

Syndemic Conditions: STIs in the Era of TasP/ PREP

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LONDON

FAST-TRACK CITIES 2019

SEPTEMBER 8-11, 2019 | BARBICAN CENTRE

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Key Messages

- Ending HIV requires a syndemic approach, including rising STIs
- Communities are mobilizing around HIV *and* STIs
- New international guidelines/publications
- Fast track cities can lead the way both on HIV *and* STIs
- Apply lessons learned/deploy resources in the future for sexual health

Goals

- Understanding the intersection of STIs and HIV
- Current developments
- Opportunities

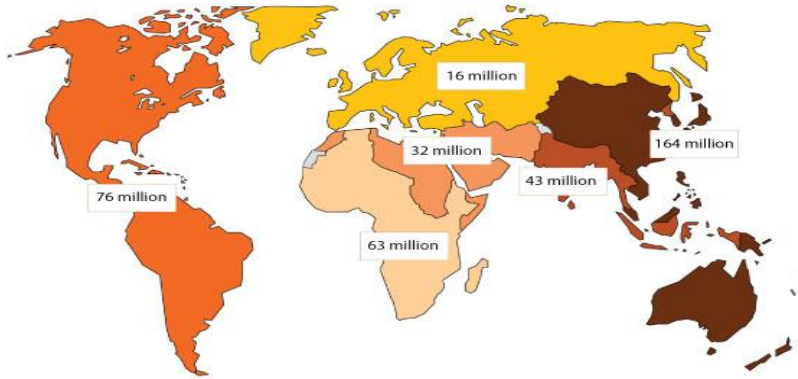
Global STIs - At a glance

- 1 million sexually transmitted infections (STIs) each day worldwide
- 376 million new infections of chlamydia, gonorrhea, syphilis and trichomoniasis annually
- More than 500 million people are estimated to have genital infection with herpes simplex virus (HSV)
- More than 290 million women have a human papillomavirus (HPV) infection → 266,000 cervical cancer deaths a year
- STIs such as gonorrhea, chlamydia, and syphilis can increase the risk of HIV acquisition.
- Nearly one million cases of congenital syphilis resulting in 212,000 stillbirths and newborn deaths
- Increasing gonorrhea azithromycin resistance and emerging resistance to extended-spectrum cephalosporins.



More than 1 million new curable sexually transmitted infections every day

WHO Global STI Estimates of 4 Curable STIs



Curable STIs: chlamydia, gonorrhea, syphilis, trichomoniasis

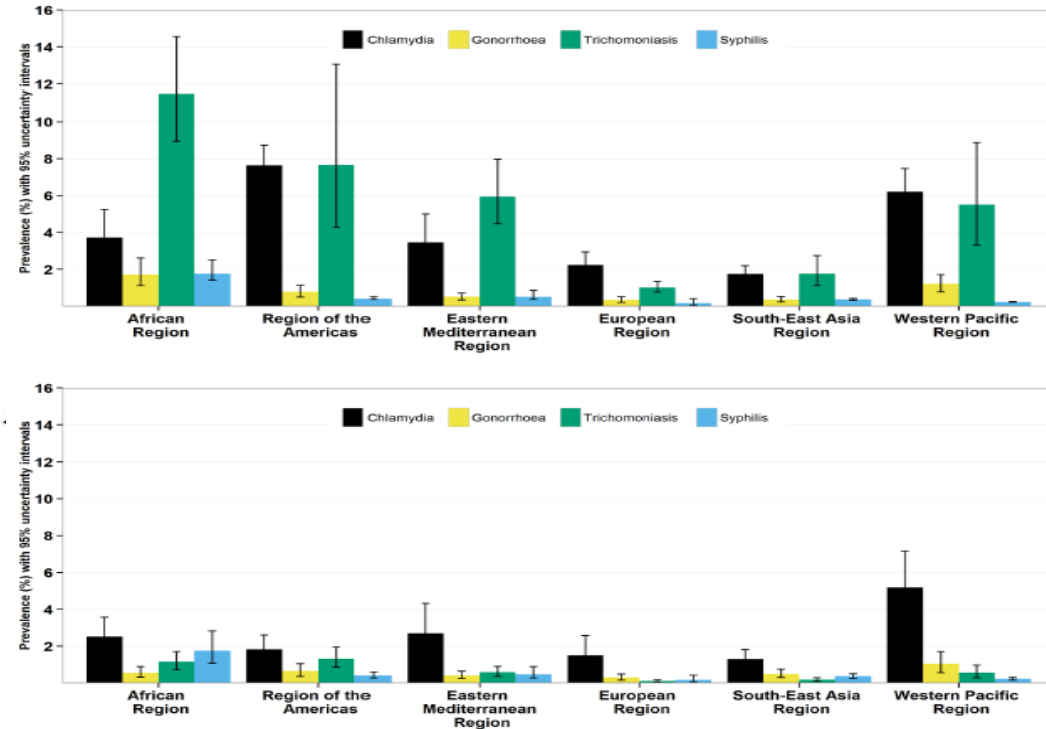


Fig 2. Estimated prevalence (and 95% UI) of chlamydia, gonorrhoea, trichomoniasis, and syphilis in women and men aged 15–49 years by WHO region, based on 2005–2012 data.

Global STIs: A Growing Threat



BBC NEWS

Sex diseases on the rise in England

By Michelle Roberts
Health editor, BBC News online 4 June 2019

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

STDs at record high, indicating urgent need for prevention

Latest U.S. data reveal threat to multiple populations

VOA

WHO Reports Increase in STDs in Sub-Saharan Africa

CBC news | Health
'Alarming' increase in sexually transmitted infections found across Canada

QUARTZ

The real infectious disease problem in Brazil isn't actually Zika, it's syphilis

ABC NEWS

Sexually transmissible infections: Why are STIs on the rise in Australia?

nature MIDDLE EAST
Emerging science in the Arab world

Middle East chlamydia rates comparable to other regions

Published online 27 August 2019

A data review reveals three per cent of the Middle East population is infected with the sexually transmitted disease, chlamydia.

Global STIs: WHO strategy

Targets set out by the Global health sector strategy on STIs approved by the World Health Assembly (4)

2030 targets (where we want to go)

90% reduction in the incidence of *Treponema pallidum* infection globally

90% reduction in the incidence of *Neisseria gonorrhoeae* infection globally (2018 global baseline)

50 or fewer cases of congenital syphilis per 100 000 live births in 80% of countries

Sustain 90% national coverage with the HPV vaccine and at least 80% in every district (or equivalent administrative unit) in the national immunization programmes in countries

Baseline (where we are)

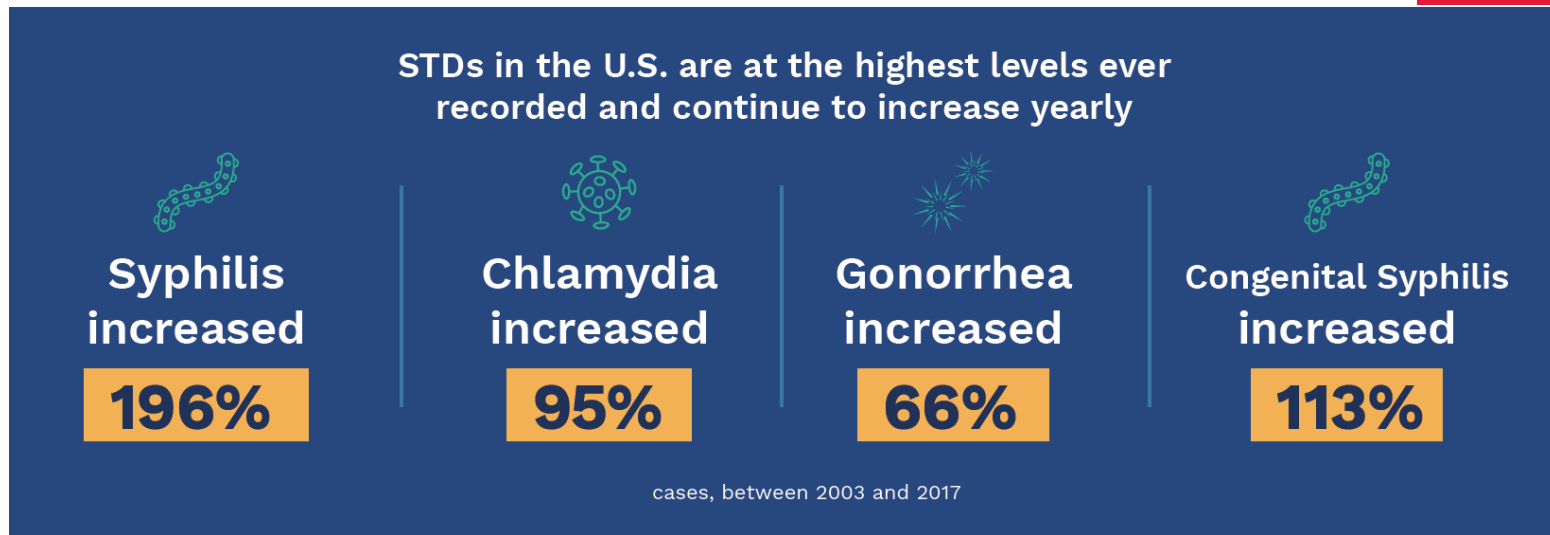
6.3 million people newly infected with *Treponema pallidum* in 2016

~87 million people newly infected with *Neisseria gonorrhoeae* in 2016

473 congenital syphilis cases per 100 000 live births in 2016, a decline of 12% in 4 years

Of 51 countries surveyed, 14 (27%) reported >80% HPV vaccine coverage

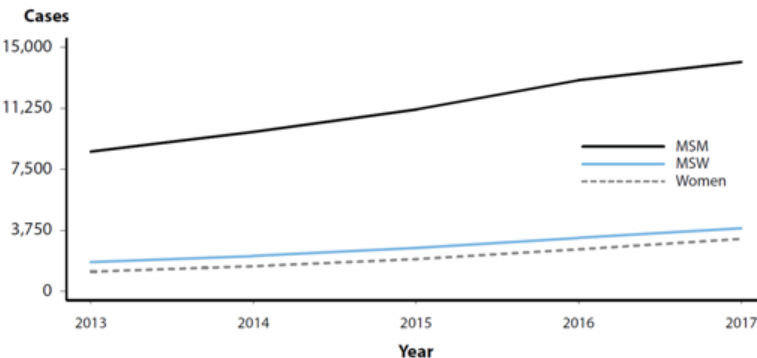
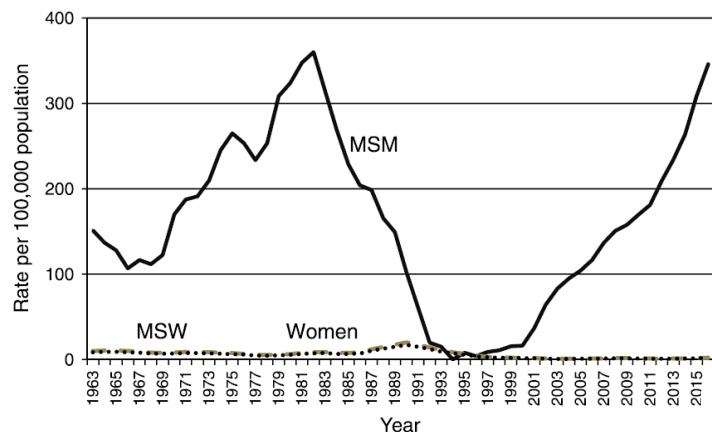
US STIs: High and Climbing



- All-time highs – 4th year
- Congenital syphilis resurgence
- STIs and opioids: merging epidemics
- ARGC on the horizon
- STIs threaten HIV advances
- Condom Use declining

The U.S. Syphilis Epidemic: 2017

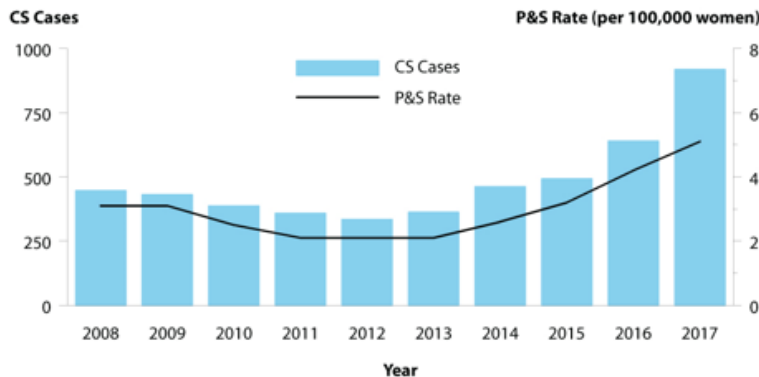
Primary / Secondary Syphilis in Men



- 88% of cases
 - 80% in MSM
- 46% in MSM HIV+

Primary/ Secondary & Congenital Syphilis in Women

- Primary / Secondary: 156% increase compared with 2013
- Congenital syphilis: 154% increase



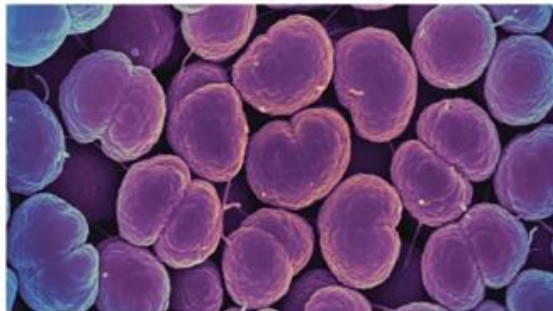
- 918 congenital cases
- >50% of cases without prenatal care
- Strong links to drug use

Consequences of STIs

- STIs increase risk of HIV acquisition up to 5-fold or more
- Mother-to-child transmission of STIs can result in stillbirth, neonatal death, low-birth-weight and prematurity, sepsis, pneumonia, neonatal conjunctivitis, and congenital deformities. Approximately 1 million pregnant women were estimated to have active syphilis in 2016, resulting in over 350 000 adverse birth outcomes of which 200 000 occurred as stillbirth or neonatal death
- HPV infection causes 570,000 cases of cervical cancer and over 300 000 cervical cancer deaths each year
- STIs such as gonorrhea and chlamydia are major causes of pelvic inflammatory disease (PID) and infertility in women

LONDON
FAST-TRACK CITIES 2019

图 2 和图 3 分别展示了不同参数对模型性能的影响。图 2 展示了不同参数对模型性能的影响，图 3 展示了不同参数对模型性能的影响。



Substrate concentrations: 100 mg/L, 500 mg/L, 1000 mg/L

Health

By James Gallagher
Health and science correspondent, BBC News
🕒 28 March 2018



GETTY IMAGES

"er" case

Medscape

Nicky Broyd

January 10, 2019

Super Gonorrhea Is Spreading, With Two New Cases Found in Australia



Ed Cara

4/18/18 11:20AM • Filed to: SUPERBUGS ▾



**THE
HILL**

Super gonorrhea threat — it's a public health crisis that is on the horizon

BY DAVID C. HARVEY, OPINION CONTRIBUTOR — 04/05/18 05:30 PM EDT
THE VIEWS EXPRESSED BY CONTRIBUTORS ARE THEIR OWN AND NOT THE VIEW OF THE HILL

439 COMMENTS



World Health Organization

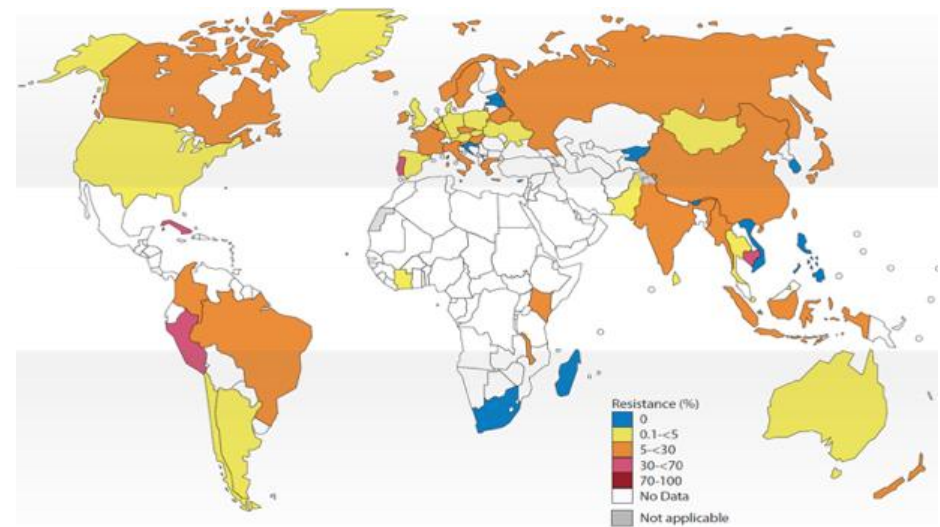
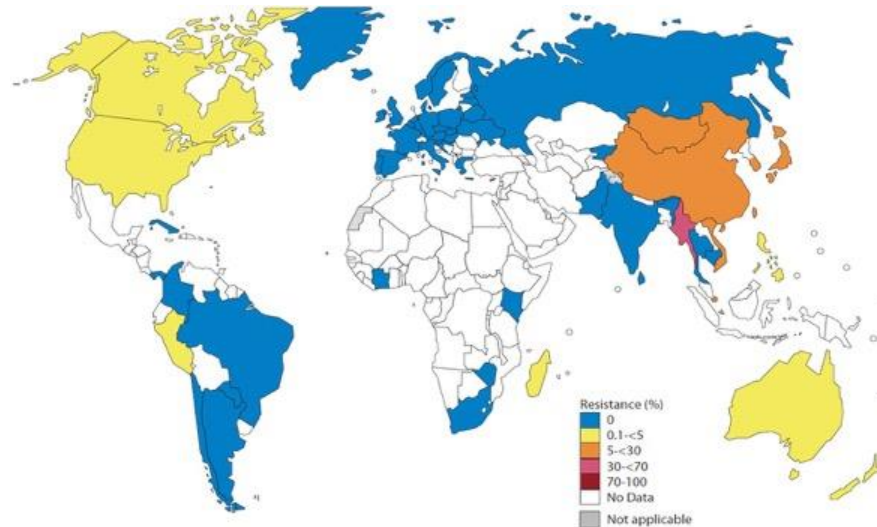
Antibiotic-resistant gonorrhoea on the rise, new drugs needed

new drugs needed

Countries with reported decreased susceptibility/resistance (DS/R) to ceftriaxone & azithromycin in *N. gonorrhoeae*, WHO GASP 2015-16


Ceftriaxone
15/63 (23.8%) countries
7 countries $\geq 5\%$

Azithromycin
50/62 (81%) countries
30 countries $\geq 5\%$



Emerging Threats – Treatment Shortages

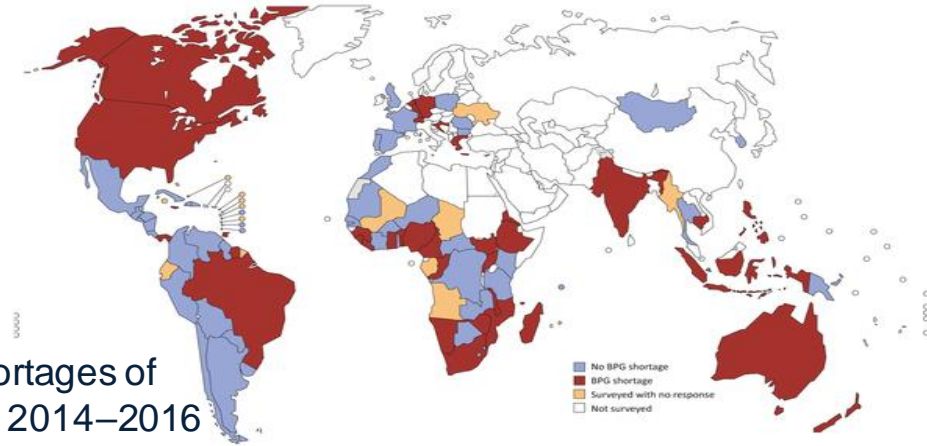
Shortages of benzathine penicillin for prevention of mother-to-child transmission of syphilis: An evaluation from multi-country surveys and stakeholder interviews

Stephen Nurse-Findlay , Melanie M. Taylor, Margaret Savage, Maeve B. Mello, Sanni Saliyou, Manuel Lavayen, Frederic Seghers, Michael L. Campbell, Françoise Birgirimana, Leopold Ouedraogo, Morkor Newman Owiredo, Nancy Kidula, Lee Pyne-Mercier

Published: December 27, 2017 • <https://doi.org/10.1371/journal.pmed.1002473>



Countries with reported shortages of benzathine penicillin G (BPG) 2014–2016

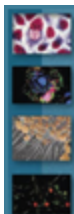


- Of 95 countries / territories, 41% reported shortage; 10 (12%) used alternatives for maternal syphilis
- Sterile injectable BPG expensive to make
 - Manufacturers abandon production or implement stringent ordering protocols; compromise supply
- Shortages compromise treatment of adult syphilis, prevention of congenital syphilis, and treatment of other conditions (rheumatic heart disease)

HIV Risk Increased by STI

- Curable STIs increase risk of HIV acquisition up to 5-fold
- HSV-2 infection: **3-fold** increased risk of acquiring HIV
- HSV-2 and HIV co-infection: **more likely** to transmit HIV

STIs in Era of PrEP and TasP



Sexually Transmitted Diseases

JOURNAL OF THE AMERICAN SEXUALLY TRANSMITTED DISEASES ASSOCIATION

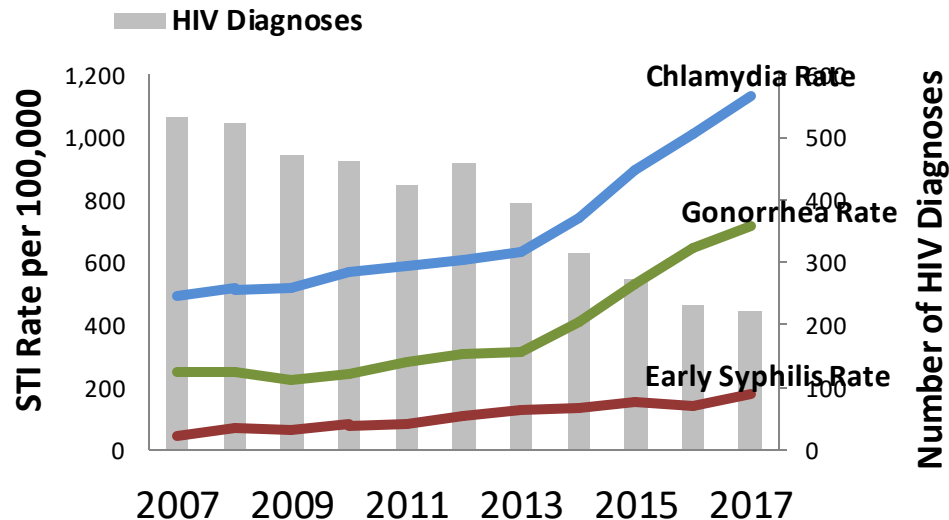
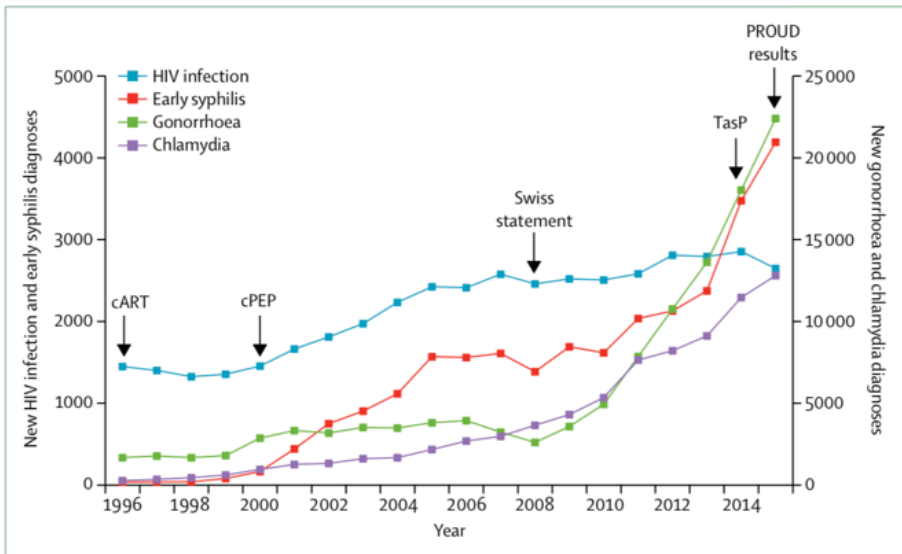
Proportion of Incident Human Immunodeficiency Virus Cases Among Men Who Have Sex With Men Attributable to Gonorrhea and Chlamydia A Modeling Analysis

Jones, Jeb PhD, MPH, MS^{*}; Weiss, Kevin MPH^{*}; Mermin, Jonathan MD[†]; Dietz, Patricia DrPH[†]; Rosenberg, Eli S. PhD[‡]; Gift, Thomas L. PhD[†]; Chesson, Harrell PhD[†]; Sullivan, Patrick S. DVM, PhD^{*}; Lyles, Cynthia PhD[†]; Bernstein, Kyle T. PhD[†]; Jenness, Samuel M. PhD^{*}

10% of New HIV in MSM caused by chlamydia and/or gonorrhea

MSM in England

San Francisco, U.S.



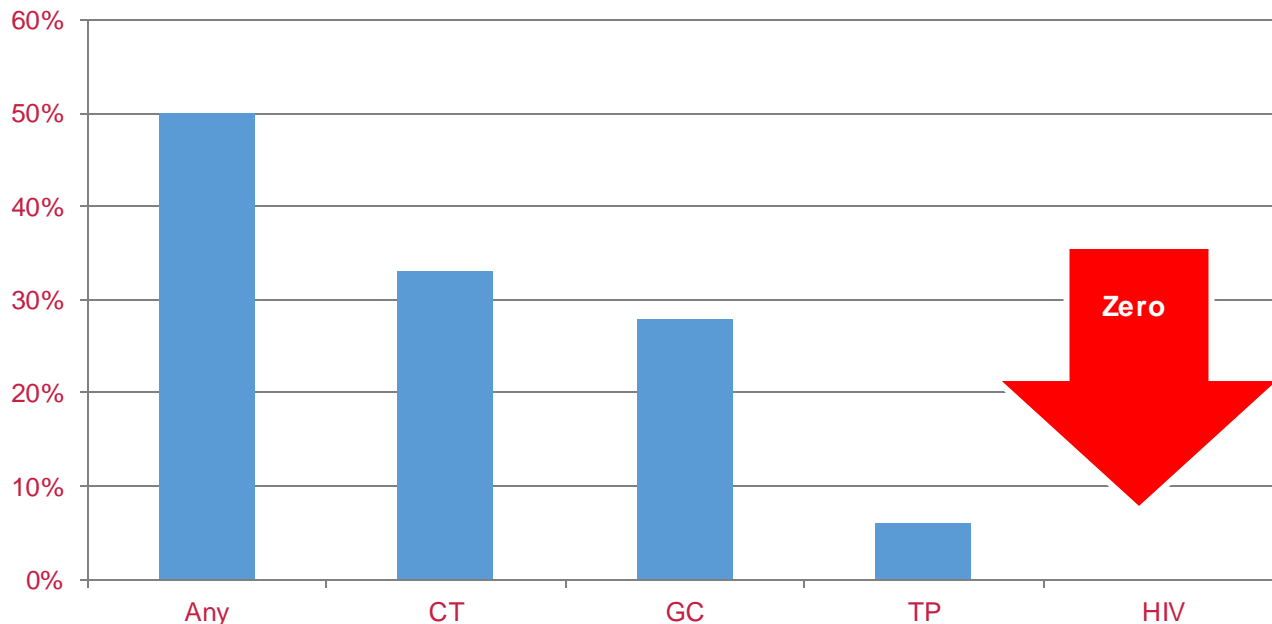
STI Incidence in Persons Using PrEP

Kaiser-Permanente, San Francisco, USA

N=657

12-month cumulative STI percentages

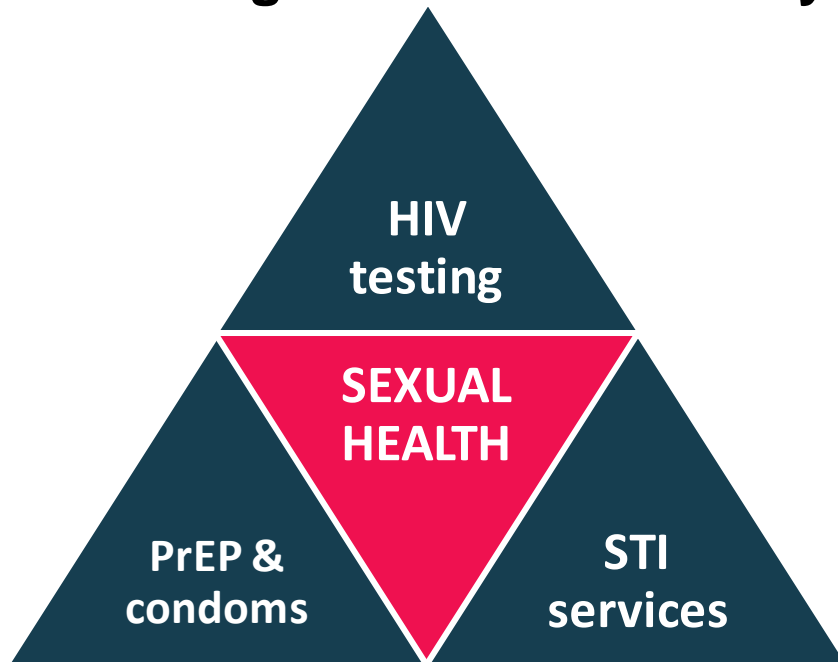
STI rates were high, but **no HIV** occurred, in one large PrEP program from the US



Source: Volk et al. Clin Infect Dis 2015
Simelela, WHO, IAS 2018

PrEP for HIV: Gateway for STI services

Promoting sexual health in key populations and other groups



- **STI screening and treatment**
 - HIV syphilis dual test
 - PCR for gonorrhoea and chlamydia
 - Opportunity to accelerate point-of-care test development
- **Partner management**
- **Provision of quality sexual health services**

Source: Simelela, WHO, IAS 2018

STIs and TasP



National Coalition
of STD Directors

SEPTEMBER 2019

SUPPORTING U=U & SEXUAL HEALTH

A Statement by National Coalition of STD Directors



JIAS JOURNAL OF THE
INTERNATIONAL AIDS SOCIETY
Open Access



Editorial | [Open Access](#) | [CC](#) [i](#)

HIV and sexually transmitted infections: reconciling estranged
bedfellows in the U = U and PrEP era

Kenneth H Mayer [✉](#) Henry JC de Vries

First published: 30 August 2019 | <https://doi.org/10.1002/jia2.25357>

- **STI prevention/care and TasP must be regarded in broader sexual health context**
- **STIs complicate HIV control efforts**
- **Clinicians face new challenges in addressing STIs in the current treatment-as-prevention era**
- **Provision of quality sexual health services will rely on integrating STI and HIV care**
- **There is need for point-of-care tests for STIs and integration into routine HIV care**

Current Developments - US

- Ending the HIV Epidemic
- Federal Funding for STI Prevention
- STI Federal Action Plan
- NAPA/NASEM Studies
- NIH calls for focus on STI research

Ending the HIV Epidemic

A PLAN FOR AMERICA



NEWS RELEASES

Media Advisory

Monday, September 9, 2019

NIAID officials call for innovative research on sexually transmitted infections

Current Development - Global



PREVENTION AND CONTROL OF SEXUALLY TRANSMITTED INFECTIONS (STIs) IN THE ERA OF ORAL PRE-EXPOSURE PROPHYLAXIS (PrEP) FOR HIV

JULY 2019



Understanding and addressing the HIV and
STI syndemics

Guest Editors: Kenneth H Mayer, Henry JC de Vries
Supplement Editor: Marlène Bras

THE LANCET
Infectious Diseases

ARTICLES | ONLINE FIRST

Safety and immunogenicity of the chlamydia vaccine
candidate CTH522 adjuvanted with CAF01 liposomes or
aluminium hydroxide: a first-in-human, randomised,
double-blind, placebo-controlled, phase 1 trial

Sonya Abraham, MD [†] • Helene B Juel, PhD [†] • Peter Bang, MSc • Hannah M Cheeseman, PhD

Rebecca B Dohn, MSc • Tom Cole, PhD • et al. [Show all authors](#) • [Show footnotes](#)

Published: August 12, 2019 • DOI: [https://doi.org/10.1016/S1473-3099\(19\)30279-8](https://doi.org/10.1016/S1473-3099(19)30279-8) •



JUNE 2016

GLOBAL HEALTH SECTOR STRATEGY ON
**SEXUALLY TRANSMITTED
INFECTIONS 2016–2021**

TOWARDS ENDING STIs

Opportunities: A Way Forward

- Update national STI, Treatment, and PrEP guidelines
- Fund STI prevention and care
- Increase STI research including POC diagnostics and vaccines
- Utilize STI public health system for sharing surveillance data, using DIS, ramping up PrEP and TasP at STD clinics, promoting community/consumer voices for both STIs/HIV
- Build on the current global momentum around drug resistance (AMR), HPV Vax, and viral hep elimination
- Integrate STI services into existing HIV services, including PrEP programs (and vice versa).
- Move beyond the syndromic approach to diagnosing STIs and invest in diagnostic testing.
- Develop and implement training in provision of both STI and PrEP services for health-care providers.
- Negotiate lower costs for NAAT assays, treatment and vaccines (e.g. HBV, HPV vaccines).
- Expand the use of multitesting platforms such as the dual HIV/syphilis test and POC test for GC and CT.

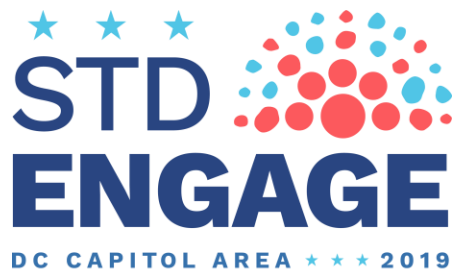
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November 19 - 22



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