Stronger Together: Exploring the Cross-Cutting Benefits of HIV and STI Prevention

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Speaker Disclosures

Speaker: Dr. Anu Hazra

Disclosures:

• Unrestricted research grant, Gilead Sciences
• Advisory Board, Gilead Sciences, ViiV Healthcare
• This presentation will include discussion of pharmaceuticals or devices that have not been approved by the FDA.
• “Off-label” use of HIV Pre-Exposure Prophylaxis (PrEP)
Learning Objectives

- Describe the syndemic of HIV and STI
- Explore how novel STI prevention strategies like doxyPEP can be integrated to HIV prevention
- Recognize the challenges with doxyPEP implementation and how we can avoid the historical missteps of HIV PrEP
The State of STIs in the United States, 2022

- 1.6 million cases of Chlamydia, 6.2% decrease since 2018
- 648,056 cases of Gonorrhea, 11% increase since 2018
- 207,255 cases of Syphilis, 80% increase since 2018
- 3,755 cases of Syphilis among newborns, 183% increase since 2018

CDC’s 2022 STI Surveillance Report underscores that STIs must be a public health priority.

Learn more at: www.cdc.gov/ std/
1 in 5 people in the United States had an STI in 2018 on any given day.

Report case rates chlamydia, gonorrhea, and syphilis have been increasing over the last two decades.

Although diagnosed STI rates have increased across all populations in the United States, marginalized groups—youth, women, lesbian, gay, bisexual, transgender, and queer (LGBTQ+) people, and Black, Latino/x, American Indian/Alaska

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**STATE OF STIS IN THE UNITED STATES**

- People ages 15–24 make up 13% of the population but account for 22% of syphilis cases, 42% of gonorrhea cases, and 62% of chlamydia cases.

Centers for Disease Control and Prevention and U.S. Census Bureau.
Medical expenditures associated with STIs in the US are approaching $16 billion per year.

Long-term effects of STIs include infertility, miscarriage or newborn death, and increased risk of HIV infection.

CDC estimated that incident STIs imposed more than $2 Billion in lifetime direct medical costs in the United States in 2018.
Annual CDC STD Prevention Budget, FY 2003–FY 2022 and Total Syphilis Cases
50% drop in per-capita purchasing power since 2003*

*Inflation adjustment is to 2003 dollars. Funding years for the bars are USG fiscal years. Inflation adjustment used the “all items” component of the consumer price index (CPI). Population adjustment for a given year was calculated by dividing national population in 2003 by national population in the given year.
Syndemic Problems Require Syndemic Solutions

- Systemic Racism
- Homophobia
- Transphobia
- Housing
- Social Determinants of Health

Increased Synergistic Impact on Affected Communities

SYNDEMIC

- HIV
- STIs
- Mental Health
- Mpopx

Slide Courtesy of Demetre Daskalakis, MD, MPH
Primary and Secondary Syphilis — Reported Cases by Sex and Sex of Sex Partners, 31 States*, 2015–2019

*31 states were able to classify ≥70% of reported cases of primary and secondary syphilis among males as either MSM or MSW for each year during 2015–2019.

ACRONYMS: MSM = Gay, bisexual, and other men who have sex with men; MSW = Men who have sex with women only

Centers for Disease Control and Prevention and U.S. Census Bureau.
Primary and Secondary Syphilis — Reported Cases by Sex, Sex of Sex Partners, and HIV Status, United States, 2019

ACRONYMS: MSM = Gay, bisexual, and other men who have sex with men; MSW = Men who have sex with women only

Centers for Disease Control and Prevention and U.S. Census Bureau.
Syphilis and HIV

- Syphilis thought to facilitate HIV acquisition and transmission
  - HIV can be found on syphilitic lesions
  - Syphilis infection cause transient increase of HIV VL
- Epidemiological link between syphilis and HIV
  - High rates of HIV co-infection, particularly among MSM and TWSM
  - One study found median time to HIV diagnosis to be 1.6 years
- Increased morbidity in PWLH
  - Early neurosyphilis and ocular syphilis
  - Higher rates of treatment failure

A Vicious Cycle: STDs *predict* future HIV

**Rectal GC or CT**
1 in 15 MSM were diagnosed with HIV within 1 year.*

**Primary or Secondary Syphilis**
1 in 18 MSM were diagnosed with HIV within 1 year.**

**No rectal STD or syphilis infection**
1 in 53 MSM were diagnosed with HIV within 1 year.*

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*STD Clinic Patients, New York City. Pathela, CID 2013:57;
**Matched STD/HIV Surveillance Data, New York City. Pathela, CID 2015:61
DOXYCYLINE

- Second-generation tetracycline antibiotic
- Widely available, inexpensive, and well-tolerated
- Broad spectrum of anti-microbial activity
- Used to treat multiple STIs
  - 1st line therapy for chlamydia trachomatis infections
  - Alternative therapy for P&S syphilis infections
  - No longer used to treat N.gonorrhea due to tetracycline resistance
- Teratogenic drug class, contraindicated in pregnancy
  - Review by the Teratogen Information System (TERIS) concluded that therapeutic doses during pregnancy are unlikely to pose a substantial teratogenic risk
  - Data are insufficient to state that there is no risk
DOXYCYLINE PRE-EXPOSURE PROPHYLAXIS (DOXY PREP)

- Randomized controlled pilot study of MSM LWH
- Subjects (n=30) were block randomized
  - Doxycycline hyclate 100mg daily for 36 weeks
  - Incentive-based arm for remaining STD-free (in addition to compensation to enroll in study)
- 73% reduction in syphilis, gonorrhea, or chlamydia in those taking Doxy PrEP with no difference in reported sexual behaviors between the two groups.

DOXYCYCLINE POST-EXPOSURE PROPHYLAXIS (DOXY PEP)

- Open-label extension of the ANRS IPERGAY trial in France

- MSM and TWSM without HIV (n=232) were randomly assigned (1:1)
  - single oral dose of 200 mg doxycycline PEP within 24h after sex (max 3x/wk)
  - no prophylaxis

- Primary endpoint was the occurrence of a first STI (gonorrhea, chlamydia, or syphilis) during the 10-month follow-up

DOXY PEP

Demographics (n=232)

- 95% white
- Average age of 38
- 86% employed; 92% reported some college
- Average 10 partners in past 8 weeks
- Average 10 sex actions in past 4 weeks
- 17% with STI at baseline visit
- Followed for median 8.7 months
DOXY PEP

- Doxy PEP reduced the occurrence of a first episode of bacterial STI by 47%
  - no significant difference in reported sexual behaviors

- Reduction of chlamydia and syphilis infections by 70% and 73% respectively with 200mg Doxy PEP

- Rates of gonococcal infections between the two groups did not differ
  - No change in genotypic markers of tetracycline resistance

- No HIV seroconversions were observed
No difference between doxy PEP and no PEP arms for:
- Number of sex acts in past 4 weeks
- Number of sex partners in past 8 weeks
- Condomless anal sex encounters

Condom use with anal sex declined in both groups from 20% to 10%
ADVERSE EFFECTS WITH DOXY PEP

- Participants used on average 6.8 pills of doxycycline a month
- Frequency of Grade 3 or 4 AE did not differ
- Higher rates of GI AEs in Doxy PEP group
- 8 patients (7%) discontinued doxycycline due to AEs

GAUGING CURRENT INTEREST

- Survey of MSM and TWSM seen at STI Clinics in Toronto and Vancouver found:
  - 60.1% would be willing to use doxy PEP
  - 44.1% would be willing to use doxy PrEP

- Survey of Australian MSM found:
  - 52.7% would be very or slightly likely to use doxycycline to prevent syphilis
  - 75.8% felt very or slightly strongly that chemoprophylaxis would help reduce syphilis infections in their communities


GAUGING CURRENT INTEREST & USE

- Large multi-city sample of individuals using a gay social networking app
  - 84% of participants expressed interest in trying doxy PEP
  - African-American and Hispanic/Latinx respondents had higher interest in doxycycline-PEP than White respondents

- Prevalence of doxycycline PEP/PrEP use in Seattle
  - 9.3% reported already using doxycycline prophylaxis
  - Willingness to take doxycycline prophylaxis was more common among those with HIV (62%) or on PrEP (60%)


Dombrowski JC. Doxycycline Prophylaxis Use among Cisgender Men and Transgender Persons who have Sex with Men in Seattle. CDC STD Prevention Conference 2020.
TARGET POPULATION FOR DOXY PEP/PREP

- Large proportion of STIs occur among those with repeat infections

- In Massachusetts between 2014-2016
  - 0.2% of the general population acquired ≥1 repeat STI diagnoses
  - Accounted for 27.7% of all STIs during the same period

- “Core” disease transmitters disproportionately effected by STI morbidity

- Novel STI prevention efforts need to start with this population

**Inclusion Criteria:**
- Male sex at birth
- >1 STI in previous 12 months
- Condomless sex with ≥1 male partner in past 12 months

**Population:**
- PrEP (n=327); HIV+ (n=174)
- Non-white - 33%, Hispanic -30%
- Median # sexual partners in previous 3 months - 9
- Substance use in past 3 months - 59%

**Adherence:**
- 87% of condomless sex acts covered
- Median 7 sex acts per month
- 16% took ≥20 doses/month
- 30% took 10-20 doses/month

Luetkemeyer A, et al. AIDS 2022; Montreal, Canada; July 29-Aug 2, 2022; Abst. OALBX0103.
**Primary Outcome:** Risk reduction in STI Incidence per quarter - 0.35 (0.27 – 0.46), p<0.0001

<table>
<thead>
<tr>
<th>STI</th>
<th>Reduction per Quarter</th>
<th>Risk Reduction (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PrEP</strong></td>
<td><strong>PLWH</strong></td>
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<tr>
<td>GC</td>
<td>0.45</td>
<td>(0.32 – 0.65)</td>
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<tr>
<td></td>
<td></td>
<td>p&lt;0.0001</td>
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<tr>
<td></td>
<td>0.43</td>
<td>(0.26 – 0.71)</td>
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<tr>
<td></td>
<td></td>
<td>p=0.001</td>
</tr>
<tr>
<td>CT</td>
<td>0.12</td>
<td>(0.05 – 0.225)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td></td>
<td>0.26</td>
<td>(0.12 – 0.57)</td>
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<tr>
<td></td>
<td></td>
<td>p&lt;0.0007</td>
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<tr>
<td>Syphilis</td>
<td>0.13</td>
<td>(0.03 – 0.59)</td>
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<tr>
<td></td>
<td></td>
<td>p=0.0084</td>
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<tr>
<td></td>
<td>0.23</td>
<td>(0.04 – 1.29)</td>
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<tr>
<td></td>
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<td>p=0.095</td>
</tr>
</tbody>
</table>

**PrEP cohort**

- **Gonorrhea**
  - 52/570 (9.1%)
  - 52/257 (20.2%)

- **Chlamydia**
  - 8/570 (1.4%)
  - 31/257 (12.1%)

- **Syphilis**
  - 2/570 (0.4%)
  - 7/257 (2.7%)

**PLWH cohort**

- **Gonorrhea**
  - 27/305 (8.9%)
  - 26/128 (20.3%)

- **Chlamydia**
  - 12/305 (3.9%)
  - 19/128 (14.8%)

- **Syphilis**
  - 2/305 (0.7%)
  - 3/128 (2.3%)
No. of Events/
No. of Participants

Standard-Care Groups
- PrEP cohort: 53/107
- PLWH cohort: 24/55

Doxycycline Groups
- PrEP cohort: 51/220
- PLWH cohort: 30/119

Hazard ratio for PrEP cohort:
- 0.34 (95% CI, 0.23–0.51)

Hazard ratio for PLWH cohort:
- 0.48 (95% CI, 0.28–0.83)

Study Design

- Multicenter, 2 x 2 factorial randomized, open-label, superiority, phase III trial (NCT04597424)

- Primary efficacy end-points: impact of DoxyPEP on time to a first episode of syphilis or chlamydia and impact of the 4CMenB vaccine on time to a first episode of *N. gonorrhoeae* infection.

- Sample size: based on vaccine effectiveness assuming no impact of Doxy PEP on GC: 720 subjects needed for an HR: 0.70 (Estimated probability of a first GC episode over 18 months: 52%, 18% lost to FU).

- Quarterly visits with PCR tests (Roche dual target Cobas®) for GC/CT/MG (3 sites) and serology for TP

- Doxycycline monohydrate purchased from Arrow and 4CMenB vaccine purchased from GSK
Population (n=556)
- 88% White
- Average age 40
- Average 2 STIs in past year
- 10 partners in past 3 months
- 23% w/STI at enrollment

Median 6 pills/month
70% self reported coverage

Data for MenB vaccination to prevent GC was inconclusive
Small benefit (~20-30%) possible
Similar rates of cumulative as well as symptomatic infections
Phase 3 trial of gonorrhea specific vaccine ongoing

GSK receives US FDA Fast Track designation for investigational vaccine against gonorrhoea

Molina JM, et al. Lancet Infect Dis. 2024 May 23;S1473-3099(24)00236-6
DPEP-KE

- 1:1 open-label randomized trial
  - Intervention: 200mg doxycycline within 72hrs of sex
  - SOC: quarterly STI screening and treatment

- Population (n=449) in Kimusu, Kenya
  - Average age 24
  - 70% never married
  - Average 2 partners in the past 3 months
  - 18% with STI at enrollment
  - Median of 4 doxyPEP doses/month
  - 80% sex acted covered with doxyPEP by self-report

- No difference in 1st STI or CT
  - Drug only detected in 56% of participants
  - 4 social harms reported in setting of unintentional disclosure of doxyPEP use

CONCERN FOR ANTIMICROBIAL RESISTANCE

- Tetracycline resistance already seen in gonorrhea (higher in MSM)

- Chlamydia treatment failure seen in 5-23% of cases, however clear resistance to tetracycline not identified

- Mycoplasma genitalium (MG) emerging cause of NGU in MSM, seeing resistance to tetracycline

- No established standards for identifying or measuring doxycycline resistance in NG, CT, MG, or TP

- Concern for resistance of commensal flora (staphylococcus, streptococcus, etc)
Tetracycline (TCN) Resistance for GC and CT

- **GC:**
  - 78 cultures available for resistance testing (17% of PCR positive events)
  - Tetracycline MICs determined by Etest
  - Resistance using EUCAST 2023 breakpoints
    - Resistance: MIC > 0.5 mg/L
    - High level resistance: MIC > 8 mg/L

- **CT:**
  - 4/23 swabs tested for TCN-R in culture: no resistance (but none from PEP arm)
  - 68/126 PCR+ swabs with 16S rRNA sequences: no TCN-R mutation (only 8 from PEP arm)

Figure 4. Antimicrobial Resistance and Culture Positivity in Neisseria gonorrhoeae and Staphylococcus aureus.

In Panel A, the bar height represents *N. gonorrhoeae* cultures obtained from participants with lab-confirmed gonorrhea at baseline and for adjudicated gonorrhea and points according to study group during follow-up. Of the gonorrhea diagnoses, 44 of 236 *N. gonorrhoeae* infections (17.2%) had data available for resistance testing. The dark shading represents high-level tetracycline resistance (minimum inhibitory concentration [MIC], ≥2 μg per milliliter). The light shading represents *N. gonorrhoeae* without high-level tetracycline resistance. Gonorrhea culture was performed through the Centers for Disease Control and Prevention (CDC) Strengthening the United States Response to Resistant Gonorrhea program, and tetracycline-resistance testing was performed by agar dilution through the CDC Antimicrobial Resistance Laboratory Network. With respect to Panel B, all the participants had oropharyngeal swabs obtained at enrollment and at months 6 and 12, which were cultured for *S. aureus*. The bar height represents the percentage culture-positive for *S. aureus*, and the dark shading represents specimens with doxycycline resistance by ETEST (MIC, ≥16 μg per milliliter).

Resistance for GC and CT
OTHER RESISTANCE CONCERNS

- Widespread use of doxyPEP will select for tetracycline-resistant gonorrhea
- Limited long-term benefit for extragenital GC
- DoxyPEP will not be our answer to reducing GC infections
- Theoretical risk of selective dual-resistance GC isolates (bacteria resistant to TCN as well as cephalosporin)

- We must weigh these real AMR concerns with the significant reductions seen in syphilis and chlamydia infections
<table>
<thead>
<tr>
<th>Study</th>
<th>Population (n)</th>
<th>DoxyPEP use</th>
<th>Primary Finding</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPERGAY Molina et al.</td>
<td>HIV-neg MSM (n=232)</td>
<td>3.4 doses/mo</td>
<td>47% reduction in first STI</td>
<td>homogenous study population</td>
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<tr>
<td></td>
<td></td>
<td>(86% coverage)</td>
<td>No difference in GC</td>
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<tr>
<td>DoxyPEP Luetkemeyer et al. NEJM 2023</td>
<td>MSM/TWSM (HIV-neg n=327) (LWH n=174)</td>
<td>4 doses/mo</td>
<td>66% reduction in first STI</td>
<td>&lt;5% TWSM</td>
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<tr>
<td></td>
<td></td>
<td>(86% coverage)</td>
<td>GC, CT, and syphilis</td>
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<tr>
<td>DOXYVAC Molina et al.</td>
<td>HIV-neg MSM (n=700)</td>
<td>3.5 doses/mo</td>
<td>65% reduction in first STI</td>
<td>homogenous study population</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(83% coverage)</td>
<td>GC, CT, and syphilis</td>
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<tr>
<td>dPEP-KE Stewart et al.</td>
<td>HIV-neg ciswomen (n=449)</td>
<td>? doses/mo</td>
<td>No reduction in first STI</td>
<td>4 social harms reported in doxyPEP group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(78% coverage)</td>
<td></td>
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<tr>
<td>SYPHILAXIS Haire et al. NCT03709459</td>
<td>HIV-neg MSM (enrolling)</td>
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<tr>
<td>DISCO Grennan et al. NCT04762134</td>
<td>MSM (not yet enrolling)</td>
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</table>
Several questions/concerns remain:

- Long term safety and AE data needed
- Clearly identify target population
- Monitoring resistance to STIs as well as commensal flora
- Education efforts, distinguishing HIV PEP/PrEP from Doxy PEP

Urgency of ongoing STI burden on MSM and TWSM compels us to act now
LOCAL AND NATIONAL DOXYPEP GUIDANCE

Table 2. Current Published Doxy-PEP Guidance

<table>
<thead>
<tr>
<th>Agency</th>
<th>Patient Population and Eligibility</th>
<th>Strength of Guidance</th>
<th>Screening Recommendations</th>
<th>Doxy-PEP should be considered primarily for the prevention of syphilis in GBM/M</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>National and international agencies</td>
<td>GBM/VM with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
<td>Consider</td>
<td>STI screening should continue in line with guidelines for GBM/M, screening for NG, CT, PT every 3 m</td>
<td>Doxy-PEP should be considered primarily for the prevention of syphilis in GBM/M</td>
<td>GBM/M with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
</tr>
<tr>
<td>British Association for Sexual Health and HIV (BASHH)/UK Health Security Agency (UHSA) [26]</td>
<td>Doxy-PEP taken as PEP or PEP for syphilis or chlamydia is not endorsed</td>
<td>Non-recommended</td>
<td>Routine HIV and STI among patients who choose to use doxy-PEP</td>
<td>...</td>
<td>GBM/M with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
</tr>
<tr>
<td>European AIDS Clinical Society (EACS) [28]</td>
<td>Discussion on the use of doxy-PEP and doxy-PEP should be undertaken in men with HIV with recent bacterial STI</td>
<td>Consider</td>
<td>...</td>
<td>Offer if locally available and following local guidance</td>
<td>GBM/M with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
</tr>
<tr>
<td>German STI Society/ Deutsche STI-Gesellschaft (DSTG) [29]</td>
<td>MSW and TGW with recurrent syphilis infections, bacterial STIs in the past 6 m, sex with 10 or more male partners in the last 6 mo, stimulant use during sex, or QM of HIV</td>
<td>Consider</td>
<td>Screen for HIV, syphilis, NG, CT at initiation and every 3-6 m</td>
<td>Narrow use restricted to MSW and TGW who meet criteria; broad implementation not recommended at this time</td>
<td>GBM/M with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
</tr>
<tr>
<td>International Antiviral Society—USA (IASUSA) [36]</td>
<td>Consider</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>GBM/M with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
</tr>
<tr>
<td>US Centers for Disease Control and Prevention (CDC) [31]</td>
<td>GBM/M and TGW with at least 1 bacterial STI in the past 12 mo</td>
<td>Consider</td>
<td>Screen for HIV, syphilis, NG, CT at initiation and every 3-6 m</td>
<td>No recommendation for cisgender women, transgender nonbinary men, transgender men, and other queer and nonbinary people</td>
<td>GBM/M with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
</tr>
<tr>
<td>National Coalition of STD Directors [55]</td>
<td>GBM/M and TGW</td>
<td>Recommend</td>
<td>...</td>
<td>Need to develop equitable criteria for offering Doxy-PEP</td>
<td>GBM/M with recent syphilis diagnosis, 2 or more bacterial STIs with past 12 mo, anticipated increased STI vulnerability, concurrent sexual male and cisgender female partners</td>
</tr>
</tbody>
</table>

Notes:
- AZM, azithromycin; NRTI, nonnucleoside reverse transcriptase inhibitor; LPF, tenofovir disoproxil fumarate; FTC, emtricitabine and TDF, tenofovir disoproxil fumarate.

California Department of Public Health [33] MSW and TGW with a 3-bacterial STI in the past 12 mo, recommend Doxy-PEP based on personal risk and needs, not for the prevention of syphilis in GBM/M.

Oregon Health Authority [38] Cisgender men who were infected with syphilis in the past 12 mo and are at risk of reinfection, recommend Doxy-PEP for the prevention of syphilis in GBM/M.

San Francisco Department of Public Health [34] MSW and TGW with a 3-bacterial STI in the past 12 mo, recommend Doxy-PEP based on personal risk and needs, not for the prevention of syphilis in GBM/M.

Michigan Department of Health and Human Services [36] MSW and TGW with a 3-bacterial STI in the past 12 mo, recommend Doxy-PEP for the prevention of syphilis in GBM/M.

New York City Department of Health and Mental Hygiene [37] MSW and TGW with a 3-bacterial STI in the past 12 mo, recommend Doxy-PEP for the prevention of syphilis in GBM/M.

New York State Department of Health AIDS Institute [37] MSW and TGW with a 3-bacterial STI in the past 12 mo, recommend Doxy-PEP for the prevention of syphilis in GBM/M.

Philadelphia Department of Public Health [33] MSW and TGW with a 3-bacterial STI in the past 12 mo, recommend Doxy-PEP based on personal risk and needs, not for the prevention of syphilis in GBM/M.

Other Doxy-PEP using shared decision-making to all men who have sex with men, including people AFAH, who otherwise meet clinical criteria.

HAZRA A, ET AL. CLIN INFECT DIS 2024 FEB 9: CIAE062
REAL WORLD DATA FROM SFDPH

Figure. Observed and modelled chlamydia and early syphilis cases among MSM and TGW in San Francisco pre and post doxy-PEP implementation

Striking similarities between HIV PrEP and DoxyPEP

- Novel biomedical intervention with significant impact in priority populations
  - Concerns of anti-microbial resistance/misuse
  - Equity concerns regarding utilization and uptake
  - Data in cisgender women are lacking

So, what’s different now?

- Signals of higher interest in Black and Hispanic/Latinx men

WE SHOULD KNOW AND DO BETTER
MATEC Resources

- National Clinician Consultation Center
  http://nccc.ucsf.edu/
  - HIV Management
  - Perinatal HIV
  - HIV PrEP
  - HIV PEP line
  - HCV Management
  - Substance Use Management
- AETC National HIV Curriculum
  https://aidsetc.org/nhc
- AETC National HIV-HCV Curriculum
  https://aidsetc.org/hivhcv

National PrEP Curriculum:
https://www.hivprep.uw.edu

Hepatitis B Online: https://www.hepatitisb.uw.edu

Hepatitis C Online:
https://www.hepatitisc.uw.edu

AETC National Coordinating Resource Center: https://aidsetc.org/

Additional Trainings: https://matec.info