



Patients continue to engage in risky sexual behaviour in the time period between being tested for Chlamydia and receiving test result and treatment

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INTRODUCTION

- *Chlamydia trachomatis* is the most widely reported bacterial sexually transmitted infection (STI) in the UK
- There is a delay between people being tested for chlamydia, and receiving test result and treatment, as demonstrated by preliminary data from 3 Genito-Urinary Medicine (GUM)/Sexual & Reproductive Health (SRH) clinics (Table 1):

	Clinic 1	Clinic 2	Clinic 3
Number of eligible patients	236	46	103
Number (%) returned for treatment ≥ 1 day after test	115 (48.7)	27 (58.7)	66 (64.1)
Median time (days) between test and treatment	0	6	7
Mean time (days) between test and treatment	9	5	7

- This time delay can be due both to:
 - Service delays (e.g. time for laboratory to process sample and send results to clinic; appointment availability for patient follow-up visit)
 - Patient delay (e.g. delay in contacting and attending clinic having received a positive result)
- A point-of-care test (POCT), which provides the test result in the same clinical visit as when the sample is taken, would reduce the risk of onward transmission if there were significant risk behaviours during test-to-treatment turnaround times
- There are few data on patients' sexual behaviour in the time-period between test and treatment.
- This time-period could be important in chlamydia transmission, as infection may continue to be spread to sexual partners whilst awaiting test result and treatment

Aim:

To investigate the sexual behaviours of patients between the time of being tested for chlamydia and receiving test result and treatment in GUM clinics, in order to investigate the benefits that POCTs might bring to clinical practice

METHODS

Specific objectives:

1. Describe unsafe sexual behaviour in time-period between chlamydia testing and treatment
2. Determine differences in sexual behaviour before and after chlamydia test
3. Identify risk factors for being chlamydia-positive
4. Perform an audit of GUM clinic sexual history taking using BASHH standards¹

Clinical notes review by clinic staff from GUM clinics, conducted between July 2013- November 2014

- 9 clinics approached, 5 participated
- Each clinic aimed to provide data on:
 - 45 male and 45 female chlamydia-positive patients returning to the GUM clinic for chlamydia treatment
 - 45 male and 45 female chlamydia-negative patients of matched age and week of first attendance
- Therefore, data post-test were limited to chlamydia-positives

First attendance data points	Positive cases returning for treatment data points
Clinic ID	Date of follow up attendance
Patient ID	Date of treatment
Gender	Type of treatment
Age	Any partners since chlamydia test
Sexual Orientation	Number of partners since chlamydia test
Ethnicity	Total number of new partners in past 3 months
Lower Super Output Area (LSOA)	Date of new sexual contact in past 3 months (last 4 most recent)
1st attendance date (test date)	Condom use with partners (last 3 most recent)
Reason for attendance	Any condom use
Infection with ≥ 2 STIs	
Condom use in past 3 months	
Number of partners in past 3 months	
Number of partners in past year	

RESULTS

1. Measuring unsafe sexual behaviour:

- Variables used: Condom use, number of partners, number of new partners
- Developed measure of risky sexual behaviour (Table 3):

	Low - Medium risk	High risk	Not documented
Pre-test (all patients)	1. No partners at all in the last 3-6 months/year 2. Always use a condom 3. One (not new) partner in the last 3-6 months/year & sometimes use a condom 4. >1 partner or ≥ 1 new partner, but always use a condom	Have more than one partner in the last 3-6 months/year or any new partner or not documented, and not always use condom/condom use not documented	All variables "not documented"
Post - test (Chlamydia positive patients only)	1. One partner since test and sometimes or always use condom 2. Always use condom regardless of number of partners 3. No partners since test	≥ 1 partner since test, or partner not documented and never use a condom/condom use not documented	All variables "not documented"

2. Differences in behaviour pre- and post-test for patients testing positive for chlamydia:

Risk	Post-test			
	Low - Medium	High	Not documented	Total
Pre-test	17	11	5	33
	100	69	132	301
	1	2	28	31
	118	82	165	365

- Using Pearson χ^2 analysis, excluding "not documented" patients, showed no significant difference in sexual behaviour category pre- and post-test ($p = 0.878$)

3. Risk factors for being chlamydia positive:

Patient characteristics	N	Chlamydia positive patients n	Multilevel analysis*		
			OR	95% C.I.	P-value
No. new partners in last 3/6** months	758	365			
0	21	7	1.00		
1	442	191	2.01	0.73 - 5.54	0.179
2 - 4	143	93	4.75	1.59 - 14.23	0.005
5 or more	59	29	2.28	0.71 - 7.30	0.167
Not documented/Not available	93	45	1.25599	0.41 - 3.84877	0.690
Condom use in past 3/6** months	758	365			
Always	61	16	1.00		
Sometimes	168	76	2.09	1.06 - 4.12	0.033
Never	362	185	2.96	1.56 - 5.61	0.001
Not documented	167	88	4.19	2.00 - 8.75	0.000

* Multivariate (MV) model built including univariate variables $p < 0.05$, and using clinic at a higher level compared to other variables, and assuming that patients attending the same clinic have similar characteristics. Variables included in MV multilevel regression analysis: reason for attendance, infection with ≥ 2 STIs, number of new partners in the last 3/6 months, number of partners in the past year, and pre-test risk behaviour

** One of the five clinics collected these data in the last 6 months, rather than 3 months, as part of their patient sexual history taking

4. Audit of sexual history taking:

- Table 7 shows the percentage of data filled in during the audit - BASHH guidelines are that 97% of recommended documentation be recorded¹

All patients	Clinic 1	Clinic 2	Clinic 3	Clinic 4	Clinic 5	Total
Overall number of tests	173	96	186	606	197	1,258
Reason for attendance	100%	93%	100%	100%	100%	99%
Number of partners in the last 3/6 months**	92%	93%	99%	64%	98%	79%
Condom use (in past 3/6 months)**	65%	79%	98%	70%	80%	75%
Symptomatic patients						
Overall number recorded as symptomatic	95	43	25	347	95	605
Total number of sexual partners in the past year	51%	100%	52%	19%	0%	28%
Total number of new sexual partners in the past 3/6** months	93%	100%	100%	80%	99%	87%
Chlamydia positive patients						
Total number of chlamydia positive patients	83	48	93	347	90	661
Date of last sexual contact	5%	65%	75%	7%	69%	29%

* Denominator: number of records submitted by clinic

** One of the five clinics collected condom use data in the last 6 months, rather than 3 months, as part of their patient sexual history taking

DISCUSSION

- Patients continued to engage in high risk sexual behaviour post-test, with sexual behaviour risk not statistically changing between test and treatment
- Some change in sexual behaviour:
 - 59% of high risk reduced their risky sexual behaviour
 - 39% of low-medium risk changed to high risk
- Multivariate logistic regression factors associated with high risk behaviour post-test were:
 - Black/Black British ethnic group
 - Being asymptomatic
 - Being infected with ≥ 2 STIs
- Multivariate logistic regression factors associated with being chlamydia positive were:
 - 1 new partner in last 3/6 months
 - Not always using a condom
- Of chlamydia-positives, 52.5% were asymptomatic
 - Supports opportunistic screening approach of England's National Chlamydia Screening Programme (NCSP)
 - Chlamydia-negative symptomatic patients were more likely to be infected with another STI
- POCTs could help avoid imprecise syndromic management of patients
 - A polymicrobial POCT with anti-microbial detection could additionally contribute to antibiotic stewardship

CONCLUSIONS

- Some patients continue to engage in high risk sexual behaviour between being tested for chlamydia and receiving treatment
- Some patients increase their risky sexual behaviour from low to high risk
- A POCT that can test and treat in the same clinical visit would prevent these high risk individuals from transmitting their chlamydia infection to partners
- However, the public health impact of POCTs on transmission will be determined by many factors, including:
 - Demographics and epidemiology of population group, including risky sexual behaviour
 - POCT accuracy compared to laboratory-based tests
 - The extent and type of deployment of POCTs in the healthcare system for each individual population group

LIMITATIONS

- Small sample size
- Clinical audit design led to:
 - Imperfect case-control matching as per study protocol
 - Missing/not documented data

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