Sex (and STIs) in the time of COVID-19

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Disclosures

The views expressed herein do not necessarily reflect the official policies of the City and County of San Francisco; nor does mention of the San Francisco Department of Public Health imply its endorsement.
Learning Objectives

• Describe epidemiology of STIs
• Review treatment guidelines changes for:
  – Gonorrhea
  – Chlamydia
  – Trichomoniasis
  – Mycoplasma genitalium
• Discuss how we can meet the challenges facing sexual health in the US
The US is Experiencing Steep, Sustained Increases in Sexually Transmitted Infections

1 in 5 People in the US have an STI totaling nearly 68 MILLION infections in 2018

26 MILLION new STIs in 2018

New STIs total nearly $16 BILLION in direct medical costs

almost HALF of new STIs were among youth aged 15-24 in the US

STD Awareness Week, April 11-17, 2021
Chlamydia, Gonorrhea, and Early Syphilis*
California Incidence Rates, 1990–2018

* Includes primary, secondary, and early non-primary non-secondary syphilis.
STI rates in San Francisco rising through 2019
Congenital Syphilis Cases are at 15-year High

From 2017 to 2019, the number of female syphilis cases in SF increased by 155%.
Impact of COVID-19 on STIs and Sexual Health

**SEX in the time of COVID-19**

Practice these tips for sexual health to keep you safe during COVID-19:

- **You are your safest sex partner**
  - Masturbate, use toys. Take this time to find out what makes you feel good.

- **Selective kissing**
  - Kissing can easily pass COVID-19. Avoid kissing anyone who is not part of your small circle of close contacts.

- **Wearing a face covering while having sex with other people will further reduce the risk**
  - Virtual sex, masturbation, sex talk, porn while alone or with someone in your household
  - Sex with household members only, indoors or out
  - Sex with a small, stable group of partners outdoors, or indoors with windows open and increased ventilation, touched surfaces and shared objects are wiped down
  - Sex with a small stable group of partners indoors with little or no ventilation, all shared objects and shared touched surfaces are wiped down
  - Sex with more people, less distance, more time indoors with small and/or poorly ventilated spaces, close sharing of breath, lips, mouth, eyes, unprotected anal play, and all objects shared without wiping down

- **Get off while maintaining your distance**
  - The phone, sexting and web chat platforms can be ways to connect socially and sexually without exchanging fluids.

- **Use condoms**
  - Condoms and dental dams can reduce contact with saliva or feces, especially during oral or anal sex.

- **Press pause**
  - Kissing (mouth on anus) might spread COVID-19. Vials in feces may enter your mouth.

- **Wash your hands**
  - Washing up before and after sex is more important than ever. Wash hands often with soap and water for at least 20 seconds.
Decreased access to sexual health services

- 83% of STI programs deferred services or field visits
- 57% of DIS redeployed to COVID-19
- Reduction in clinic capacity
- Decreased patient demand
- Swab shortages

[Graph showing declines in STI and HIV testing at SFDPH’s PHL in 2020]

S.T.D. Rates Are Falling, Data Show. That May Not Be Good News.

Public health officials believe many cases are going undetected as clinics close during the pandemic and testing supplies are diverted to coronavirus screening.

Jan Hoffman @JanHoffmanNYT · 2h
People Are Still Having Sex. So Why Are S.T.D. Rates Dropping? nytimes.com/2020/10/28/hea... Testing supplies and contact tracers are being shifted to Covid-19; many clinics have closed. Could containing one epidemic be contributing to the spread of another?
Addressing Barriers to Screening: Self-Collection

- Specimen self-collection
- Standing orders
Addressing Barriers to Screening: Home-Testing

• SFDPH supported home-testing program
• Kit includes 3-site GC/CT screening and DBS for HIV and syphilis
• Goal: Reach MSM not currently accessing STI screening services
CDC 2021 STI Treatment Guidelines

• Met in Summer 2019

• Written draft and interagency clearance stalled with pandemic response.

• Expected in MMWR in 2021

• Online—more frequent updates
CDC 2021 STI Treatment Guidelines

- STD → STI

- Expanded information on screening in special populations

- Expanded information in prevention including PrEP/ PEP and EPT for MSM

- Several updated treatment recommendations
Clinical Updates:
Gonorrhea and Chlamydia
Case 1

• 22 year-old MSM with no PMH presents for an STI screen. He reports 3 male partners in the last 3 months and a history of a penicillin allergy as a child.

• His results return:
  – HIV neg
  – RPR neg
  – **Pharyngeal GC+**
  – Pharyngeal CT neg
  – Rectal GC/CT neg
Case 1: Treatment Options

A. Ciprofloxacin 500 mg PO x1 if the GC is GyrA (-)
B. Azithromycin 2 g PO x1
C. Gentamicin 240 mg IM x1 plus Azithromycin 2 g PO x1
D. Ceftriaxone 250 mg IM x1 plus Azithromycin 1 g PO x1
E. Ceftriaxone 500 mg IM x1
F. Amoxicillin 500mg x 1, wait 1 hour, if no reaction, option (D)
G. Amoxicillin 500mg x 1, wait 1 hour, if no reaction, option (E)
GC and Cephalosporin Allergy

- Randomized, open-label, non-comparative trial
- Gent 240 mg IM + Azithro 2 g PO or Gemiflox 320 mg PO + Azithro 2 g PO
- 202 ppt with uncomplicated urogenital GC
- TOC at 10-17 days
- Cure >99% in both arms

Caveats:
- Gemifloxacin not currently available in the US
- Mild-moderate GI side effects common
- Few women enrolled
- Unclear if 2nd antibiotic was necessary
- Under-powered for extra-genital infections
  - 25 pharyngeal infxn
  - 6 rectal infections

Kirkaldy RD et al, CID 2014
Gentamicin NOT non-inferior to CTX for treatment of pharyngeal or rectal GC

Ross J, Lancet 2019
HIGHLIGHTS

• 10% or U.S population reports β-lactam allergy
• >95% of those with chart hx of allergy tolerate beta-lactams
• IgE-reaction to PCN wanes over time (80% tolerance after 10y)
• Cross-reactivity w cephalosporins ~2%
• Amoxicillin challenges can be used for low-risk history, and for moderate risk history if skin testing not available
New Gonorrhea Treatment Guidelines: Use higher dose ceftriaxone monotherapy for gonorrhea

How it Started

How it’s Going

Dual therapy with Azithro

Courtesy Dr. Jason Zucker, NYC PTC
What happened?

• Azithromycin MIC for GC steadily increased

• Ceftriaxone, cefixime MICs for GC stabilized

• Improved understanding of ceftriaxone pharmacokinetics, pharmacodynamics
  • Need ≥ 250 mg IM x 1 to ensure level ≥ MIC for 24 hours for most circulating strains

• Antibiotic stewardship issues with azithromycin
  • Increasing resistance in *M. genitalium*, Shigella, *Strep pneumoniae*....
Resistant Gonorrhea is an urgent public health threat

- No reported cases of treatment failure to recommended dual therapy in the US
- Cluster of cases with very high azithromycin MICs and reduced susceptibility to ceftriaxone – Hawaii, 2016
- Internationally, multiple reported cases of cephalosporin resistance in Europe, Asia, and Australia

CDC GISP and SURRG projects to enhance surveillance capacity, monitor resistance trends, and prepare for response
1st line GC Treatment 2021: **CTX 500 mg IM x1**

Uncomplicated urogenital, rectal, pharyngeal GC:
- Ceftriaxone 500mg IM x 1 if patient weighs < 150 kg
- Ceftriaxone 1 g IM x 1 if patient weighs ≥ 150 kg
- If coinfection with Chlamydia has not been ruled out:
  - Add doxycycline 100 mg BID x 7 days
  - *If pregnancy not ruled-out*, use azithromycin 1 g instead

Adapted from MMWR December 18, 2020 Vol 69 No.
Gonorrhea Treatment 2021: Alternative regimens

• Severe cephalosporin allergy:
  • Gentamicin 240 mg IM once + azithromycin 2 g orally once

• Oral option:
  • Cefixime 800 mg orally once
  • If chlamydia not ruled out, add doxycycline (or azithromycin if pregnant/possibly pregnant)

• NO reliably effective alternative regimens for pharyngeal GC
  • Get TOC at 7-14 days post treatment

Adapted from MMWR December 18, 2020 Vol 69 No.
Changes in GC treatment affect syndromic regimens that include ceftriaxone for empiric GC coverage:

**PID** (IM/PO regimens for mild-moderately severe disease):
- Ceftriaxone 500 mg IM once *plus*
- Doxycycline 100 mg PO BID x 14d *plus*
- Metronidazole 500 mg PO BID x 14d

**Proctitis**
- Ceftriaxone 500 mg IM once + doxycycline 100 mg PO BID x 7d
  - If rectal ulcers, add treatment for HSV
  - If bloody discharge, perianal or mucosal ulcers, or tenesmus AND + rectal Chlamydia, extend doxycycline to 21d to cover LGV

**Acute epididymitis**
- If GC, CT most likely: Ceftriaxone 500 mg IM once + doxycycline 100 mg PO BID x 10d
- If GC, CT, enteric organisms likely: Ceftriaxone 500 mg IM once + levofloxacin 500 mg PO QD x 10d
Resistance Guided Therapy for Gonorrhea?

• Mutation in gyrA gene reliably predicts ciprofloxacin resistance

• Commercially available assays in development

• NIH-funded multi-center, single-arm, open-label study assessing efficacy of cipro in patients with gyrA wildtype GC
  – 55% of enrolled participants had wt gyrA and were treated with Cipro
  – 100% microbiologic cure at day 5-10 among those wt gyrA

Ellis O et al. Diagn Micro Infect Dis 2019, Klausner JD et al. CID 2020
Case 1: Treatment Options

A. Ciprofloxacin 500 mg PO x1 if the GC is GyraseA (-) (not readily available; not studied for pharyngeal GC)
B. Azithromycin 2 g PO x1 (NO!)
C. Gentamicin 240 mg IM x1 plus Azithromycin 2 g PO x1 (Yes, but your patient might vomit)
D. Ceftriaxone 250 mg IM x1 plus Azithromycin 1 g PO x1 (No – so 2020)
E. Ceftriaxone 500 mg IM x1 (Recommended regimen, probably safe given hx)
F. Amoxicillin 500mg x 1, wait 1 hour, if no reaction, option (D) (No – so 2020)
G. Amoxicillin 500mg x 1, wait 1 hour, if no reaction, option (E) (takes time)
Suspected GC Treatment Failure

**TEST WITH CULTURE AND NAAT:**
- If GC culture **not** available, call your local health department

**REPEAT TREATMENT:**
- If reinfection suspected, repeat treatment with CTX 500 mg IM x1
- Gentamicin 240 mg IM + AZ 2 g if first Tx with CTX OR consider CTX 1 g IM

**REPORT:**
- To your local health department within 24 hours

**TEST AND TREAT PARTNERS:**
- Treat all partners in last 60 days with same regimen

**TEST OF CURE (TOC):**
- TOC 7-14 days with culture (preferred) and NAAT
Disseminated Gonococcal Infection (DGI)

• Purulent arthritis (monoarticular) in 30%

• “Dermatitis-arthritis syndrome”
  • Characterized by fever, chills, skin lesions (70%), arthralgias, tenosynovitis
  • Less commonly, hepatitis, endocarditis, meningitis

• Skin lesions: macular or papular, pustular, hemorrhagic or necrotic, mostly on distal extremities
Disseminated Gonococcal Infection (DGI)

- December 5, 2019 CDC Letter to State/Local Health Departments
- Increasing reports of DGI from multiple states
  - Case cluster in Michigan (n=16)
  - Cases associated with methamphetamine, opioid injection drug use
  - Whole genome sequencing revealed highly related isolates
- CDPH reported increases in DGI in California in November 2020
  - Report probable or confirmed DGI to your health department
  - **Send culture isolates to CDC**
Case 2

• 30 yo HIV positive MSM at primary care visit. Routine STD screen: Rectal CT NAAT is positive, treated with Azithromycin 1 g PO x1.

At his next follow-up visit 3 months later, his rectal CT NAAT is again positive and he reports that he has not had any receptive anal sex since his last visit.

• How would you treat him?
Case 2: Treatment?

A. Azithromycin 1 g PO x1
B. Doxycycline 100 mg PO BID x 7 days
C. Doxycycline 100 mg PO BID x 21 days
D. Levofloxacine 500 mg PO daily x 7 days
RCT of Azithromycin vs. Doxycycline for Rectal CT

• Placebo controlled RCT of azithro 1g x 1 vs doxy 100mg BID x 7d for rectal CT
• Primary outcome: microbiologic cure at 4w
• Secondary outcomes: microbiologic cure at 2w; effect of LGV on cure
• Participants: MSM testing NAAT(+) for rectal CT at two STI clinics in Seattle and Boston, with no or low-level symptoms (itch, irritation)

J. Dombrowski et al, CID 2021.
Doxycycline substantially better than Azithromycin for Rectal CT

J. Dombrowski et al, CID 2021.
What is the optimal treatment for Chlamydia at other anatomic sites?

- Symptomatic urethritis men:
  - RCT of 567 ppt; Doxy 100% vs. Azithro 97%\(^1\)
  - Meta-analysis favored doxycycline (pooled efficacy difference = 7%)\(^2,3\)
- Doxy may be superior for symptomatic urogenital CT in women
- A sig % of women with urogenital CT have concurrent rectal CT

**Benefits of Azithro**
- Azithro has fewer adverse events and is a single dose regimen

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\(^1\)Geisler WM NEJM 2015; \(^2\)Kong FYI CID 2014; \(^3\)Paez-Canro C et al. Cochrane Syst rev 2019
Case 3

• 35 yo cis male presents with dysuria without discharge
• Empirically treated with doxycycline x 7 days for NGU
• Urine GC and CT are negative
• He calls you 5 days later to say he isn’t feeling any better
• He presents to urgent care and urine dip is positive for LE and negative for nitrite
Case 3: Persistent urethritis

In addition to confirming patient took the doxy and that their partner was treated, would you?

1. Treat with Azithromycin 1 g PO x1
2. Treat with Metronidazole 2 g PO x1
3. Treat with Moxifloxacin 400 mg PO daily x 7 days
4. Treat with Moxifloxacin 400 mg PO daily x 10 days
5. Treat with Moxifloxacin 400 mg PO daily x 14 days
Non-gonococcal urethritis (NGU)

- Chlamydia (20-50%)
- Mycoplasma genitalium (10-30%)
- HSV
- Trichomonas
- Adenovirus
- Haemophilus

Schwebke CID 2011
Mycoplasma Genitalium

- AKA: MG, M. gen, M. gent
- Intracellular bacteria
- Smallest genome of any bacteria
- Can cause:
  - Cervicitis, PID, infertility
  - Urethritis (and persistent urethritis)
  - Prostatitis
  - Epididymitis
  - Proctitis? -> Jury still out
Mycoplasma Genitalium

- FDA approved test for M. genitalium now available: Vaginal, endocervical, urine, urethral
- Doxycycline x 7 days has poor cure rates
- Efficacy of azithromycin 1 g declining, high rates of resistance in some settings; induces resistance
- Moxifloxacin 400 mg PO daily x 7-14 days: resistance increasing

Doxy vs. Azithro for M. gent
Mycoplasma Genitalium: Testing and Treatment

• Who to test?
  – PEOPLE with symptoms or signs that might be caused by MG
    • Dysuria, discharge, urethritis, testicular pain/swelling
    • Cervicitis, vaginitis, PID
    • **Persistent urethritis**
  – Contacts to patients with confirmed MG

• What is the treatment for MG?
  – Sequential therapy: Doxycycline 100 mg PO BID x 7d, **followed by** Moxifloxacin 400 mg PO daily x 7d
  – MG can be difficult to treat – if someone does not get better, they should be re-tested (wait 21 days for a test of cure)
Treatment guideline changes for *Trichomonas*

- *T. vaginalis* is a risk in pregnant people for PROM, pre-term birth as well as endometritis and HIV infection

- NAAT testing – highly sensitive and specific

- Treatment
  - Metronidazole 500 mg PO BID x 7 days for all patients with a vagina
  - Remains metronidazole 2 g PO x 1 for all patients with a penis whether +testing or a contact
What about PEP or PrEP for STDs?

<table>
<thead>
<tr>
<th>Randomized Controlled Trial of Doxy PEP</th>
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<tbody>
<tr>
<td><strong>Study population</strong></td>
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<tr>
<td><strong>Intervention</strong></td>
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<tr>
<td><strong>Study design</strong></td>
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<tr>
<td><strong>Follow-up</strong></td>
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<tr>
<td><strong>Overall reduction in STI</strong></td>
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<tr>
<td><strong>Reduction in syphilis</strong></td>
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</table>

- Impact on anti-microbial resistance among STDs and non-STD pathogens (staph aureus, GI flora, microbiome) unknown

Eligibility

- Man who has sex with men or a transgender woman who has sex with men
- Have had an STD in the past year (either chlamydia, gonorrhea, or syphilis)
- Are living with HIV or are taking Pre-exposure Prophylaxis (PrEP)
Ending HIV Requires Addressing STIs

- $716 Million in Fiscal year 2021
- $3 Million for HIV Prevention in STD Clinics
- Recognizes linked epidemics, vital STD infrastructure

Ending the HIV Epidemic: A Plan for America

GOAL:
- Diagnose all people with HIV as early as possible after infection.
- Treat the infection rapidly and effectively to achieve sustained viral suppression.
- Prevent new HIV transmissions by using proven interventions, including pre-exposure prophylaxis (PrEP) and syringe services programs (SSPs).
- Respond quickly to potential HIV outbreaks to get needed prevention and treatment services to people who need them.
Key Policy Decisions will Help or Hinder the Fight

- Affordable Care Act
  - Covered prevention services
  - Young adults remain on parent’s plan

- LGBTQ rights
  - Supportive policies = better sexual health outcomes

- Justice System
  - Differential sentencing distorts sexual networks in communities of color

- Income Inequality

- Public health investment post pandemic
Fantastic STI Clinical and CME resource:

Thank You!

Oliver Bacon
Hilary Reno
Susan Philip
Ina Park
Eric Tang
California STD/HIV Prevention Training Center

Contact information:
Stephanie.Cohen@sfdph.org
www.sfcityclinic.org
Access to HIV Testing and PrEP Care in Boston

Analysis of electronic health records data from January 2020 through April 2020 at Fenway Health, a community health center in Boston specializing in LGBTQIA+ healthcare

- HIV tests decreased by 85.1%; lapses in refilling PrEP prescriptions rose by 191%
- Patients starting PrEP fell by 72.1%, total number of patients with an active PrEP prescription decreased by 18.3%


Courtesy M. Gandhi
Persons diagnosed with an STD should be given highest priority for PrEP and other HIV prevention

<table>
<thead>
<tr>
<th>Condition</th>
<th>MSM diagnosed with HIV within 1 year</th>
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</thead>
<tbody>
<tr>
<td>Rectal GC or CT</td>
<td>1 in 15</td>
</tr>
<tr>
<td>Primary or Secondary Syphilis</td>
<td>1 in 18</td>
</tr>
<tr>
<td>No rectal STD or syphilis infection</td>
<td>1 in 53</td>
</tr>
</tbody>
</table>

Other innovations on the horizon

- Novel antibiotics for the treatment of GC
- Rapid, point of care tests
- Resistance guided therapy (for GC and M. genitalium)
- Vaccines – e.g. Meningococcal B vaccine to prevent GC?
2020 STI Cases as percent of 2019 Cases: US

Reported Cases in 2020 as a Percentage of Cases Reported During the Equivalent Period of 2019, by Week and STD

Courtesy Hillard Weinstock, CDC
# Antimicrobials for treatment failures

**M. genitalium**

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>Efficacy</th>
<th>Combination Therapy</th>
<th>Efficacy</th>
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<tbody>
<tr>
<td>Pristinamycin</td>
<td>100% in 6 AZM/MOX failures(^1)</td>
<td><strong>Doxycycline</strong> (100mg bid x 14d) plus</td>
<td>100% in 46 patients failing AZM 1.5g dose; assumed minimal fluoroquinolone resistance(^7)</td>
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<td>75% efficacy in larger study; no</td>
<td><strong>Levofloxacin</strong> (500mg bid x 14d)</td>
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<tr>
<td></td>
<td>difference by dose(^2)</td>
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<tr>
<td>Minocycline</td>
<td>4 of 6 case reports(^3) - (^5)</td>
<td><strong>Doxycycline</strong> (100mg bid x 30d/6m) plus</td>
<td>0 of 2 (0%) case reports; clear fluoroquinolone resistance(^4)</td>
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<td><strong>Moxifloxacin</strong> (400mg x 30d/6m)</td>
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<tr>
<td>Spectinomycin</td>
<td>One case report (^6)</td>
<td><strong>Doxycycline</strong> (100mg bid x 7d) plus</td>
<td>12 of 14 (87%) Australian patients failing all other antimicrobials(^5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Sitafoxacin</strong> (100mg bid x 7d)</td>
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\(^1\)Bissessor 2015; \(^2\)Read 2018; \(^3\)Deguchi 2017; \(^4\)Glaser 2019; \(^5\)Bradshaw (personal communication); \(^6\)Falk 2017; \(^7\)Mondeja 2018