The Latest in STIs

Dr. Suneeta Soni
Royal Sussex County Hospital, Brighton
Background
Rates of new HIV diagnoses have slowed but rates of bacterial STI are increasing

Testing
NAATs are getting better and faster
Ways to test, limitations

Treatment
What to use and what NOT to use
New STI diagnoses in MSM 2006-2015
LGV

- 948 cases in 2015
- HIV+ white MSM

- Asymptomatic LGV
  - 2007 <7%
  - Saxon et al 2012 27%
  - Griffiths et al 2016 64%

- 36/36 men with LGV cleared with 1-2 weeks doxy

¹ Simons R, White JA BASHH 2016
Hepatitis C

- Rising incident infection
- HIV-positive MSM (9%)
- Associated with injecting, chemsex, other high risk sex, bacterial STI
- Scale up of DAAs could reduce prevalent Hep C
- Shift in epidemic towards HIV-neg MSM

McFaul K et al JViral Hep 2015, 22, 535–538
Enteric Infections in MSM

Hepatitis A outbreak 2016-2017

**Figure 1**
Patients aged 16 to 60 years diagnosed with (A) *Shigella flexneri* serotypes 2a and 3a (n=1,430) and (B) *S. sonnei* (n=2,365), with no reported history of travel outside the United Kingdom, by sex, England, 2004–2014
Serosorting

TasP

High risk sex

PrEP

Chems

Rising incident STIs
Rising incident STIs

- Serosorting
- TasP
- High risk sex
- PrEP
- Chems

Suboptimal diagnostics for bacterial STI

Treatment failure in bacterial STI
Testing
Sexual health
“I’ve got a discharge”

HIV
Antiretrovirals:
  virological failure
  toxicity
  pill burden
  drug interactions
  generics
Research

Comorbidities/ARV toxicity:

Mental Health

Social

GP
EVERYTHING else!
“I’ve got a discharge”

A Swab his nose. No! He means a urethral discharge!

B Give him 1g azithromycin stat
“that should clear up anything you may have”

C Take a relevant sample, perform a highly sensitive multiplex POCT for CT/GC/MG/syphilis and treat him as appropriate

D Refer him to the GUM clinic
At the GUM clinic

- Urethral sample
- Gram stain
- Microscopy for GNID and neutrophils
- Culture for sensitivities
Non-gonococcal urethritis (NGU)

Causes

- Chlamydia trachomatis – 30%
- Mycoplasma genitalium – 20%
- Ureaplasma spp – 11%
- Herpes simplex – 3%
- Trichomonas vaginalis – 1%
- Adenovirus – 2%
- Other – 3%
- Unknown – 30%

Adapted from Moi et al BMC Infectious Diseases 2015
More rapid diagnostics

- Cepheid: 90 minutes
- Atlas Genetics io: 30 minutes
- TwistDx: 15 minutes
Busier GUM clinics

• More patients, higher complexity, integration with contraceptive services
• Longer consultations:
  – Women: STI screen, contraception, sexual violence, alcohol
  – MSM: STI screen, PrEP, PEP, risk reduction, chems, vaccination
• Innovating in clinic:
  – asymp “express” services
  – triage/senior model
  – queue management software
  – “sample first” approach
Online testing

**PROS**

- Frees up capacity in clinic to see more complex
- Reduced waiting times in clinic
- Convenient for patient
- Discreet, non-judgemental
- Reaching hard to reach
Online testing

**PROS**
- Frees up capacity in clinic to see more complex
- Reduced waiting times in clinic
- Convenient for patient
- Discreet
- Reaching hard to reach

**CONS**
- Excluding the vulnerable
  - Risk reduction in neg patients
  - Eligibility for PrEP/PEP
  - Risk of pregnancy
  - Vaccination
  - Sexual violence
- Impact on research
- Poor return postal kits, over-ordering, “Worried well”
Online testing
Online STI Test From £29 - The STI Clinic

Home STI Testing - Order Yours

Superdrug - Sexual Health - Treatment & Tests

STI Test Centre Southampton - Book an Appointment Today.

Chlamydia Test Kit - | Sexual Health, hampshire, portsmouth ...
Self sampling or self testing?

Self sampling – just specimen collection
Home sampling

Self testing – patient collects specimen, takes the test and interprets results
Home testing

Online testing
Treatment
eSexual Health Interventions - complete online care pathway

**A**
CT positives from NCSP online sampling (CheckURself) → Treatment and PN via online pathway

**B**
CT positives from GUM clinic → Treatment and PN in GUM clinic

Time to treatment for both online groups quicker for A than B

May work for CT but not for GC
Online prescribing

Azithromycin
Buy Azithromycin tablets online

Azithromycin is an effective cure that you can order at OnlineClinic to successfully treat STIs, such as chlamydia, gonorrhoea and bacterial infections, such as ureaplasma and mycoplasma in a single high dose, making it a very widely recommended antibiotic.

One 1000mg dose can clear up the infection entirely, as well as help you with any possible symptoms (some STIs are often initially symptomless) and it is particularly effective for persistent genital chlamydia, with a 96% cure rate. Our discreet and confidential service enables you to buy Azithromycin tablets and receive it the very next day after approval from one of our UK registered doctors.

Dosage

- 250mg
- 500mg

Package Size

- 2 TABLETS
- £39.95
Just some more questions about your condition

Please select the STI you or your partner is currently suffering from:

- [ ] Chlamydia
- [ ] Genital Herpes or Shingles or Cold Sores
- [x] Non-specific urethritis (NSU)
- [ ] Trichomonas vaginalis
- [ ] Other: 

Have you tested positive for the infection(s) selected above?

- [ ] No
- [x] Yes

Please check the symptoms you are suffering from

- [ ] Penile discharge
- [ ] Burning sensation
- [ ] Itching
- [ ] Unpleasant smell
- [ ] Fleshy lumps on your genitals
- [ ] Irritation on head of penis
- [ ] Rashes
- [ ] Vaginal or urethral discharge
- [ ] Pain in the lower abdominal area
- [ ] Other: none
Welcome to our secure checkout

Card Number

Card Holder Name

Card Expiry Date

CVC/CVV/CID

What is CVC/CVV/CID?

Complete Order
GPs diagnose 9-16% chlamydia and gonorrhoea. 20% of treatments for gonorrhoea were with ciprofloxacin.
A history of treatment for N. gonorrhoeae

Nature Reviews Microbiology Volume: 12, Pages:223–229 Year published:(2014)
GRASP 2015
(Gonococcal Resistance Antimicrobial Surveillance Programme)

Cefixime 1%
Azithromycin 10%
Penicillin 24%
Ciprofloxacin 39%
Tetracycline 39%

World’s first treatment failure with ceftriaxone (MIC 0.25 mg/L) and azithromycin (MIC 1.0 mg/L)
Outbreak of high level azithromycin resistant *N. gonorrhoeae* in England (MIC>256mg/L)

Heterosexual men and women in Leeds aged <20

MSM in London/SE aged 18-31
M. genitalium macrolide resistance

Bissessor CID 2015:60(8)1228-36
Quinolone resistance mostly in Asia-Pacific
rare in europe <5%
reports of dual macrolide and quinolone resistance
Concurrent detection of Antimicrobial resistance (AMR)

CE Marked - *M. genitalium* detection plus mutations conferring macrolide resistance Quinolone resistance assay in development

Rapid detection of M. gen and GC with detection of resistance Phase 3 studies
C. trachomatis: azith 1g v doxy 7 days

Genital infection

3% increased benefit of doxycycline over azithromycin for urogenital chlamydia

Kong et al Clin Infect Dis 2014

The NEW ENGLAND JOURNAL of MEDICINE

RCT: Azithromycin versus doxycycline for urogenital C. trachomatis infection
• Efficacy azithro 97%, doxycycline 100%
• 4 treatment failures in azith arm

**C. trachomatis**: azith 1g v doxy 7 days

Rectal infection

Pooled efficacy:
Azithromycin 82.9%
Doxycyline 99.6%

Kong et al *J Antimicrob Chemother* 2015
Chlamydia guidelines 2015

Uncomplicated urogenital and pharyngeal infection

Doxycycline 100mg bd for 7 days

Or

Azithromycin 1g single dose

Rectal infection (non-LGV)

Preferred treatment  Doxycycline 100mg bd for 7 days

Alternative treatment  Azithromycin 1g single dose
Systematic review: similar rates of non-genital CT in women and MSM

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th></th>
<th>Men who have sex with men</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CT</td>
<td>NG</td>
<td>CT</td>
<td>LGV (of CT+)</td>
</tr>
<tr>
<td>Pharyngeal</td>
<td>1-3 %</td>
<td>1-2 %</td>
<td>1-3 %</td>
<td>9-16 %</td>
</tr>
<tr>
<td>Anorectal</td>
<td><strong>7-17 %</strong></td>
<td>0-3 %</td>
<td><strong>1-18 %</strong></td>
<td>2-16 %</td>
</tr>
<tr>
<td>Genital</td>
<td>5-13 %</td>
<td>1-2 %</td>
<td>3-8 %</td>
<td>2 %</td>
</tr>
</tbody>
</table>

N Dukers-Muijrers et al. BMC Infect Dis 2015
Individual and pooled estimates for the risk ratio of rectal chlamydia infection and a history of anal intercourse

A systematic review and meta-analysis: How common is rectal *Chlamydia trachomatis* Infection in women?

<table>
<thead>
<tr>
<th>Study</th>
<th>RR (95% CI)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachmann et al., 2010</td>
<td>0.56 (0.29, 1.08)</td>
<td>11.20</td>
</tr>
<tr>
<td>Ding and Challenor, 2013</td>
<td>1.05 (0.83, 1.32)</td>
<td>63.45</td>
</tr>
<tr>
<td>Ostergaard et al., 1997</td>
<td>0.73 (0.22, 2.42)</td>
<td>3.41</td>
</tr>
<tr>
<td>Sethupathi et al., 2010</td>
<td>0.96 (0.42, 2.16)</td>
<td>7.12</td>
</tr>
<tr>
<td>van Liere et al., 2014</td>
<td>0.91 (0.52, 1.59)</td>
<td>14.82</td>
</tr>
<tr>
<td>Bazan et al., 2015</td>
<td>(Excluded)</td>
<td>0.00</td>
</tr>
<tr>
<td>Cosentino et al., 2012</td>
<td>(Excluded)</td>
<td>0.00</td>
</tr>
<tr>
<td>Hunte et al., 2010</td>
<td>(Excluded)</td>
<td>0.00</td>
</tr>
<tr>
<td>Overall (I-squared = 6.8%, p = 0.368)</td>
<td>0.94 (0.75, 1.17)</td>
<td>100.00</td>
</tr>
</tbody>
</table>

History of anal intercourse NOT a reliable indicator of rectal CT risk

Chandra et al. IUSTI Budapest 2016
Smart antibiotic prescribing

Does everyone with NGU need treating with doxycycline?

Consider withholding treatment for GC contacts if asymptomatic, low risk exposure or no other partners

Where GC sensitivities are known, use alternatives to ceftriaxone
Smart antibiotic prescribing

Use doxycycline for:
NGU
Chlamydia at all sites
epidemiological treatment of NGU, CT, PID, epididymo-orchitis
Smart antibiotic prescribing?

PEP with doxycycline 200mg <72hours for MSM taking PrEP

28 infections in the PEP group
(37.7 per 100 person-years)

45 in the no-PEP group
(69.7 per 100 person-years)

P=0.007

Future studies should include monitoring for AMR
Summary

1. Despite our efforts, rates of STIs are at an all time high. HIV and STI services together

2. Online testing gaining momentum, asymptomatics may also be high risk

3. More sensitive rapid tests. Positive results should be accompanied by AMR testing
Summary

4. Antimicrobial resistance

Bacterial STIs are evolving into superbugs
Overuse and misuse of antibiotics
Efforts to monitor AMR

Practicalities and cost

Antibiotic stewardship
Acknowledgements

Lawson unit colleagues, Brighton
Jorgen Jensen, Statens Serum Institut Denmark
Terry Sunderland, SpeeDx
John Saunders, PHE