# Programmatic considerations for integrating STI services into PrEP programs

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World Health Organization

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# Acknowledgements



- LSHTM
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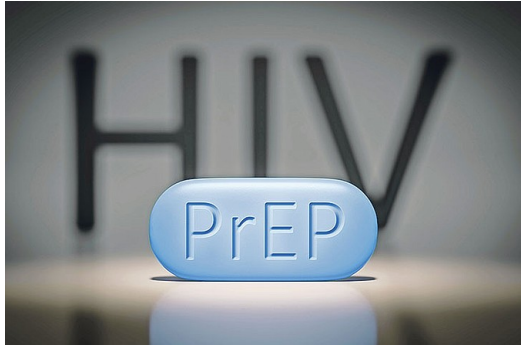
- East Virginia Medical School
  - Hongyun Fu
- University of Minnesota Twin Cities
  - Kumi Smith
- WHO
  - Rachel Baggaley, Teodora Wi, Ioannis Mameletzis

# Structure of talk

- PrEP
- Aim
- Methods
- Results
- Conclusions

# PrEP

# PrEP



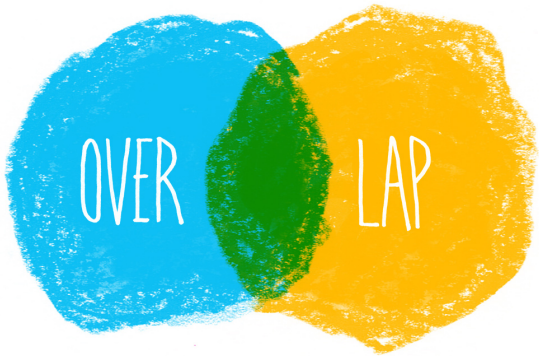

- **Safe and effective** approach to prevent HIV infection when adherence is high
- Since 2015, **WHO guidelines** recommend that PrEP programs target individuals at substantial risk for HIV.[1]
- Offered in a total of **76 countries** in various forms, including within research studies, clinical trials, demonstration projects or routine implementation, as of March 2021.[2]

[1] https://www.who.int/hiv/pub/prep/policy-brief-prep-2015/en/

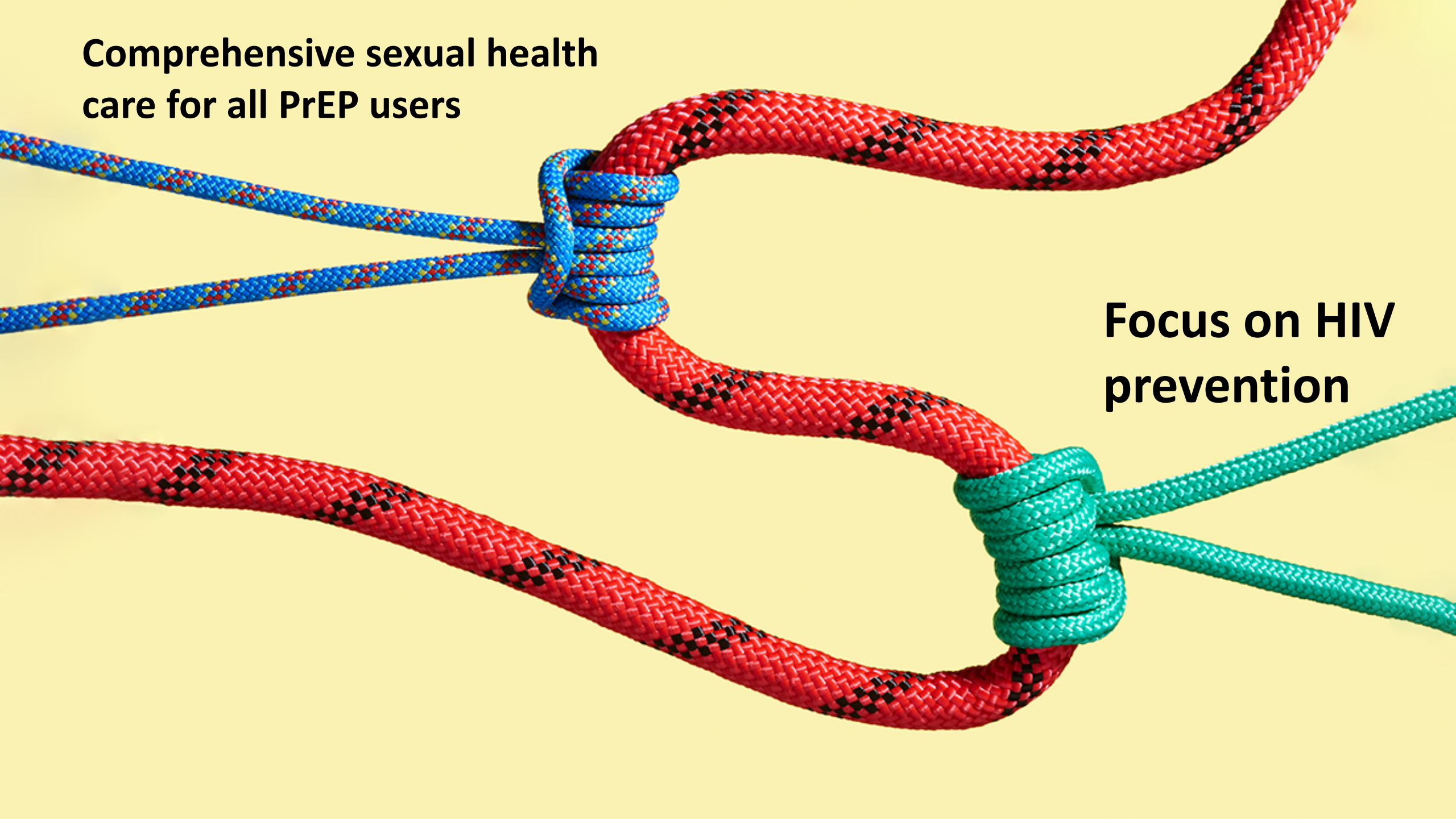
[2] Global Advocacy for HIV Prevention. PrEPWatch. https://www.prepwatch.org/

# PrEP

- With **growing interest in PrEP**, more members of key populations are engaging with healthcare systems than ever before
  - Overlap with populations at high risk of other STIs
- **Unique opportunity** to package PrEP services with more comprehensive sexually transmitted infection (STI) testing, management and other sexual health services at a moment of peak receptivity
  - Particularly in LMICs where such services are currently limited




JUST
DO IT!

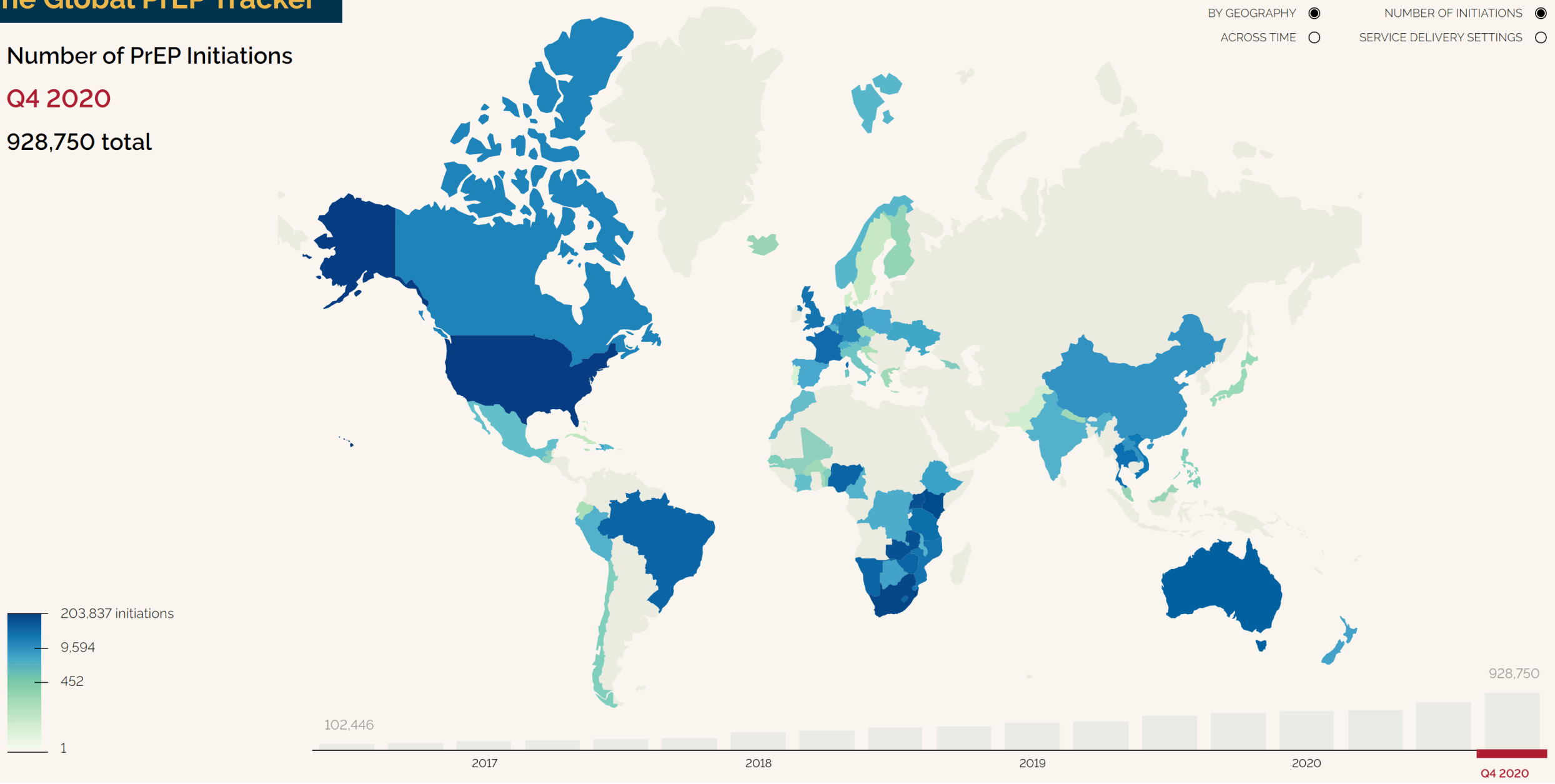

Comprehensive sexual health care for all PrEP users
Focus on HIV prevention

# The Global PrEP Tracker

## Number of PrEP Initiations

**Q4 2020**

**928,750 total**

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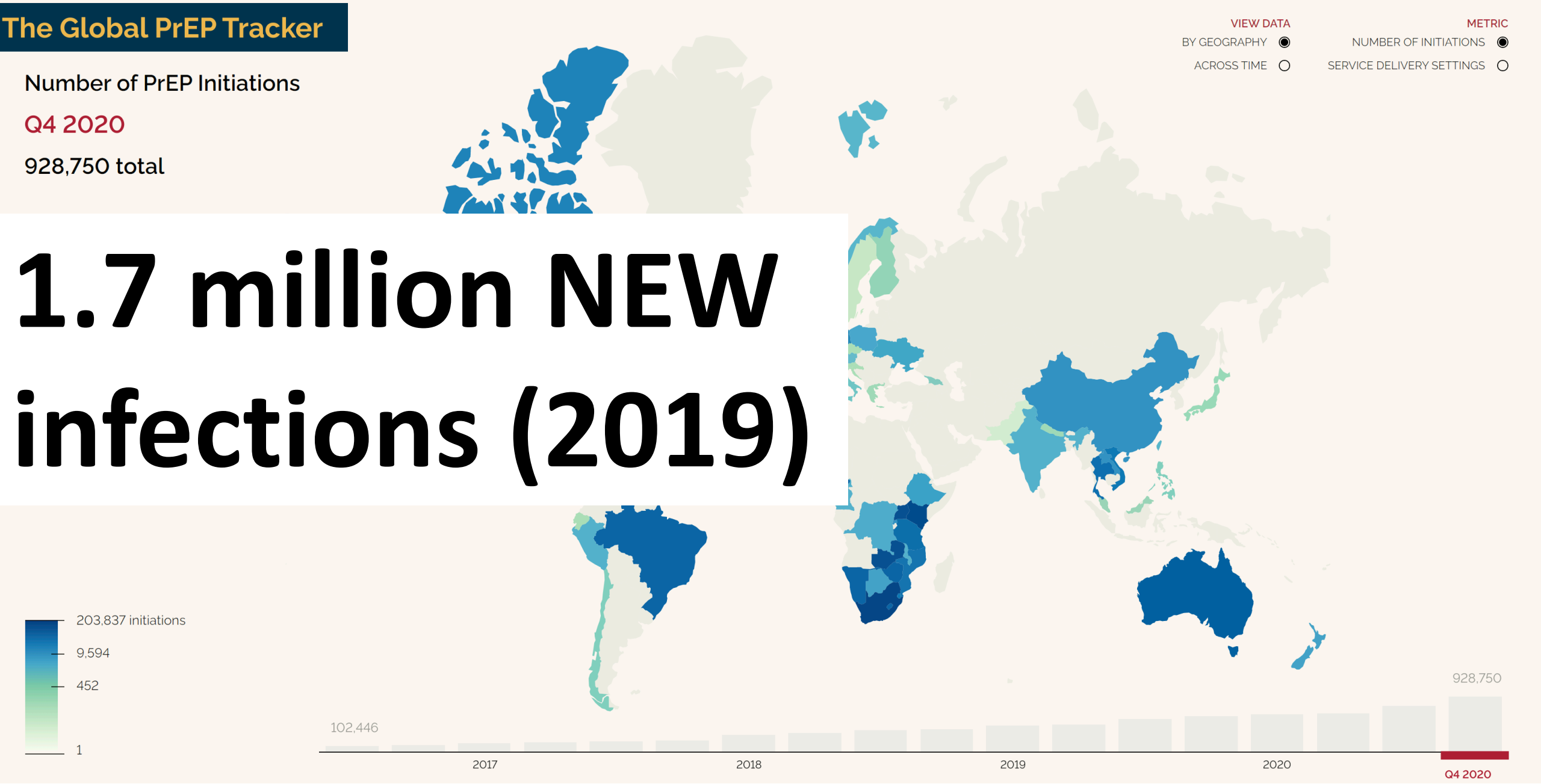



# 1.7 million NEW infections (2019)

https://data.prepwatch.org/

# BUT… can we ignore STIs among PrEP users?

JAMA Network | Open™

Original Investigation | Infectious Diseases

# Global Epidemiologic Characteristics of Sexually Transmitted Infections Among Individuals Using Preexposure Prophylaxis for the Prevention of HIV Infection

## A Systematic Review and Meta-analysis

Jason J. Ong, PhD, MBBS; Rachel C. Baggaley, MSc, MBBS; Teodora E. Wi, MD; Joseph D. Tucker, PhD, MD; Hongyun Fu, PhD; M. Kumi Smith, PhD; Sabrina Vanessa Anglade, MSc; Jane Falconer, MA; Richard Ofori-Asenso, PhD; Fern Terris-Prestholt, PhD; Ioannis Hodges-Mameletzis, DPhil; Philippe Mayaud, MI

# Pooled STI prevalence at baseline

| | Our study | Global estimates 2016 | |
|---|---|---|---|
| **Pathogen** | | Men | |
| **Chlamydia** | | 2.7 (1.9-3.7) | |
| **Gonorrhoea** | | 0.7 (0.5-1.1) | 0.9 (0.7-1.1) |
| **Early syphilis** | | | |
| **Hepatitis A** | | | |
| **Hepatitis B** | | | |
| **Hepatitis C** | | | |
| **Any Ct/Ng/Tp** | | | |

# Pooled STI incidence

| | Our study | Global estimates 2016 | |
|---|---|---|---|
| **Pathogen** | | Men | |
| **Chlamydia** | | 3.3 (2.1-4.8) | |
| **Gonorrhoea** | | 2.6 (1.5-4.1) | 2.0 (1.4-2.8) |
| **Early syphilis** | | | |
| **Hepatitis A** | | | |
| **Hepatitis B** | | | |
| **Hepatitis C** | | | |
| **Any Ct/Ng/Tp** | | | |

JIAS JOURNAL OF THE INTERNATIONAL AIDS SOCIETY Open Access

Review | Open Access

# Missed opportunities for sexual transmitted infections testing for HIV pre-exposure prophylaxis users: a systematic review

Jason J Ong ✉, Hongyun Fu, Rachel C Baggaley, Teodora E Wi, Joseph D Tucker, M Kumi Smith, Sabrina Rafael, Jane Falconer, Fern Terris-Prestholt, Ioannis Mameletzis, Phillipe Mayaud

First published: 18 February 2021 | https://doi.org/10.1002/jia2.25673

# Aims

# Aims

- To what extent was STI testing offered in PrEP programmes globally?
- Programmatic considerations for integration

# Methods

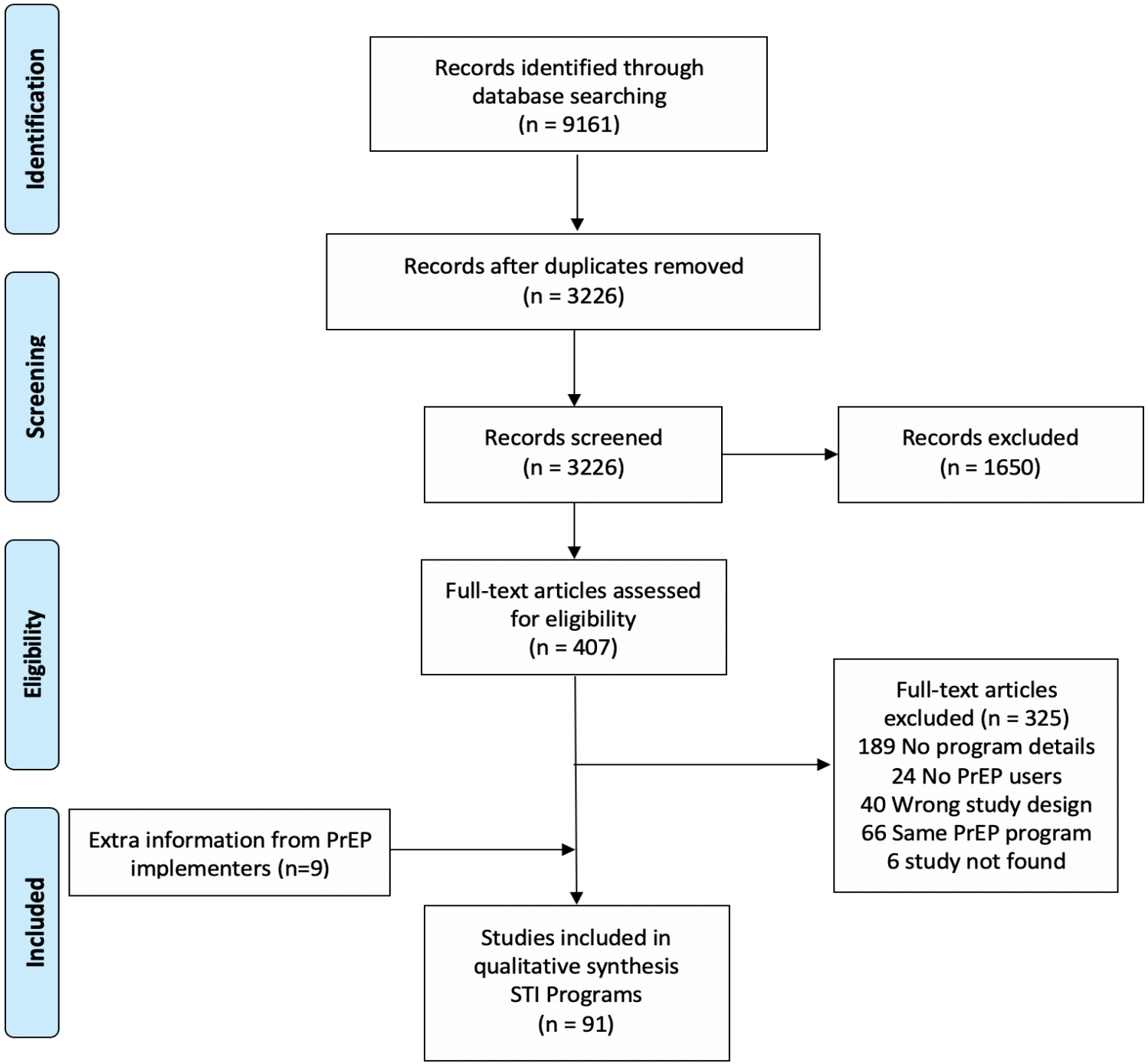
# Methods

- Systematic review
- 9 databases
  - Inception to 8th Dec 2020

- PrEP implementers
  - contacted a list of 82 PrEP program implementers and/or researchers provided by the WHO

# Methods

- Inclusion
  - We included data from routine implementation programs, prospective cohorts, randomized controlled trials (RCT) or demonstration projects of oral PrEP that described an STI testing service for PrEP users.


Identification
Screening
Eligibility
Included
Records identified through database searching (n = 9161)
Records after duplicates removed (n = 3226)
Records screened (n = 3226)
Records excluded (n = 1650)
Full-text articles assessed for eligibility (n = 407)
Full-text articles excluded (n = 325)
189 No program details
24 No PrEP users
40 Wrong study design
66 Same PrEP program
6 study not found
Extra information from PrEP implementers (n=9)
Studies included in qualitative synthesis STI Programs (n = 91)

# Results

**Table 1. Characteristics of STI testing services within PrEP programmes (N = 91)**

| Programme indicators | n (%) |
|---|---|
| Country income level | |
| High-income | 63 (69%) |
| Low- or middle-income | 28 (31%) |
| First year of data | |
| Before 2013 | 13 (14%) |
| 2013 to 2015 | 31 (34%) |
| After 2016 | 47 (52%) |
| PrEP users population | |
| MSM/TGW | 58 (64%) |
| Mixed population[a] | 33 (36%) |
| Programme services site | |
| Hospital and sexual health clinic | 50 (55 %) |
| A mix of hospital and community clinic | 20 (22%) |
| Community-based organizations/settings | 18 (20%) |
| General practice | 3 (3%) |
| Type of study | |
| Routine implementation | 28 (31%) |
| Open-label cohort study | 39 (43%) |
| Demonstration project | 17 (19%) |
| Randomized controlled trial | 7 (8%) |

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40 programs (44%) from the United States alone.

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# At PrEP initiation

- The majority of programs (70%, 64/91) conducted STI testing before the initiation of PrEP

| | Country income level | | |
|---|---|---|---|
| **Programme indicators** | **LMIC n (%) (N = 28)** | **HIC n (%) (N = 63)** | ***p*-value** |
| Had STI testing before PrEP initiation | | | |
| Yes | 21 (74%) | 43 (68%) | 0.35 |
| Not stated | 7 (26%) | 20 (32%) | |

# During PrEP provision

- The most common STIs tested were gonorrhoea (86%, 78/91), chlamydia (84%, 76/91), and syphilis (84%, 76/91).
- The majority provided STI testing at three-month intervals (70%, 53/76, for syphilis; 70% 53/78, for chlamydia; 68%, 53/78, for gonorrhoea).

- HIC vs. LMIC
- Type of program

| Programme indicators | Country income level | | |
|---|---|---|---|
| | LMIC n (%) (N = 28) | HIC n (%) (N = 63) | *p*-value |
| Provided gonorrhoea testing | | | |
| Yes | **20 (71%)** | **58 (92%)** | **0.01** |
| Not stated | **8 (29%)** | **5 (8%)** | |
| Gonorrhoea testing frequency (N = 78) | | | |
| Every three months | 9 (45%) | 42 (72%) | 0.08 |
| Longer than three months interval | 9 (45%) | 14 (24%) | |
| Not stated | 2 (10%) | 2 (3%) | |
| Provided chlamydia testing | | | |
| Yes | **18 (64%)** | **58 (92%)** | **0.002** |
| Not stated | **10 (36%)** | **5 (8%)** | |
| Chlamydia testing frequency (N = 76) | | | |
| Every three months | 9 (45%) | 42 (72%) | 0.09 |
| Longer than every three months | 9 (55%) | 14 (24%) | |
| Not stated | 0 (0%) | 2 (4%) | |

| Programme indicators | Country income level | | |
|---|---|---|---|
| | LMIC n (%) (N = 28) | HIC n (%) (N = 63) | *p*-value |
| Provided syphilis testing | | | |
| Yes | **21 (75%)** | **55 (87%)** | **0.04** |
| No stated | **7 (25%)** | **8 (13%)** | |
| Syphilis testing frequency (N = 76) | | | |
| Every three months | 13 (62%) | 40 (73%) | 0.23 |
| Longer than every three months | 8 (38%) | 12 (22%) | |
| Not stated | 0 (0%) | 3 (6%) | |

# Summary Result

- If you get PrEP from HIC setting, you are more likely to be regularly tested
  - Chlamydia (92%)
  - Gonorrhoea (92%)
  - Syphilis (87%)

- Is it good news???

**Table 3. Differences in STI testing services by PrEP programme study design (N = 91)**

| Programme indicators | Type of PrEP programme | | | | *p*-value |
|---|---|---|---|---|---|
| | Routine implementation n (%) (N = 28) | Cohort Study n (%) (N = 39) | Demonstration project n (%) (N = 17) | RCT Study n (%) (N = 7) | |
| Had STI testing before PrEP initiation | | | | | |
| Yes | **13 (46%)** | **32 (82%)** | **13 (77%)** | **6 (86%)** | **0.01** |
| Not stated | **15 (53%)** | **7 (18%)** | **4 (23%)** | **1 (14%)** | |
| Provided gonorrhoea testing | | | | | |
| Yes | 24 (86%) | 34 (87%) | 14 (82%) | 6 (86%) | 0.98 |
| Not stated | 4 (14%) | 5 (13%) | 3 (18%) | 1 (5%) | |
| Gonorrhoea testing frequency (N = 78) | | | | | |
| Every three months | 17 (71%) | 24 (71%) | 8 (57%) | 2 (33%) | 0.23 |
| Longer than three months interval | 5 (21%) | 9 (29%) | 5 (36%) | 4 (67%) | |
| Not stated | 2 (8%) | 1 (3%) | 1 (7%) | 0 (0%) | |
| Provided chlamydia testing | | | | | |
| Yes | 24 (86%) | 33 (85%) | 13 (77%) | 6 (86%) | 0.86 |
| Not stated | 4 (14%) | 6 (15%) | 4 (23%) | 1 (14%) | |
| Chlamydia testing frequency (N = 76) | | | | | |
| Every three months | 17 (71%) | 24 (73%) | 8 (57%) | 2 (33%) | 0.16 |
| Longer than every three months | 5 (21%) | 9 (27%) | 5 (43%) | 4 (67%) | |
| Not stated | 2 (8%) | 0 (0%) | 0 (0%) | 0 (0%) | |

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| Not stated | **15 (53%)** | **7 (18%)** | **4 (23%)** | **1 (14%)** | |
| Provided gonorrhoea testing | | | | | |
| Yes | 24 (86%) | 34 (87%) | 14 (82%) | 6 (86%) | 0.98 |
| Not stated | 4 (14%) | 5 (13%) | 3 (18%) | 1 (5%) | |
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| Every three months | 17 (71%) | 24 (71%) | 8 (57%) | 2 (33%) | 0.23 |
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|---|---|---|---|---|---|
| | Routine implementation n (%) (N = 28) | Cohort Study n (%) (N = 39) | Demonstration project n (%) (N = 17) | RCT Study n (%) (N = 7) | *p*-value |
| Provided syphilis testing | | | | | |
| Yes | 24 (86%) | 32 (82%) | 13 (77%) | 7 (100%) | 0.54 |
| No stated | 4 (14%) | 7 (18%) | 4 (23%) | 0 (0%) | |
| Syphilis testing frequency (N = 76) | | | | | |
| Every three months | **16 (67%)** | **26 (81%)** | **9 (69%)** | **2 (29%)** | **0.02** |
| Longer than every three months | **5 (21%)** | **6 (19%)** | **4 (31%)** | **5 (71%)** | |
| Not stated | **3 (12%)** | **0 (0%)** | **0 (0%)** | **0 (0%)** | |
| Triple anatomical site STI screening available[d] | | | | | |
| Yes | 14 (50%) | 15 (39%) | 5 (29%) | 5 (70%) | 0.21 |
| Not stated | 14 (50%) | 24 (61%) | 12 (71%) | 2 (30%) | |

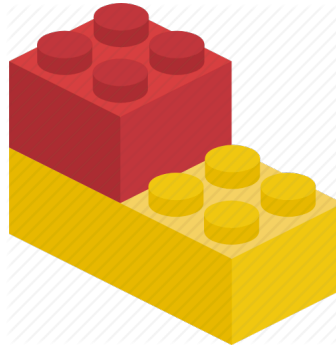
# Caveats…

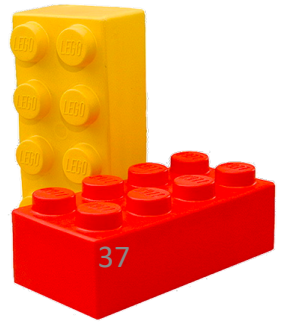
- Take data at face value … risk of under-reporting
- Heavy skew towards PrEP programs in USA (40/91)

# Programmatic challenges

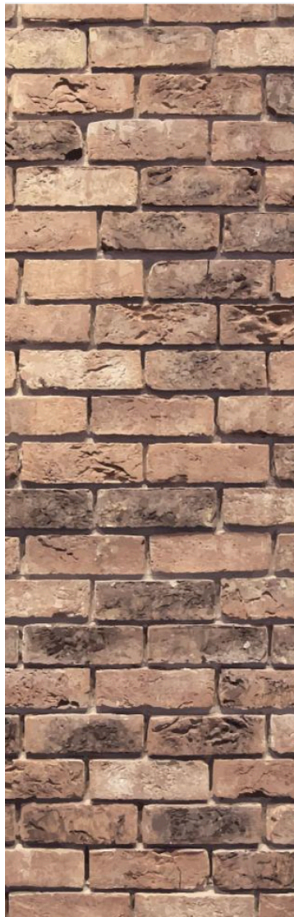
# STI service models in PrEP programs

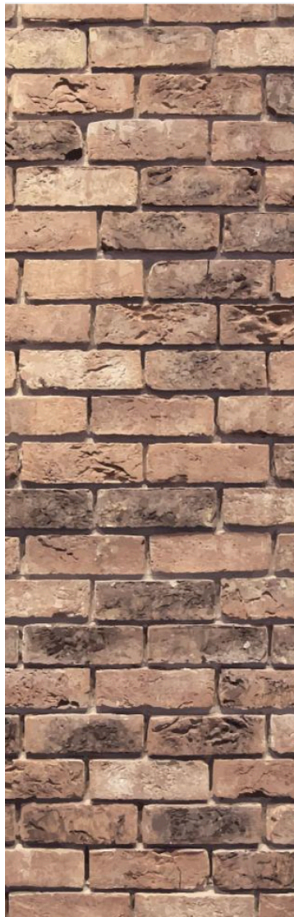
- PrEP services with Rapid or POCT for STI
  - UK – Dean St Express
- PrEP integrated into STI services
  - UK, Australia
  - Multi-site Ct/Ng screening
- PrEP services  with minimal STI screening
  - Japan, Brazil, Thailand
  - Syphilis only
    - Often no CT/NG screening due to costs
- PrEP services with syndromic management +/- presumptive treatment
  - South Africa, Kenya
- PrEP services with referral to another clinic sites STI services
  - Thailand (some sites)
- PrEP services with no STI service

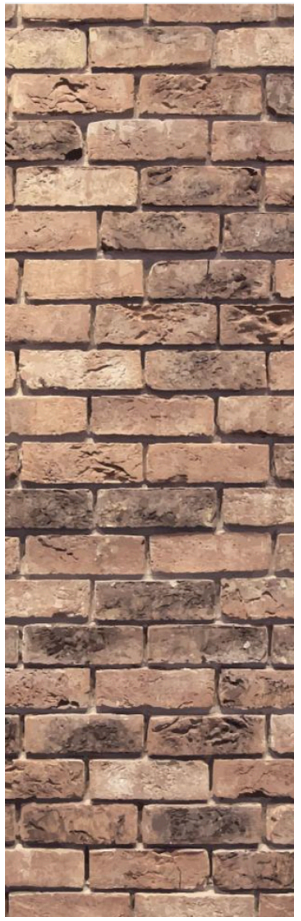




# Finances

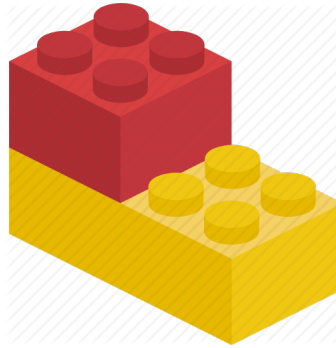


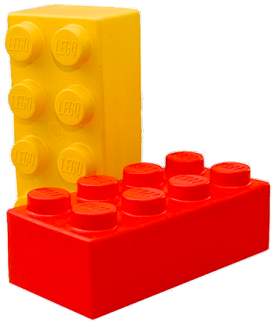




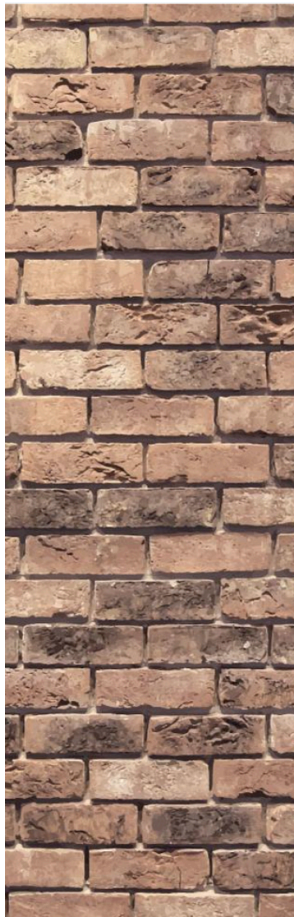
# Financial barriers

- Even for resource rich settings
  - Health insurance
- Siloed for HIV… STI as the poor cousin
- Diagnostics are expensive (NAAT for CT/NG)



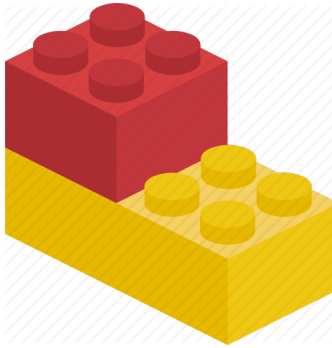


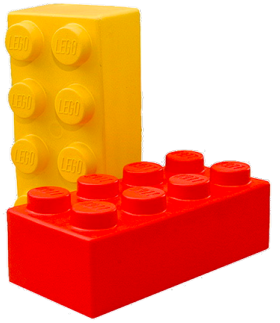
Finances Diagnostics



# STI diagnostics

- Syphilis POCT – “prioritized for antenatal programs”
- Evidence for the role of pooled testing?
- (Lack of) true point-of-care diagnostics for STIs (Ct/Ng/Mg/TV)
  - Variable sensitivity and specificity





ORIGINAL STUDIES

**Point-of-Care Sexually Transmitted Infection Diagnostics: Proceedings of the STAR Sexually Transmitted Infection—Clinical Trial Group Programmatic Meeting**

Cristillo, Anthony D. PhD, MS[*]; Bristow, Claire C. PhD, MPH, MSc[†]; Peeling, Rosanna PhD[‡]; Van Der Pol, Barbara PhD, MPH[§]; de Cortina, Sasha Herbst BA[¶‖]; Dimov, Ivan K. PhD[**]; Pai, Nitika Pant MD, MPH, PhD[††]; Jin Shin, Dong BSE[‡‡]; Chiu, Ricky Y.T. PhD[¶‖]; Klapperich, Catherine PhD[§§]; Madhivanan, Purnima MD, MPH, PhD[‖¶]; Morris, Sheldon R. MD, MPH[†]; Klausner, Jeffrey D. MD, MPH[¶‖]

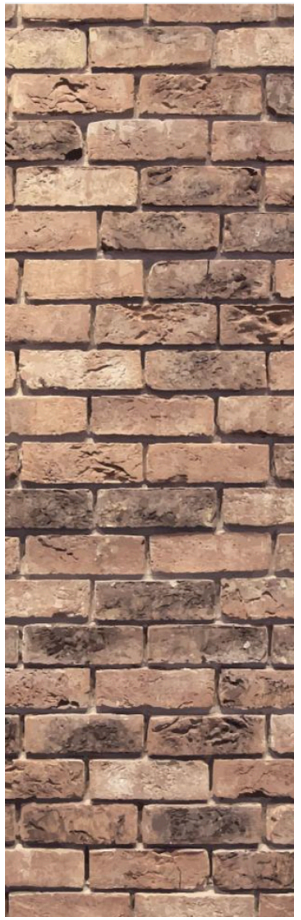
Author Information

Sexually Transmitted Diseases: April 2017 - Volume 44 - Issue 4 - p 211-218
doi: 10.1097/OLQ.0000000000000572

Finances

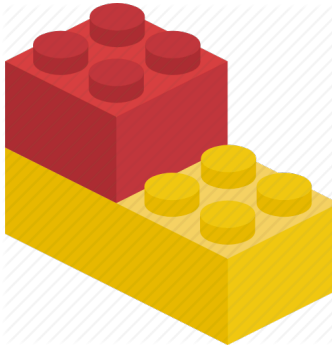
Diagnostics

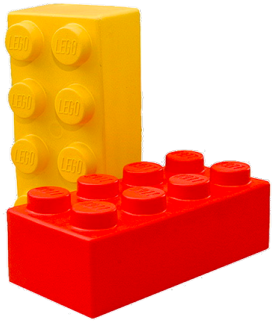
Program logistics



# Program logistics

- Lack of trained personnel
  - KP led services
- Clinic flow – “extra toilet for self-sampling”
  - Lack of equipment – “good light source, examination couch”
  - “Extra time needed for STI tests / sampling”
  - “go to different building for STI testing”
- Lack of “system for managing STIs”
  - Follow up
  - Decentralization of PrEP programs
    - Need for injectable antibiotics (syphilis, gonorrhoea) prohibiting treatment in community-based PrEP clinics run by lay providers.





# Breaking through the barriers…

- **Finances**
  - (Regional bulk purchasing mechanisms for STI testing and screening)
- **Diagnostics**
  - Pooling samples to test
  - STI Self-sampling kits

# Breaking through the barriers…

- **Program logistics**
  - Sustained advocacy for holistic sexual health – “PrEP is not just a pill”
    - Counselling, vaccination, condoms, lubricants, partner contact tracing, contraception, social services, mental health, substance use, etc…
  - Consistent guideline recommendations for STI screening frequency / what to test

# Pre-exposure Prophylaxis for HIV—An Opportunity for the Global Control of Sexually Transmitted Infections

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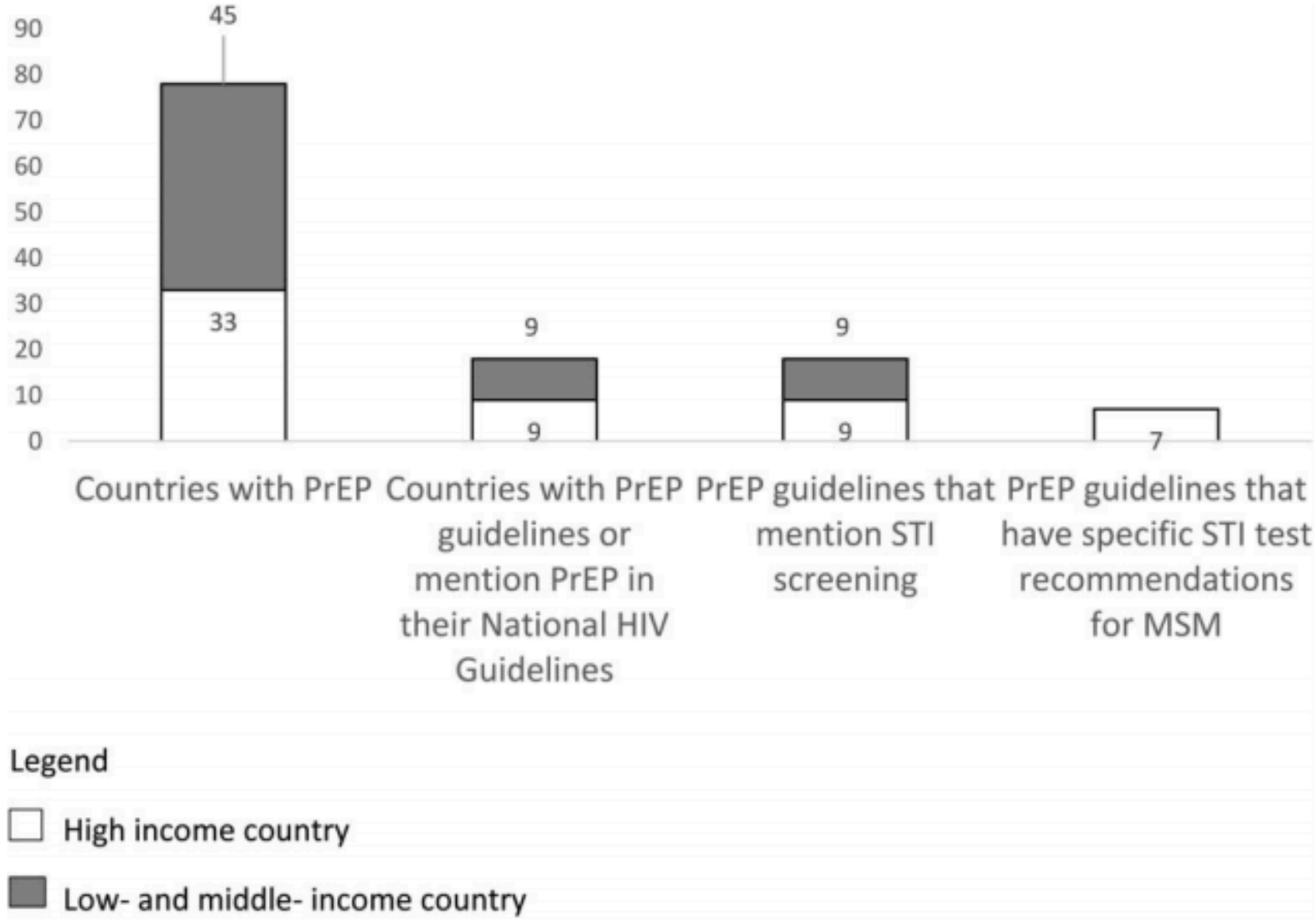
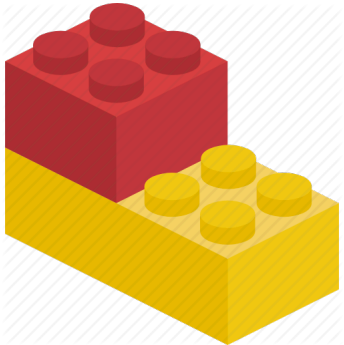
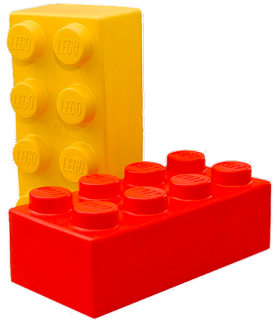



**FIGURE 1.** High-income country; Low- and middle- income country.

# Conclusions

- Indisputable that STIs are highly prevalent among PrEP users
  - Correct targeting … but is focus on HIV *enough?*
- Still gaps in providing adequate sexual health care for PrEP users
  - At minimum = STI testing/management services
  - Ideally = vaccinations, counselling, mental health/substance use support, etc…
- Significant challenges for integrating STI services within PrEP programs for resource limited settings (in HIC too!)





# Thank you

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