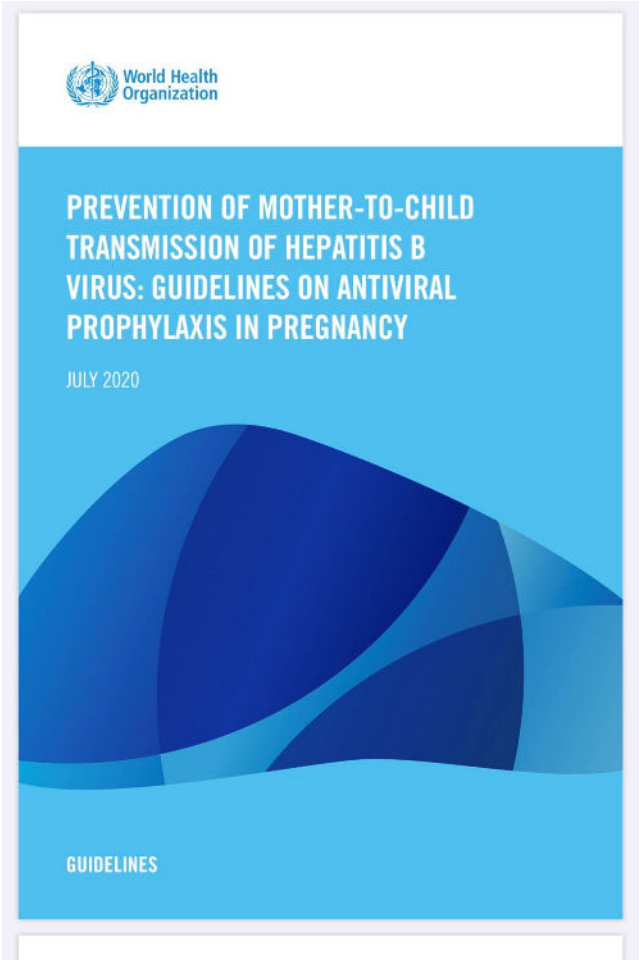
A1 (Assay 1) is a dual HIV/syphilis rapid diagnostic test (RDT).

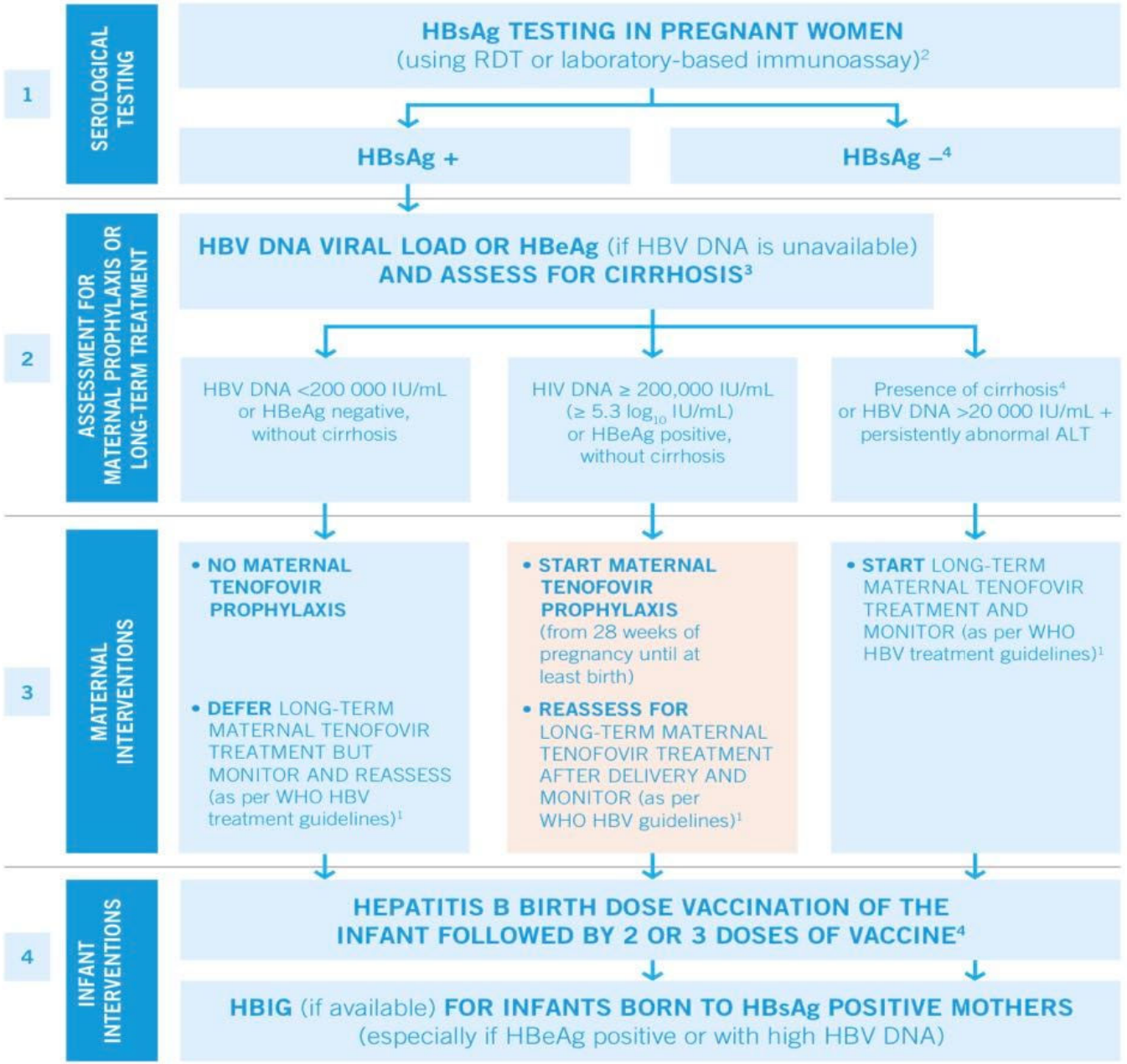
A2 and A3 (Assay 2 and Assay 3) are HIV RDTs or enzyme immunoassays (EIAs).

When resolving discrepant results, all reactive TP (syphilis) results, including A1: TP+ or Repeat A1: TP+, should be referred for treatment and further testing according to national guidelines.

When resolving discrepant results, if A1 and Repeat A1 are both TP (syphilis) nonreactive results, report syphilis-negative.

WHO guidelines: antiviral testing and prophylaxis for HBV in pregnancy

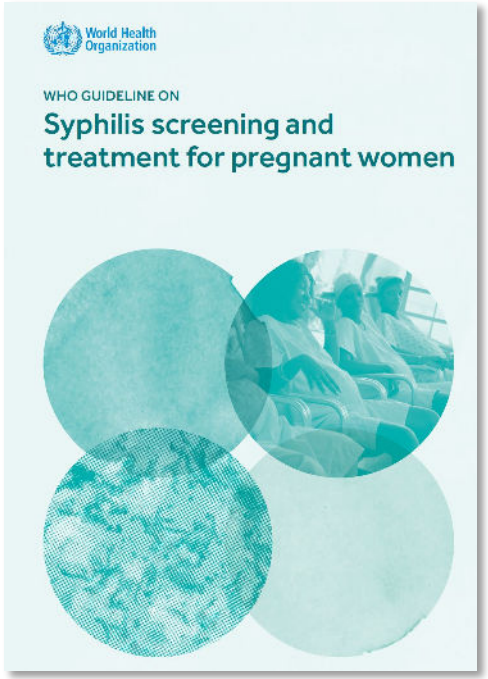




World Health Organization

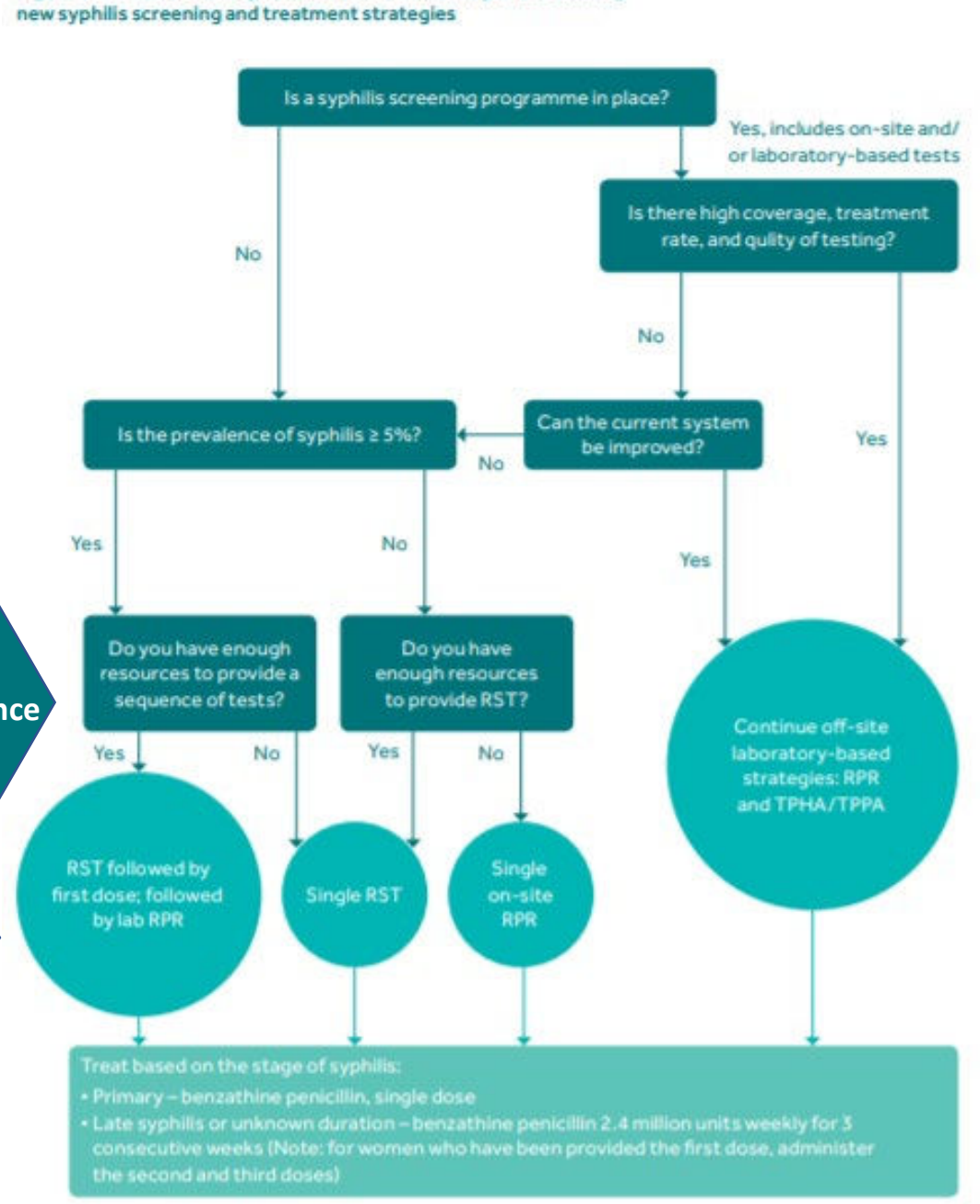
Source: https://www.who.int/publications/i/item/978-92-4-000270-8

Syphilis testing strategies



Are there resources and lab capacity to provide a sequence of tests?

RST followed by 1st dose of BPG, followed by lab (RPR)



Source: https://www.who.int/publications/i/item/WHO-CDS-HIV-19.38

RPR: rapid plasma reagin test; RST: rapid syphilis (treponemal) test; TPHA: *Treponema pallidum* haemagglutination assay; TPPA: *Treponema pallidum* particle agglutination assay.

Adequate syphilis treatment for pregnant women (WHO, 2017)

- 1 dose of benzathine penicillin G 2.4 mU IM for early syphilis (< 2 years of duration)
- 3 doses of benzathine penicillin G 2.4 mU IM for late syphilis, one week apart(> 2 years of duration) or unknow stage

Source:
https://www.who.int/publications/i/item/9789241550093

- Estimate demand for BPG using the Congenital Syphilis Estimation Tool
- Partner services and treatment are essential
- Treatment should be initiated as early as possible in pregnancy and no more that 30 days prior to delivery

Source:
https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/stis/strategic-information/congenital-syphilis-estimation-tool

Implementation considerations

- Ethical imperative to **provide linkage and assure treatment, prophylaxis, and eligibility assessment** according to results
- For HBV, timely birth dose vaccination is essential
- Many programmes have already introduced dual HIV/syphilis, now there are opportunities to offer **hepatitis B testing** alongside the dual test in pregnancy -- towards triple ETMCT
- Use of dual HIV/syphilis test during pregnancy is **cost-saving in high and low** HIV burden settings*
- Flexibility and adaptation will be necessary: dual HIV/syphilis test is **not for** pregnant women with know HIV+ status and/or on ART
- Dual HIV/syphilis test may be used to deliver **testing for sexual partners**
- **Procurement** of dual HIV/syphilis and HBV tests and related products and services for **triple elimination** may be supported by HIV funding mechanisms including **Global Fund** and **PEPFAR** (dual test)
  https://www.theglobalfund.org/media/12165/core_prioritization-framework-supporting-health-longevity-people-living-hiv_guidance_en.pdf;
  https://www.theglobalfund.org/media/4765/core_hiv_infonote_en.pdf

icap Global Health

Thank you!

Extra slides

Extra slides: Syphilis

Jug depicting a syphilitic mother with child (4th century), Peru. Photo from the National Center for Biotechnology Information.

Syphilis: why do we care?

- Caused by *Treponema pallidum* subsp. *pallidum* (bacteria)

High burden*

- **~990,000** new syphilis infections among pregnant women **every year**
- **~661,000** congenital syphilis cases **every year**

Highly transmissible

- **15% MTCT** and 52% higher adverse outcomes when compared to women without syphilis**

Early stage involves ulcerations and rash – **but most infections are asymptomatic or unrecognized**

- If not adequately treated can lead to **severe sequelae**
  - High fetal and infant mortality and morbidity – **syphilitic stillbirth often overlooked**
  - Enhanced **HIV** transmission/acquisition (sexual & vertical)
  - Neurologic, skin, bone, visceral and other complications

Data source: *Korenromp et al. (2019) PLOS ONE 14(2): e0211720; **Gomez et al. (2013) Bull World Health Organ 91:217–226

Serious adverse reaction to BPG is rare

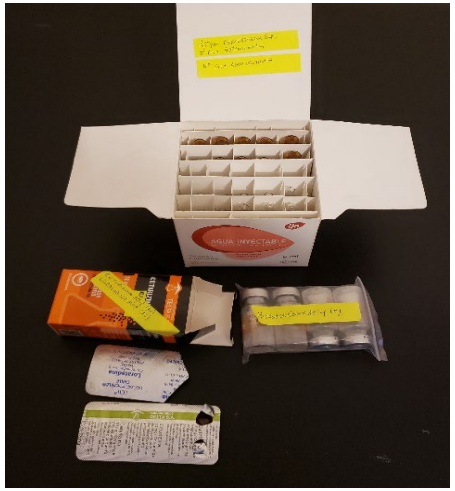
PLOS ONE
v. 8 (2); 2013

Safety of benzathine penicillin for preventing congenital syphilis: A systematic review

Tais F. Galvao[1]*, Marcus T. Silva[1], Suzanne J. Serruya[2], Lori M. Newman[3], Jeffrey D. Klausner[4], Mauricio G. Pereira[1], Ricardo Fescina[2]

Conclusion: Studies that assessed the risk of serious adverse events due to benzathine penicillin treatment in pregnant women were scarce, but no reports of adverse reactions were found among 3,466,780 patients. The incidence of severe adverse outcomes was very low in the general population. **The risk of treating pregnant women with benzathine penicillin to prevent congenital syphilis appears very low and does not outweigh its benefits.**

- No known resistance of *T. pallidum* to penicillin
- Some reports of resistance to microlides (i.e. erythromycin, azithromycin)



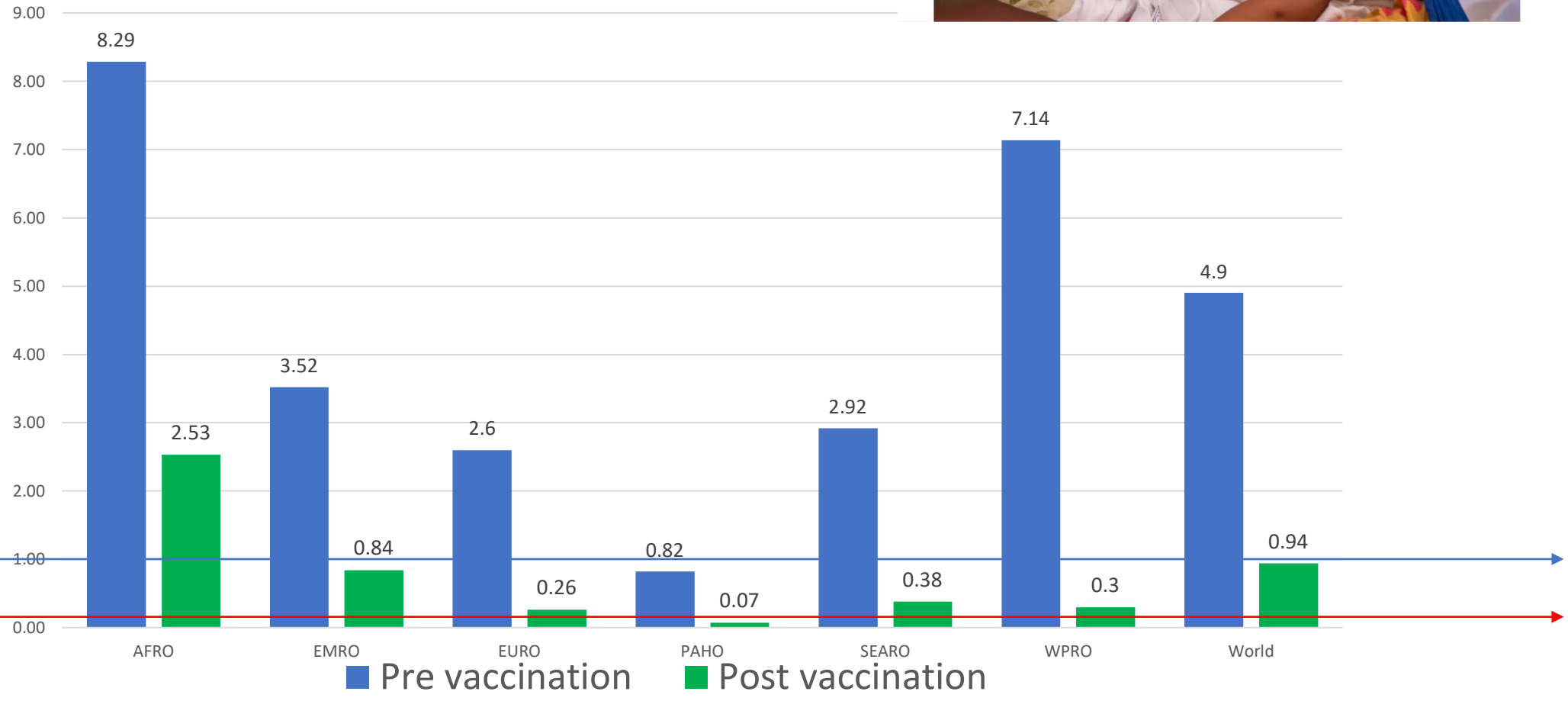
Emergency kit for serious adverse effects from penicillin used in mobile units in Bolivia to promote *test & immediate treatment initiation strategy*

Extra slides: HBV

EMTCT of HBV

A good news health story: hepatitis B cases fall below one percent in children

Estimated HBsAg prevalence among children less than 5 years old



Regional and country estimates 2015/2019 :

https://whohbsagdashboard.surge.sh/

SDG target 2020 : **<1% prevalence HBsAg in < 5 year olds**

Target for validation of EMTCT and SDG 2030 : **<0.1% prevalence HBsAg in < 5 year olds**

WHO Guidelines on Prevention of mother-to-child transmission of hepatitis B - antiviral prophylaxis in pregnancy 2020

2017, 92, 369–392 No 27

World Health Organization

Organisation mondiale de la Santé

Weekly epidemiological record

Relevé épidémiologique hebdomadaire

7 JULY 2017, 92th YEAR / 7 JUILLET 2017, 92e ANNÉE

No 27, 2017, 92, 369–392

http://www.who.int/wer

Contents

369 Hepatitis B vaccines: WHO position paper – July 2017

Sommaire

369 Vaccins anti-hépatite B: note de synthèse de l'OMS – juillet 2017

Hepatitis B vaccines: WHO position paper – July 2017

Introduction

In accordance with its mandate to provide guidance to Member States on health policy matters, WHO issues a series of regularly updated position papers on vaccines and vaccine combinations against diseases that have an international public health impact. These papers are concerned primarily with the use of vaccines in large-scale immunization programmes. They summarize essential background information on their respective diseases and vaccines, and conclude with the current WHO position concerning their use in the global context.

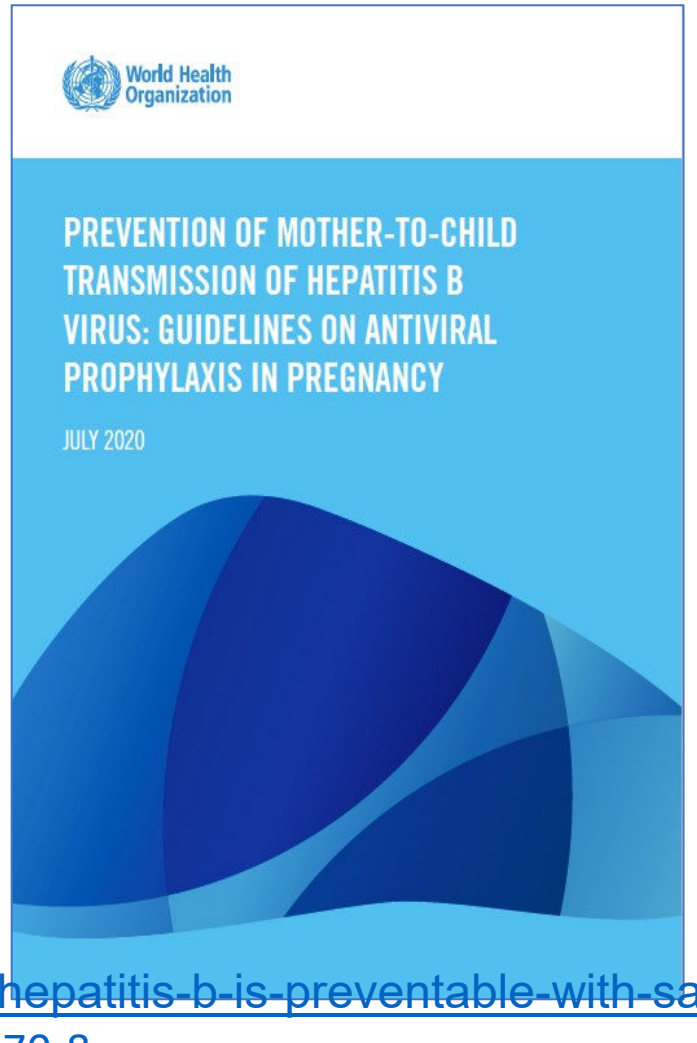
The papers are reviewed by external experts and WHO staff, and reviewed and endorsed by the WHO Strategic Advisory Group of Experts (SAGE) on immunization (http://www.who.int/immunization/sage/en/). The GRADE methodology is used to systematically assess the quality of available evidence. The SAGE decision-making process is reflected in an evidence-to-recommendation table.[1] A description of the process followed for the development of position papers, and the table is at: http://www.who.int/immunization/position_papers/position_paper_process.pdf.

Vaccins anti-hépatite B: note de synthèse de l'OMS – juillet 2017

Introduction

Conformément à son mandat, qui prévoit qu'elle conseille les États Membres en matière de politique sanitaire, l'OMS publie une série de notes de synthèse régulièrement mises à jour sur les vaccins et les associations vaccinales contre les maladies ayant une incidence sur la santé publique internationale. Ces notes, qui portent essentiellement sur l'utilisation des vaccins dans les programmes de vaccination à grande échelle, résument les informations essentielles sur les maladies et les vaccins associés et présentent en conclusion la position actuelle de l'OMS concernant l'utilisation de ces vaccins dans le contexte mondial.

Ces notes sont examinées par des experts externes et des membres du personnel de l'OMS, et évaluées et approuvées par le Groupe stratégique consultatif d'experts sur la vaccination (SAGE) de l'OMS (http://www.who.int/immunization/sage/fr). La méthodologie GRADE est utilisée pour évaluer de manière systématique la qualité des données disponibles. Le processus de décision du SAGE est reflété dans un tableau des données à l'appui des recommandations.[1] La procédure suivie [illegible] est décrite dans: http://www.who.int/immunization/position_papers/position_paper_process.pdf.



Sources: https://www.who.int/southeastasia/activities/hepatitis-b-is-preventable-with-safe-and-effective-vaccines; https://www.who.int/publications/i/item/978-92-4-000270-8

Extra slides: Dual HIV/syphilis RDT

WHO prequalified rapid dual HIV/Syphilis tests

- ✓ **As of October 2022, three rapid tests have been WHO Prequalified**
- ✓ **Prices for these products range from $0.95 to $1.50 per test**
- ✓ **Can be procured through GF, WHO, PEPFAR**

Year PQed	Product Name	Manufacturer	Product Code	No. of tests per kit	WHO evaluation Final sensitivity	WHO evaluation Final specificity
Oct 2015	Bioline HIV/Syphilis Duo	Abbott Diagnostics Korea Inc (Republic of Korea)	06FK30 06FK35	25 T/kit 25 T/kit	HIV: 100% Syphilis: 87%	HIV: 99.5% Syphilis: 99.5%
June 2019	First Response HIV 1+2/Syphilis Combo Card Test	Premier Medical Corporation Pvt Ltd (Gujarat, India)	I20FR25 I20FR30 I20FR50 I20FR60 I20FR100	25 T/kit 30 T/kit 50 T/kit 60 T/kit 100 T/kit	HIV: 100% Syphilis: 99%	HIV: 99.5% Syphilis: 100%
May 2020	Standard Q HIV/Syphilis Combo Test	SD Biosensor Inc (Republic of Korea)	09HIV20D	25 T/kit	HIV: 100% Syphilis: 95.5%	HIV: 99.5% Syphilis: 99.5%

Source: https://extranet.who.int/pqweb/in-vitro-diagnostics