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Journal Club

Sexually Transmitted Infections

23/05/2018

MARIA CROSS CNS

SYDNEY SEXUAL HEALTH CENTRE

100 years of STIs in the UK : a review of national surveillance data
April 2018

Hamish Mohammed et al.

1916 Royal Commission on Venereal Disease in response to epidemics
of Syphilis and Gonorrhoea.

In 100 yrs since the 1917 Venereal Diseases Act the UK has experienced
substantial scientific, economic and demographic changes.

The authors describe historical and recent trends in STIs in the UK.

Analysed surveillance data from 1917 – 2016

Since 1918 Syphilis and Gono have fluctuated reflecting social, economic and technological trends.

Spikes after WW1 and WW2 then declined until the 1960s

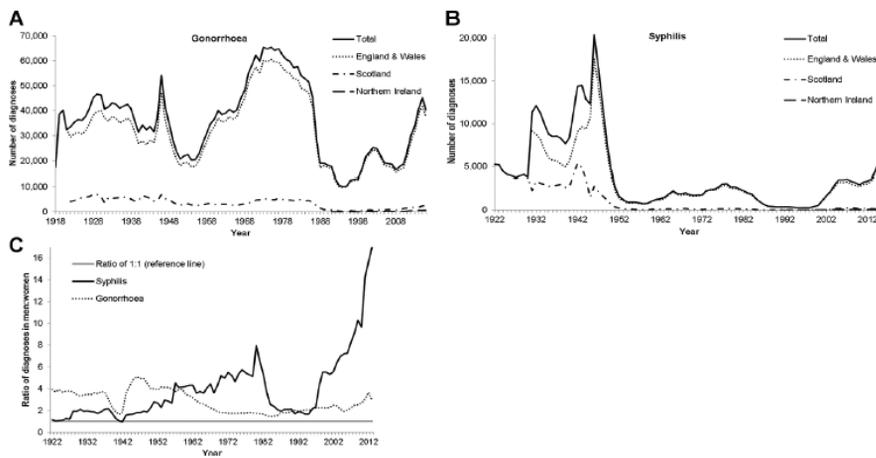
Syphilis more common in men? Suggesting MSM transmission

1980s saw a decline following the emergence of HIV/AIDS perhaps from resultant behaviour change from public health campaigns and high case fatality rates.

Since 2000 syphilis and gono have re-emerged as a major public health concern particularly with spread of antimicrobial resistance to Rx's for gonorrhoea

Number of diagnoses of gonorrhoea and syphilis 1918 – 2016

Figure 1



Chlamydia and genital warts in the UK are now the most commonly diagnosed STIs and the focus of public health interventions.

- National HPV vaccination program 2008
- National Chlamydia Screening Programme (NCSP) in England

2016 England saw marked decline in genital warts in girls 15-17yrs (72% decrease)This group was given the the quadrivalent vax (Gardisel)when aged 12-13 yrs

62% decrease in boys likely due to herd immunity

Targeted HPV vax programme in April 2018 for MSM in England
Opportunistic vax Nth Ireland 2016 and Scotland 2017 for MSM

MSM

MSM disproportionately affected by STIs /HIV. The number of bacterial diagnoses have risen three to fivefold last 10yrs

2016 11% English clinic attendances were MSM but 53% of Syphilis and Gono were in this group

In England 2016 Syphilis Dx (5920) was the highest since 1949 the majority in MSM(81%)

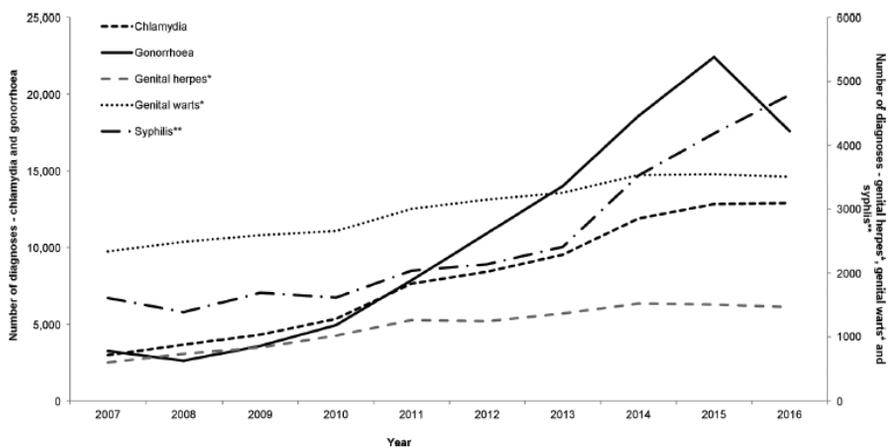
Similar in Scotland

Seven fold increase in gonorrhoea diagnoses between 2007 and 2015 in MSM

Between 2015 – 2016 Gono diagnoses decreased by 22%.

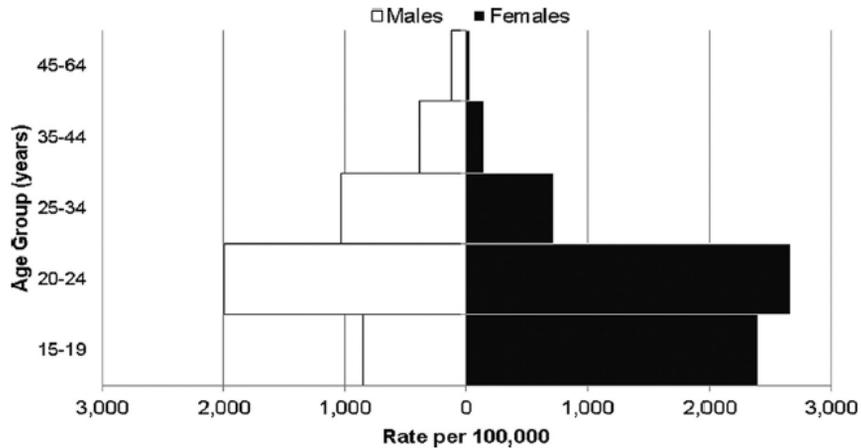
This coincided with decrease in HIV likely associated with increased testing

FIG 3 : MSM number of new diagnoses 2007 -2016 England



Rates of Syphilis, Gono and CT 2016 UK

Fig 2



Black Ethnic Minority Populations

Black Caribbean

Black non-Caribbean/non-African ('any other black background')

Black Africans

Most black ethnic minority groups live in deprived urban areas and there is a distinct link with lower socioeconomic status and health outcomes

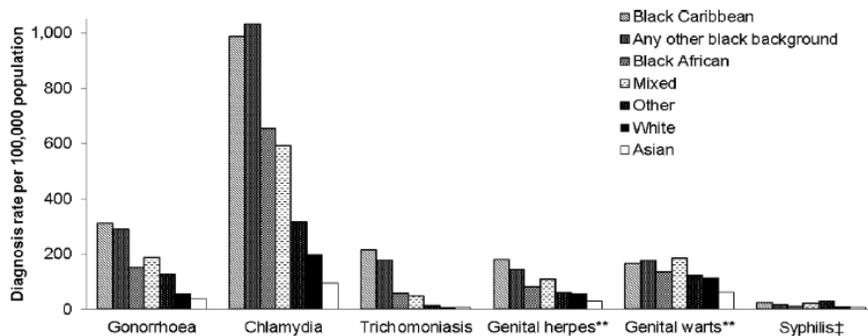
Black Minority Ethnic Populations

In 2016 English data showed diagnosis rates of CT and Gono in black Caribbean populations was four times the rate in general population

England 2016 Trichomoniasis in black Caribbean woman was 14 times higher

Wales 2015 Gono Dx in black populations 3 times higher

Rates of STI diagnoses by ethnic group 2016 England
Figure 4



Inextricable link between socioeconomic status and health outcomes.

Behavioural factors likely to contribute :

Reported higher numbers of recent sexual partners and concurrent partnerships

Assortative sexual mixing patterns

Discussion

Complex interplay of historical events, changes in cultural mores, and technological and service developments are clearly reflected in the STI surveillance data presented

Re-emergence of gono and syphilis in MSM likely in part due to CLAI as a result of HIV Rx/Prep and ? widespread asx testing, chemsex, geosocial networking

Concern around antibiotic resistance to gono (also mg)

Decrease in genital warts and future reductions in HPV related cancers is anticipated.

Recent data from New Zealand showed evidence of protective effect of group B meningococcal vaccine against gonorrhoea

STI interventions including promotion of risk reduction, increased and improved testing and vaccination have led to improvements in health.

STIs continue to negatively impact the health and well-being of the population

Need to continue to be innovative in providing easy access to testing and treatment particularly to high risk groups e.g online provision self testing kits and use social media for STI health promotion and education.

Others : casi, poct, pdpt, dbs tests

Mycoplasma genitalium : high prevalence of resistance to macrolides and frequent anorectal infection in men who have sex with men in western Sydney

Deborah Couldwell et al, Western Sydney Sexual Health Centre
March 22, 2018.

OBJECTIVE:

Estimate the prevalence of MG infection and mutations linked to macrolide resistance using the ResistancePlusMG assay (SpeedDx, Sydney) in MSM attending Western Sydney Sexual Health Centre

Introduction

MG is an established cause of NGU but few reports describe asx or extragenital infections in MSM .

Evidence is lacking as to value of screening asx populations for MG.

No international consensus on screening asx MSM for MG.

Widespread international reports of macrolide resistance.

More information about patterns of infection, clinical manifestations and biological ramifications of MG in MSM would inform testing guidelines.

METHOD

508 consecutive symptomatic and asymptomatic MSM attending for STI screening were prospectively enrolled.

The ResistancePlusMG (SpeedDx) assay was performed on FVU, anorectal and oropharyngeal samples collected for CT and NG

ResistancePlus MG (SpeedDx) assay detects MG plus five 23srRNA mutations

Assay performed using the LightCycler 480 Instrument II

Clinical, demographic and behavioural data collected from laboratory and clinic electronic database and clinical files

RESULTS

Overall prevalence of MG 13.4% (68/508)

Anorectum most commonly affected site for
MG 8.9% (45/505)

Urethra 4.7% (24/505)

No oropharyngeal MG

Macrolide resistance overall 79.6% (54/68)
mostly in anorectum

24/25 men (96.0%) who had received
Azithromycin in past 12mth had macrolide
resistance

28/40 (70.0%) who had NOT received
Azithromycin also had resistant strains

Men on Prep twice as likely to have MG infection

HIV +ve men not more likely to have MG, CT or
Gono than HIV Neg men

Conclusion

Findings support routine assay testing so use of Azithromycin will only be used if a macrolide sensitive strain was identified.

Study demonstrated high levels of MG and very high levels of macrolide resistance.

Resistance testing could decrease the time to cure and limit ongoing transmission

Fluoroquinolone resistance is impacting effectiveness of 2nd line Rx with Moxifloxacin

In Australia 2008 -2013 macrolide resistance mutations were found in 36 % - 43% in men with mostly NGU

Co-infection with CT more common 8.3%

Gono 4.2 %

x2 men had MG,CT and Gono

HIV not more likely to have any infection

3/12 with Rect Sx had MG

Very few Rect infections had Sx but more likely if Gono +ve

5/24 with Urethral Sx had MG

TABLE 3 more detail

Syphilis the great pretender : when is cancer not cancer ?

Neeshia Rockwood, Nneka Nwokolo

Case Report March 8th 2018

A complex case of early acquired disseminated syphilis from the STI clinic Chelsea and Westminster Hospital, London

41 yr old MSM

2/52 rash, bi-lateral shoulder pain and general malaise.

O/E – generalised ulceronodular painless rash (lues maligna) on face, trunk, back, abdomen and upper limbs

Tenderness along the clavicles

Painless irregular mass in lower pole of (L) testicle



A Dx of secondary syphilis was confirmed serologically +ve Syphilis IGG and IGM, TPPA +ve, RPR : 1:256

HIV Neg

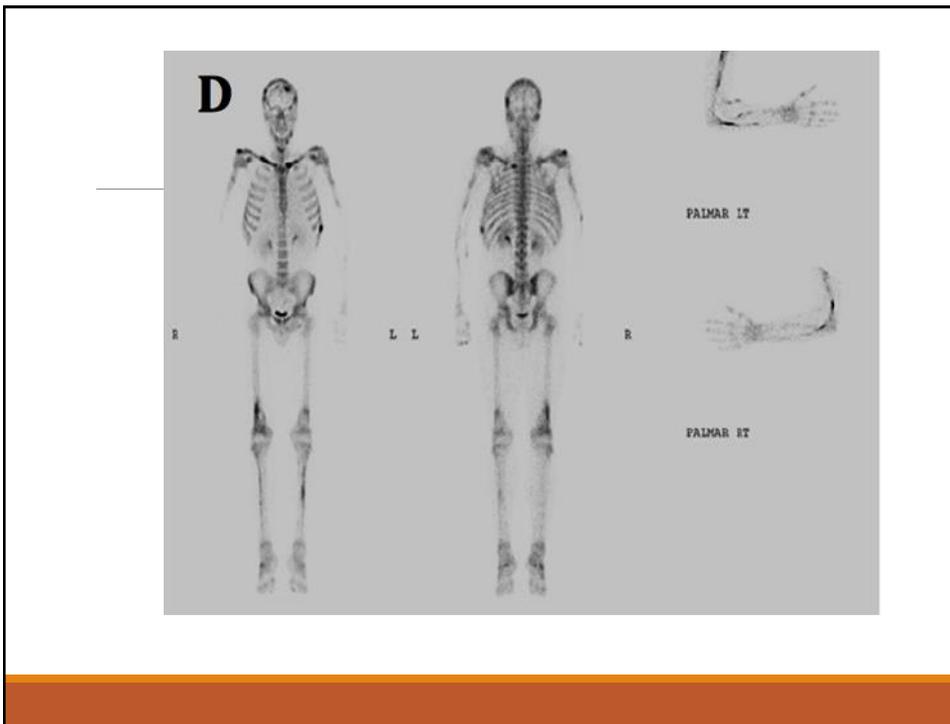
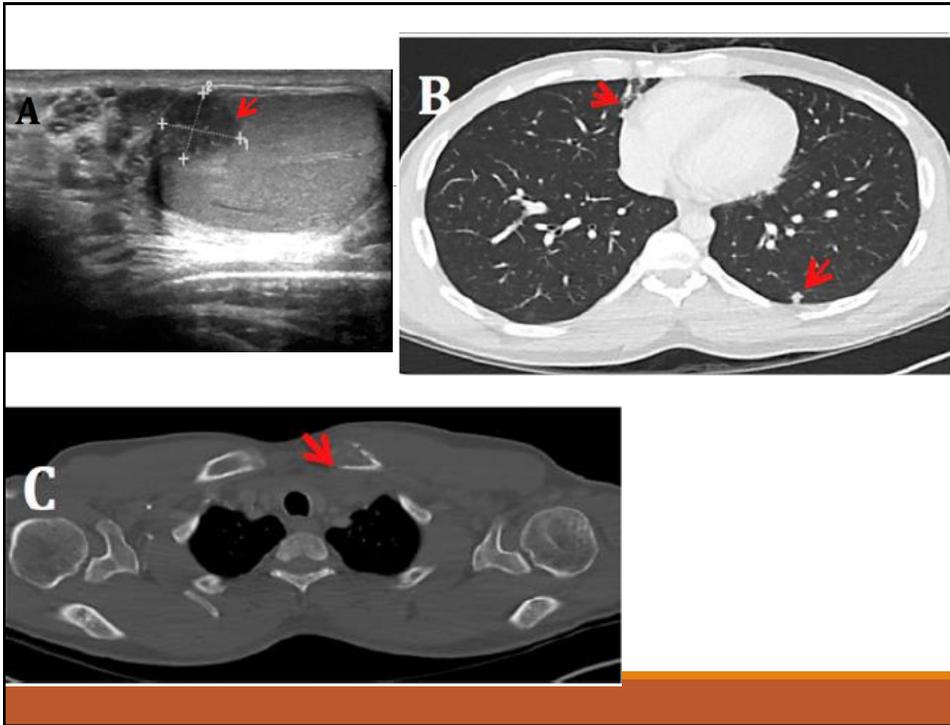
U/S of testicular mass 1.6 x 1.9 cm heterogenous solid mass separate from the epididymis with internal vascularity.

Alpha fetoprotein, HCG and lactate dehydrogenase blood levels were normal range.

CT scan of thorax showed multiple pulmonary nodules (fig.2, B)
pathological # in the (L) clavicular head (fig 2, C)

Radioisotope of the whole body showed bi-lateral involvement of the long bones and an increased uptake was seen in the frontal and parietal lobes (fig.2, D)

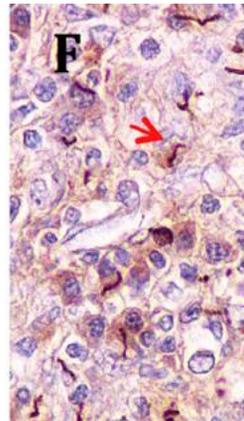
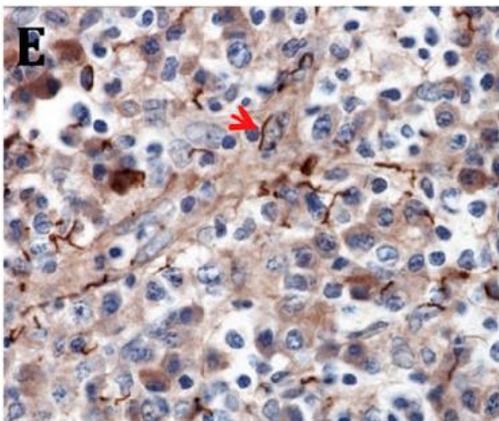
CT/ PET scan – showed increased uptake in all nodal regions above and below the diaphragm, left clavicle, left 8th rib and L testicle



A differential diagnoses of metastatic testicular cancer or lymphoma was made and he underwent an urgent left orchidectomy.

Histology showed chronic epididymo-orchitis with occasional poorly formed granulomas.

Immunohistochemistry for T.pallidum was positive in both testicular and skin tissue (fig.2, E)



Pt declined lumbar puncture

R'xd presumptively for neurosyphilis as he had widespread disease

Pt had Penicillin allergy and was R'xd with Doxycycline 200mg bd 4/52 with complete resolution of rash.

At 8/12 bone scan and CT of thorax showed complete resolution of lymphadenopathy, lung nodules and osteitis.

Discussion

Lues maligna, orchitis, osteitis with pathological fracture and pulmonary nodules are recognised rare complications of early acquired (secondary) syphilis.

Lues maligna is characterised by polymorphous, disseminated, papulonodular and typically ulcerated cutaneous lesions. While it predates HIV it is rarely seen in the HIV uninfected populations.

Fewer than 20 cases of syphilis in the testes and epididymis have been reported in the last 65yrs.

In the majority of cases Dx reached after radical orchidectomy for suspected cancer.

One conservatively managed patient was R'xd successfully with antibiotics.

Conclusion

This case illustrates that syphilis is the “great mimicker” and should be considered as a differential diagnosis in a variety of clinical presentations.

Conservative management using antibiotics with “ Testicular Sparing “ is a reasonable initial approach if there is a suspicion of syphilitic orchitis.

Requires close communication between specialities

Journal Club Sexually Transmitted Infections (BMJ)

Rachel Smith RN
Sydney Sexual Health Centre
Articles published and online release from March-May 2018

About the Journal

- Sexually Transmitted Infections (STI) is the worlds longest running international journal on sexual health.
- STI is the official journal of the British Association of Sexual Health (BASHH) and the Australasian Chapter of Sexual Health Medicine (AChSHM).
- First launched 1925, publishes 8 times a year.
- Impact Factor 3.212 (2016)
- Reports an acceptance rate of 22% on original research.

Molecular test for chlamydia and gonorrhoea used at point of care in remote primary healthcare settings: a diagnostic test evaluation.

Causier, LM, Guy, RJ, Tabrizi, SN et al. (2018)

- Data from TTANGO Clinical trial. Testing GeneXpert CT/NG PoCT in clinical setting in remote communities.
- Previous trials by Cepheid (Manufacturer) show high confidence with specificity and sensitivity.
- Across 12 remote health services, 2509 tests performed.
- Main issues identified as human error or faulty cartridges.

Overall concordance (positive and negative)

CT= 99.4% NG = 99.9%.

- Low rate of error (3% across all tests). Likely due to high levels of contact and support from study coordinators.

The screenshot shows the Cepheid website for the Xpert CT/NG product. The page includes a navigation menu with categories like Clinical IVD Tests, Sexual Health, and Systems. The main content area features a product image of the Xpert CT/NG cartridge, a description of its 90-minute detection and differentiation capabilities for Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG), and an 'ORDERING INFO' button. Below this, there is a table with tabs for Overview, Libraries, Videos, Ordering Info, and FAQs. The 'Ordering Info' tab is active, displaying a table of products:

Product Name	Catalog #
Xpert CT/NG Number of Tests: 10	Catalog #: GXCT/NG-10
Xpert Vaginal/Endocervical Specimen Collection kits 50 ready-to-use individual kits	Catalog #: SWAB/A-50
Xpert Urine Specimen Collection kits 50 ready-to-use individual kits	Catalog #: URINE/A-50

Patterns of sexual behaviour and sexual healthcare needs among transgender individuals in Melbourne, Australia, 2011-2014.

Bellhouse, C, Walker, S, Fairley, CK, et al. (2018).

- Retrospective analysis, MSHC from 1/1/2011-31/12/2014.
- Defined Transgender as self-identified, PMHx of SRS and/or hormone treatment. Identified by case file review.
- n = 133.

MTF = 77 (58%)

FTM = 28 (21%)

Unreported = 28 (21%)

Patterns of sexual behaviour and sexual healthcare needs among transgender individuals in Melbourne, Australia, 2011-2014.

Bellhouse, C, Walker, S, Fairley, CK, et al. (2018).

- Findings – low rates STI's and HIV (p values 0.56-1.00)
- Low rates of partners in last 3/12 (median 1-2 for all groups)
- 57% Born Australia/New Zealand (higher in FTM group)
- Reported Hx of IVDU 68-69%, not reported in 25-29% pop.
- Hx of Sex Work 45% total population
68% in FTM group (Discussion contradicts this)
- HIV testing - 83% of MTF ever tested vs. 68% FTM.

Table 1 Demographics and sexual behaviours among 133 transgender individuals from the first visit attended between 2011 and 2014

Characteristics	All N=133 (%)	Unreported n=28 (%)	MTF n=77 (%)	FTM n=28 (%)	p Value*
<i>Demographics</i>					
Age					0.05†
Range	18–53	22–49	25–36	17–53	
Median IQR	30 [24–36]	30 [27–38]	31 [25–36]	24 [22–35]	
Marital status					0.71§
Married/cohabiting	10 (8)	0 (0)	7 (9)	3 (11)	
Divorced/separated	5 (4)	1 (4)	4 (5)	0 (0)	
Single/never married	99 (74)	21 (75)	58 (75)	20 (71)	
Not reported	19 (14)	6 (21)	8 (10)	5 (18)	
Country of birth†					0.002¶
Australia/New Zealand	76 (57)	13 (46)	40 (52)	23 (82)	
Thailand	15 (11)	3 (11)	11 (14)	1 (4)	
Malaysia	12 (9)	3 (11)	9 (12)	0 (0)	
Philippines	4 (3)	2 (7)	2 (3)	0 (0)	
Other	17 (13)	4 (14)	10 (13)	3 (11)	
Not reported	9 (7)	3 (11)	5 (6)	1 (4)	
Sex work (current)					<0.001§
Yes	60 (45)	9 (32)	32 (42)	19 (68)	
No	44 (33)	13 (46)	30 (39)	1 (4)	
Not reported	29 (22)	6 (21)	15 (19)	8 (29)	
Sex work (ever)					<0.001§
Yes	71 (53)	10 (36)	37 (48)	24 (86)	
No	62 (47)	18 (64)	40 (52)	4 (14)	
Not reported**	–	–	–	–	
Ever had injecting drug use††					0.26§
Yes	91 (68)	19 (68)	53 (69)	19 (68)	
No	8 (6)	2 (7)	5 (6)	1 (4)	
Not reported	34 (26)	7 (25)	19 (25)	8 (29)	

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Does HIV pre-exposure prophylaxis use lead to a higher incidence of sexually transmitted infections? A case-crossover study of men who have sex with men in Los Angeles, California
Beymer, MR, DeVost, MA, Weiss, RE, et al. (2018).

- Compared pre and post STI results in population on same cohort who have recently started PrEP.
- Inclusion criteria –at least one STI test in preceding 365 days AND post 365 days on starting on PrEP.

Note: Initial testing to commence PrEP qualified as previous testing.

- MSM only.
- First time on PrEP and PEP. Must initiate at LA LGBT Center.
- Prescription given out only.

Does HIV pre-exposure prophylaxis use lead to a higher incidence of sexually transmitted infections? A case-crossover study of men who have sex with men in Los Angeles, California
Beymer, MR, DeVost, MA, Weiss, RE, et al. (2018).

- Cohort. n = 275
- 54.6% of participants age 25-39yrs
- 73.9% education past high school.
- 45.8% White ethnicity.

Results

- Increase in Syphilis by 164% (p=0.02)
- Increase in rectal chlamydia by 29% (p=0.01)

Does HIV pre-exposure prophylaxis use lead to a higher incidence of sexually transmitted infections? A case-crossover study of men who have sex with men in Los Angeles, California
Beymer, MR, DeVost, MA, Weiss, RE, et al. (2018).

- Interesting points:-
 - Study did not contain control against general population at this time. (i.e. measuring syphilis rates). Not a randomized study.
 - Papers discussion details a 0.5% increase in the non-PrEP population during time of study.
 - Results detailed no increase ($p > 0.05$) for number of partners, methamphetamine or ecstasy use in groups with increased Chlamydia or Syphilis.
 - Single data point against potentially 3-4 post. (i.e. first visit commencing PrEP then 3/12 follow ups)

Prevalence of *Mycoplasma genitalium* in different population groups: systematic review and meta-analysis.
Baumann, L, Cina, M, Egli-Gany D, et al. (2018).

- Aim to evaluate MG prevalence in general pop and specific groups (MSM, CSW, Pregnant women).
- Included studies from 1991 to 2016, >500 participants, no language restrictions.
- $n = 63$ (3316 studies examined, 833 read, 113 excluded.)
- 63 records using randomised sampling, 37 of which from Healthcare setting.
- Countries separated into higher HDI (Human Development Index) and lower HDI.

Prevalence of *Mycoplasma genitalium* in different population groups:
systematic review and meta-analysis.

Baumann, L, Cina, M, Egli-Gany D, et al. (2018).

- Findings

- Population prevalence

- 1.3% General Population (No statistical difference in rates in men or women).
 - 0.9% Pregnant women (ranged from 0.6-0.9%)
 - 3.2% MSM Community samples (ranged from 2.1-5.1%)
 - 3.7% MSM Clinical samples (ranged from 2.4-5.6%)

 - FSW Clinical samples ranged 0.6% to 12.6%
 - FSW Community samples ranged 0.6% to 12.6%

Prevalence of *Mycoplasma genitalium* in different population groups:
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- Key Messages

- Higher HDI estimate = 1.3%
- Lower HDI estimate = 3.9%
- MG rates in general population and across age brackets appear to be less than CT.
- “The low prevalence estimates in the general population, pregnant women and asymptomatic clinic based patients do not support universal screening for *M. genitalium*.”

Thank you!
Any Questions?