Ending the HIV/STI Epidemic Through Prevention

Jason Zucker, MD

Assistant Professor of Medicine at the Columbia University Irving Medical Center Assistant Medical Director, NYC STI Prevention Training Center JZ2700@cumc.columbia.edu

COLUMBIA COLUMBIA UNIVERSITY IRVING MEDICAL CENTER



Objectives

- 1. Review the state of the HIV/STI Epidemic
- 2. Summarize the current landscape of HIV/STI prevention options
- 3. Appraise new methods for STI prevention like Doxy-PEP
- 4. Discuss implementation of Doxy-PEP



Audience Poll #1

Where is your clinic on your Doxy-PEP Journey? (Choose the closest)

- 1. We offer Doxy-PEP routinely to all patients
- 2. We offer Doxy-PEP routinely to patients with an STI in the prior 12 months
- 3. We offer Doxy-PEP in patients who ask for it
- 4. We don't offer Doxy-PEP currently but are planning to in the next 6 months
- 5. We don't offer Doxy-PEP currently but may in the future
- 6. We do not have plans to offer Doxy-PEP





STIs Represent A Worsening Epidemic – Worldwide



 1 million STIs are acquired every day

Annual new infections:

- Chlamydia 129 million
- Gonorrhea 82 million
- Syphilis 7.1 million

COLUMBIA UNIVERSITY

COLUMBIA

https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/stis/strategic-information https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)



STIs Represent A Worsening Epidemic – In US



٠

COLUMBIA UNIVERSITY Irving Medical Center

COLUMBIA

https://www.cdc.gov/std/statistics/infographic.htm https://www.cdc.gov/std/statistics/2023/figures.htm



Why Do We Need to Prevent STIs?

Males to Female Ratio - Syphilis

COLUMBIA

Congenital Syphilis



.

https://www.cdc. /std/statistics/2021/default.htm



COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

Why Do We Need to Prevent STIs?

Rising Gonorrhea Resistance



COLUMBIA



The Commonwealth of Massachusetts Executive Office of Health and Human Services Department of Public Health Bureau of Infectious Disease and Laboratory Sciences 305 South Street, Boston, MA 02130

MAURA T. HEALEY Governor KIMBERLEY DRISCOLL Lieutenant Governor Division of STD Prevention Tel:__(617) 983-6940 Fax: (617) 887-8790 www.mass.gov/dph/cdc/std

MARY A. BECKMAN Acting Secretary

MARGRET R. COOKE Commissioner

Tel: 617-624-6000 www.mass.gov/dph

CLINICAL ALERT January 19, 2023

MULTI-DRUG NON-SUSCEPTIBLE GONORRHEA IN MASSACHUSETTS

- A novel strain of multidrug-non-susceptible Neisseria gonorrhoeae with reduced susceptibility to ceffriaxone, cefixime, and azithromycin, and resistance to ciprofloxacin, penicillin, and tetracycline, has been identified in a Massachusetts resident. Although ceftriaxone 500 mg IM was effective at clearing infection for this case, this is the first isolate identified in the United States to demonstrate resistance or reduced susceptibility to all drugs that are recommended for treatment.
- Enhanced surveillance has identified a second isolate that, based on its genome, likely has similarly reduced susceptibility to ceftriaxone and cefixime.



COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

Why Do We Need to Prevent STIs?



COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

- STIs Are Not Benign
 - Pelvic inflammatory disease
 - Chronic pelvic pain
 - Infertility
 - Adverse pregnancy outcomes
 - Prematurity
 - Stillbirth
 - Urethral strictures
 - Gastrointestinal fistulas
 - Peri-rectal abscesses
 - Severe complications of syphilis
 - Permanent hearing or vision impairment



STI Prevention Landscape



٠

Illustrated by Barolini, Nicoletta. 2024.



COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

COLUMBIA

Audience Poll #2

Which Prevention Method Are You <u>Least</u> Likely to Offer Patients Regularly? (Choose the closest)

- 1. Barrier protection (condoms)
- 2. Risk reduction counseling
- 3. Vaccination
- 4. Medication prophylaxis
- 5. Routine screening
- 6. Symptomatic treatment
- 7. Presumptive Treatment
- 8. Partner Services (bringing the partner into clinic)
- 9. Expedited partner therapy



CDC Routine Screening Recommendations

Population	Recommendations	
Men who have sex with men	At least annually, test at each site of exposure (urethra, rectum) for sexually active MSM regardless of condom use or every 3-6 months if at increased risk .	
Patients taking PrEP	All patients starting and taking oral PrEP should have genitourinary and extra-genital testing performed at baseline and every 3 months.	
Persons living with HIV	For sexually active individuals, screen at first HIV evaluation and at least annually thereafter. More frequent screening might be appropriate depending on individual risk behaviors and local epidemiology	
Non-pregnant Women	Test at least annually for sexually active women under 25 years of age and those aged 25 years and older <u>if at increased risk</u> Rectal chlamydial testing can be considered in females <u>based on sexual behaviors and exposure</u> through shared clinical decision making.	
Men who have sex with women***	Consider screening young men in high prevalence clinical settings (adolescent and STI clinics and correctional facilities)	
Pregnant Women	All pregnant women under 25 years of age and those aged 25 years and older <u>if at increased risk</u> . Retest during 3rd trimester if under 25 years of age or at risk.	

COLUMBIA



Workowski KA, Bachmann LH, Chan PA, et al. Sexually Transmitted Infections Treatment Guidelines, 2021. MMWR Recomm Rep. 2021;70(4):1-187. Published 2021 Jul 23. doi:10.15585/mmwr.rr7004a1 UHTPS://www.who.int/publications/i/item/9789240052390 IRVING MEDICAL CENTER



Syndromic Testing, Treatment, and Presumptive Treatment

- Urethritis
- Cervicitis
- Dysuria
- Proctitis
- Pharyngitis

Ceftriaxone <u>500</u> mg IM x 1 for persons weighing <150kg*

*For persons weighing ≥ 150kg, 1 g of IM ceftriaxone should be administered

COLUMBIA UNIVERSITY IRVING MEDICAL CENTER If chlamydia has **not** been excluded, treat for chlamydia with:

Doxycycline 100 mg PO twice daily x 7 days

*For pregnancy, allergy, or concern for nonadherence 1g PO Azithromycin can be used

• Exposure

OLUMBIA

Workowski KA, Bachmann LH, Chan PA, et al. Sexually Transmitted Infections Treatment Guidelines, 2021. MMWR Recomm Rep. 2021;70(4):1-187. Published 2021 Jul 23. doi:10.15585/mmwr.rr7004a1



Partner Services

Providing Partner Services

- 1. Evaluate all sex partners in person if possible
 - Empirically treat all partners <60 days
 - Most recent partner if last contact >60 days
- 2. Expedited Partner Therapy

OLUMBIA

- Heterosexual men and women
- Men Who Have Sex With Men Shared Decision Making



https://www.cdc.gov/std/ept/legal/default.htm

.

COLUMBIA UNIVERSITY IRVING MEDICAL CENTER



STI Prevention Landscape



٠

Illustrated by Barolini, Nicoletta. 2024.



COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

COLUMBIA

Barrier Protection

Condoms

- When used correctly prevent multiple sexually transmitted infections
- Not as effective as HIV-PrEP
- Not used consistently for all sexual activities (i.e. oral sex)

Why Don't People Use Condoms?

ENVIRONMENTAL/STRUCTUAL LEVEL:

socioeconomic and situational factors (situational unavailability of condoms; unaffordability of condoms; power imbalance in the relationship)

INTERPERSONAL LEVEL:

condom stigma (a symbol of distrust; a symbol of HIV/STIs prevention; a symbol of violating the traditional cognition of sexual intercourse; a symbol of an embarrassing topic)

INDIVIDUAL LEVEL:

physical discomfort; lack of HIV/STIs-related knowledge; substance use; psychological factors

OLUMBIA COLUMBIA UNIVERSITY IRVING MEDICAL CENTER ·

Smith DK, Herbst JH, Zhang X, Rose CE. Condom effectiveness for HIV prevention by consistency of use among men who have sex with men in the United States. *J Acquir Immune Defic Syndr*. 2015;68(3):337-344. doi:10.1097/QAI.00000000000461

Shen Y, Zhang C, Valimaki MA, Qian H, Mohammadi L, Chi Y, Li X. Why do men who have sex with men practice condomless sex? A systematic review and meta-synthesis. BMC Infect Dis. 2022 Nov 14:22(1):850. doi: 10.1106/s12970-022-07842-7. DMID: 26276935: DMCID:



Behavioral Counseling



- "Behavioral counseling for persons at increased risk for STIs can reduce the likelihood of acquiring STIs (OR, 0.66 [95% CI, 0.54-0.81]) and also increase condom use or decrease the occurrence of unprotected intercourse"
- "Interventions with the largest effects for STI prevention tended to involve **more than 120 min** of total contact time and group counseling, often delivered over multiple sessions for up to 1 year"



Vaccination



COLUMBIA

Specific Recommendations

- Hepatitis A/B
- HPV
- Men ACYW
- Mpox



https://www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

٠





- 1. HIV post-exposure prophylaxis (PEP)
- 2. HIV pre-exposure prophylaxis (PrEP)







- 1. HIV post-exposure prophylaxis (PEP)
- 2. HIV pre-exposure prophylaxis (PrEP)







- 1. HIV post-exposure prophylaxis (PEP)
- 2. HIV pre-exposure prophylaxis (PrEP)
- 3. Doxy-PEP





Meet Marcus

- 29-year-old male in New York City
- Takes HIV PrEP for HIV prevention
- Sexually active with men
 - Four partners since his last visit, no condom usage
- Walks in to clinic due with 2 days of green penile discharge
- Routine testing for HIV, syphilis, and three-site gonorrhea/chlamydia testing performed

COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

 Treated empirically with Ceftriaxone and Doxycycline





Marcus's Prevention Plan



Primary Prevention

Vaccination

- HPV
- Hepatitis A/B
- Meningococcal ACYW
- Mpox

LUMBIA

Medication

• HIV PrEP

Secondary Prevention

Routine screening

- Q3 Month Screening
- Syndromic testing/treatment

Presumptive treatment



Marcus's Results



OLUMBIA



Received additional 7 days (total 14 days) of doxycycline for early latent syphilis due to the BPG shortage at the time



COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

Marcus

- Returned 6 weeks later
- "I got totally better but now it hurts again when I pee"
 - Seven partners since his last visit
 - Is sure that his regular partners got treated for gonorrhea and syphilis
 - Repeat routine testing for HIV, syphilis, and threesite gonorrhea/chlamydia testing was performed
 - Treated empirically with Ceftriaxone and Doxycycline





Marcus's Results



COLUMBIA COLUMBIA UNIVERSITY IRVING MEDICAL CENTER



Marcus

- Called to give Marcus his results and he was pretty upset
- "This is frustrating, is there anything I can do so I stop getting STIs?"





COLUMBIA COLUMBIA UNIVERSITY IRVING MEDICAL CENTER



- 1. HIV post-exposure prophylaxis (PEP)
- 2. HIV pre-exposure prophylaxis (PrEP)
- 3. Doxy-PEP





What is Doxy-PEP?

Doxycycline 200 mg

by mouth up to 72 hours after a condomless sexual ancounter at any anatomic site



- Doxycycline
- 200mg by mouth
- up to 72 hours after
- a condomless sexual encounter at any anatomic site





What Do I Need To Know About Doxy-PEP?

- Benefits (i.e. does it work)
- Risks (i.e. does it harm)
- Implementation (i.e. how can I give it)



Benefits: Does Doxy-PEP Prevent STIs?





Does Doxy-PEP Prevent STIs?

ORIGINAL ARTICLE

Postexposure Doxycycline to Prevent Bacterial Sexually Transmitted Infections

Anne F. Luetkemeyer, M.D., Deborah Donnell, Ph.D., Julia C. Dombrowski, M.D., M.P.H., Stephanie Cohen, M.D., M.P.H., Cole Grabow, M.P.H., Clare E. Brown, Ph.D., Cheryl Malinski, B.S., Rodney Perkins, R.N., M.P.H., Melody Nasser, B.A., Carolina Lopez, B.A., Eric Vittinghoff, Ph.D., Susan P. Buchbinder, M.D., Hyman Scott, M.D., M.P.H., Edwin D. Charlebois, Ph.D., M.P.H., Diane V. Havlir, M.D., Olusegun O. Soge, Ph.D., and Connie Celum, M.D., M.P.H., for the DoxyPEP Study Team*

Doxycycline to prevent bacterial sexually transmitted infections in the USA: final results from the DoxyPEP multicentre, open-label, randomised controlled trial and open-label extension

Anne FLuetkenneyer, Deborah Dannell, Stephanie E Cahen, Julia C Dambrowski, Cale Grabow, Grace Haser, Clare Brown, Chase Cannon, Cheyl Malinski, Rodney Perkim, Melody Nasser, Carolina Lopez, Robert J Schhand, Eric Vittinghoff, Susan P Buchbinde, Hyman Scott, Edwin D Charlebais, Diane' Hanle, Cluregun O Sage, Connie Celum

COLUMBIA

Post-exposure prophylaxis with doxycycline to prevent sexually transmitted infections in men who have sex with men: an open-label randomised substudy of the ANRS IPERGAY trial

Jean-Michel Molina, Isabelle Charreau, Christian Chidiac, Gilles Piafoux, Eric Cua, Canstance Delaugerre, Catherine Capitant, Daniela Rojas-Castro, Julen Fonsart, Béatrice Borcot, Cécile Bébéar, Laurent Cotte, Olivier Robineau, François Raffi, Pierre Charbonneau, Alexandre Aslan, Julie Chas, Laurence Niedhalski, Bruno Spire, Luis Sagaon-Teyssier, Diane Carette, Sozic Le Mestre, Veranique Doré, Laurence Meyer, for the ANRS iPERGAY Study Group[®]

Doxycycline prophylaxis and meningococcal group B vaccine to prevent bacterial sexually transmitted infections in France (ANRS 174 DOXYVAC): a multicentre, open-label, randomised trial with a 2 × 2 factorial design

(ean-Michel Molina, Beatrice Bercot, Lambert Assoumou, Emma Rubenstein, Michele Algarte-Genin, Gilles Pialouz, Christine Katlama, Lawre Surgers, Cécile Bébéar, Nicolas Dupin, Moussa Ouattara, Laurence Slama, Juliette Pavie, Claudine Duvivier, Benedicte Loze, Lauriane Goldwirt, Severine Gibowski, Manon Ollivier, Jade Ghosn, Dominique Castagliofa, for the ANRS 174 DOXYVAC Study Group*

Doxycycline Prophylaxis to Prevent Sexually Transmitted Infections in Women

Jenell Stewart, D.O., M.P.H., Kevin Oware, M.A., Deborah Donnell, Ph.D., Lauren R. Violette, M.P.H., Josephine Odoyo, R.N., M.P.H., Olusegun O. Soge, Ph.D., Caitlin W. Scoville, M.P.H., Victor Omollo, M.B., Ch.B., M.P.H., Felix O. Mogaka, M.B., Ch.B.,
Fredericka A. Sesay, M.B., Ch.B., M.P.H., R. Scott McClelland, M.D., M.P.H., Matthew Spinelli, M.D., M.P.H., Monica Gandhi, M.D., M.P.H., Elizabeth A. Bukusi, M.B., Ch.B., M.Med., M.P.H., Ph.D., and Jared M. Baeten, M.D., Ph.D., for the dPEP Kenya Study Team*



COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

@**`**.

Audience Poll #3

Approximately how effective is Doxy-PEP against chlamydia and syphilis? (Choose the closest)

- 1. 100%
- 2. 80%
- 3. 50%
- 4. 20%
- 5. 0%





What We Know About Doxy-PEP From Trials

Randomized Controlled Trials of Doxy-PEP			
Study	Population	Effectiveness	
IPERGAY	MSM/TGW taking PrEP	<u>Reduction</u> in time to first STI HR 0.53 (0.33-0.85) reduction seen in CT and syphilis but NOT GC	
DoxyPEP	MSM/TGW taking PrEP or PWH	<u>Reduction</u> in STI per quarter RR 0.38 (0.24-0.6)	
DoxyVac	MSM taking PrEP	<u>Reduction</u> in time to first CT or syphilis HR 0.16 (0.08-0.30). Reduction in time to girst GC HR 0.49 ($0.32 - 0.76$)	
dPEP	Females taking PrEP	No reduction in STI incidence RR 0.88 (0.6-1.29)	
MSM = men who have sex with men, TGW = transgender women, PWH = Persons with HIV, GC = gonorrhea, CT = chlamydia, OR = odds ratio, HR = hazards ratio, RR = relative risk reduction			

COLUMBIA UNIVERSITY

IRVING MEDICAL CENTER

- Doxycycline postexposure prophylaxis (PEP) is safe and well tolerated
- Doxy-PEP <u>prevents</u> STIs in MSM and transgender women
- Doxy-PEP <u>did not</u> prevent STIs in women in the dPEP study



More To Come

- Syphilaxis (Australia) Comparing Doxycycline PrEP vs PEP
- CTN 313: The DaDHS Trial Comparing Doxycycline PrEP vs placebo
- **DISCO** Comparing Doxycycline PrEP vs PEP
- FoXXy Doxy ATN/HPTN trial in persons assigned female at birth



Benefits: Does Doxy-PEP Prevent STIs?







The Real World - San Francisco

٠



Significant Reductions

- Chlamydia -6.58% per month
- ES -2.68% per month
- Gonorrhea +1.77% per month

After 13 months

- Chlamydia -49.64%
- ES -51.39%

COLUMBIA COLUMBIA UNIVERSITY IRVING MEDICAL CENTER

Sankaran M, Glidden DV, Kohn RP, Nguyen TQ, Bacon O, Buchbinder SP, Gandhi M, Havlir DV, Liebi C, Luetkemeyer AF, Nguyen JQ, Roman J, Scott H, Torres TS, Cohen SE. Doxycycline Postexposure Prophylaxis and Sexually Transmitted Infection Trends. JAMA Intern Med. 2025 Jan 6. doi: 10.1001/jamainternmed.2024.7178. Epub ahead of print. PMID: 39761052.



The Real World - California (Kaiser)



Quarterly positivity

- Chlamydia 9.6% -> 2%
- Syphilis 1.7% -> 0.3%
- Gonorrhea 10.25 -> 9%
 - Not pharyngeal GC
- Positivity for STIs remained stable in individuals not dispensed Doxy-PEP.

COLUMBIA

COLUMBIA UNIVERSITY Irving Medical Center

٠

Traeger MW, Leyden WA, Volk JE, Silverberg MJ, Horberg MA, Davis TL, Mayer KH, Krakower DS, Young JG, Jenness SM, Marcus JL. Doxycycline Postexposure Prophylaxis and Bacterial Sexually Transmitted Infections Among Individuals Using HIV Preexposure Prophylaxis. JAMA Intern Med. 2025 Mar 1;185(3):273-281. doi: 10.1001/jamainternmed.2024.7186. PMID: 39761062; PMCID: PMC11877173.



The Real World – At 96 Weeks



Clinical Infectious Diseases

BRIEF REPORT

COLUMBIA

Sustained Effectiveness of Doxycycline Post-Exposure-Prophylaxis in a Large Sexual Health Clinic over 96 Weeks: An Interrupted Time Series Analysis

Matthew A. Spinelli, MD, MAS^{1,*}, Megan J. Heise, PhD¹, Jorge Roman, MSN, FNP-BC, AAHIVS², Jason Bena, Pharm.D.², Michael P. Barry, PhD², Susan P. Buchbinder, MD², Hyman M. Scott, MD, MPH²



COLUMBIA UNIVERSITY Irving Medical Center

٠

Spinelli MA, Heise MJ, Roman J, et al. Sustained Effectiveness of Doxycycline Post-Exposure-Prophylaxis in a Large Sexual Health Clinic over 96 Weeks: An Interrupted Time Series Analysis. *Clin Infect Dis*. Published online May 6, 2025. doi:10.1093/cid/ciaf234



The Real World – Other Experiences







Kings County, Washington

COLUMBIA

Boston, Massachusetts

New York City, New York

Presented at 2024 STI Prevention Conference



COLUMBIA UNIVERSITY Irving Medical Center

The Real World - Females

Chicago, Seattle, San Francisco

- Doxy-PEP Provided to 35 persons AFAB
- Decrease in STI diagnosis from 45% to 20%

Tokyo STI Clinic

- DoxyPrEP provided to 40 sex workers AFAB
- Overall STIs reduced by 67%





Risks: What Do We Know About The Risks of Doxy-PEP?





Doxy-PEP Concerns

ACS Diseases © Cite This: ACS Infect. Dis. 2018, 4, 660-663

pubs.acs.org/journal/aidcbc

Viewpoint

Doxycycline Prophylaxis for Bacterial Sexually Transmitted Infections: Promises and Perils

Martin Siguier[®] and Jean-Michel Molina*

Department of Infectious Diseases, Saint-Louis Hospital, APHP, and University of Paris Diderot, Paris 75000, France

ABSTRACT: Despite their high global incidence, sexually transmitted infections (STIs) remain a neglected area of research. Increased rates of STIs have been reported in particular among men who have sex with men (MSM) probably because of the advances in the treatment and prophylaxis of human immunodeficiency virus (HIV) infection with a decrease in condom use. A recent report among MSM showed that the use of postexposure prophylaxis with doxycycline could dramatically reduce the incidence of chlamydia and syphilis but not of gonorrhea. The long-term consequences of this strategy are yet unknown, especially the risk of selection and dissemination of syphilis and chlamydia strains with doxycycline resistance, which has not been reported yet.

The incidence of bacterial sexually transmitted infections (STIs), infections due to Chlamydia trachomatis (CT), Neisseria gonorrhoeae (NG), and Treponema pallidum (TP), is increasing, especially in men who have sex with men (MSM) and represents a major public health concern.1 Indeed, the advances in the treatment of human immunodeficiency virus (HIV) infection over the last 10 years have led to an in increase in high-risk sexual practices such as condomless sex. More recently, the high efficacy of antiretrovirals to prevent HIV acquisition has provided a new biomedical tool for high risk individuals who are having more frequent condomless sex and are experiencing high rates of STIs.^{2,3} Thus, there is a need to develop new tools for the prevention of bacterial STIs in this population, especially since STIs could also increase the risk of HIV acquisition.4 Current strategies to contain the spread of STIs (promotion of condom use and counseling or behavioral

reduced the rates of gonorrhea and chlamydia but not of syphilis, probably because of the spread of *TP* with azithromycin resistance.

At a time when the notion of diversified prevention is emerging, one can combine well-known methods (condoms) with new ones such as, at the top of the list, pre-exposure prophylaxis (PrEP) of HIV infection by oral antiretroviral therapy (TDF-FTC combination), approved since 2012 in USA and now implemented in several countries; in addition, there is interest in the use of doxycycline prophylaxis for STIs in high risk MSM, in those already infected with HIV and a previous episode of syphilis, or in PrEP users at high risk of STIs and HIV.^{7,8} Indeed, doxycycline is a broad spectrum antibiotic that has been employed successfully for the prophylaxis of Lyme disease, scrub typhus, leptospirosis, and malaria. All strains of

- However, even if these results are encouraging, they should be taken with great caution:
- 1. Previous trials of antibiotic prophylaxis have shown only limited and transient benefits
- 2. <u>Risk compensation</u>...might offset early benefits
- 3. Antibiotic prophylaxis might <u>change the presentation</u> of STIs
- 4. Impact of doxycycline use on the microbiome remains to be assessed
 - Might <u>select for antibiotic resistance</u> outside the field of STIs
 - The greatest fear is by far the risk of selection of doxycycline resistance to chlamydia and syphilis

COLUMBIA

COLUMBIA UNIVERSITY Irving Medical Center

Siguier M, Molina JM. Doxycycline Prophylaxis for Bacterial Sexually Transmitted Infections: Promises and Perils. ACS Infect Dis. 2018;4(5):660-663. doi:10.1021/acsinfecdis.8b00043



Audience Poll #4

What is your biggest concern about providing Doxy-PEP to patients?

(I know that many of them may apply)

- 1. It doesn't work (or won't work long-term)
- 2. Risk compensation (my patient may be more likely to have sex without barrier protection)
- 3. I am worried about it changing the presentation of STIs
- 4. I am worried about generating resistance to STIs
- 5. I am worried about generating resistance to commensal organisms like staph
- 6. Something else (please put it in the chat)



