Public Health England

Protecting and improving the nation's health

Re-testing of those who tested positive for chlamydia

National audit report

October 2015

About Public Health England

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Contents

Executive summary

The National Chlamydia Screening Programme's (NCSP) recommended case management for those testing positive for chlamydia is to include a routine offer of re-testing, around three months after treatment. This report presents the findings of the first national audit on re-testing of those who tested positive for chlamydia. The audit results show that:

- few patients (8%) re-test in the NCSP recommended time period of around three months following treatment for the initial infection
- of those re-tested, a higher than average number of positive tests are detected compared to the national average for 2014: the positivity of those re-testing between 10 and less than 14 weeks is 11%, compared to 8% national positivity rate (all tests)
- the most commonly used recall methods are:
  - a conversation with the individual about re-testing when they were given their initial positive test result, without any further reminder (32%)
  - a text message sent to the individual when they should test again (30%)
  - re-testing advised at follow-up call two weeks after treatment with a further text message reminder sent at three months (19%)
- the proportion of patients that return for a retest between 10 and less than 14 weeks for these recall methods ranges from 5% to 12%
- two of the recall methods attract relatively high positivity rates: having a conversation about re-testing when given the initial test result and no further reminder (9%) and sending a text message when to test again (20%)
- the highest proportion of patients that have a re-test between 10 and less than 14 weeks (at any service testing type) are those that initially attended a SRH/CASH clinic (11%), followed by home sampling kits (9%), and GUM clinics (7%)
- nearly two-thirds of patients (64%) returned to the same testing service type for their re-test as the one they attended for their initial test (at any point in time). This was particularly the case for patients using sexual and reproductive health services/ contraceptive and sexual health services (SRH/CASH) and GUM clinics, and for those that used home sampling kits
- home sampling kits or postal testing kits are increasingly used and appear acceptable and effective for re-testing
- for patients who had a positive re-test result, the two most common risk factors for re-infection are:
  - reporting unprotected sexual intercourse between treatment and re-testing
  - reporting a new sexual partner since being treated

Recommendations

For commissioners and providers of chlamydia screening to:

- ensure patients who test positive for chlamydia return for a re-test and that this takes place around three months following treatment
- review local performance and audit results against these national findings (NCSP re-test monitoring tool can be used to undertake local audits)
- enable access to patient information for audit and operational purposes between previous and new providers of sexual health services
- reinforce sexual health promotion messages, including:
  - to always use a condom correctly and consistently, and until all partners have had a sexual health screen
  - to reduce the number of sexual partners and avoid overlapping sexual relationships
  - that sexually-active under 25-year-olds should be tested for chlamydia annually and on change of sexual partner
- ensure effective care pathways are in place for patients using home or postal sampling kits

Introduction

The National Chlamydia Screening Programme's (NCSP) recommended case management for those testing positive for chlamydia includes the routine offer of re-testing around three months (between 10 and less than 14 weeks) after treatment. Available evidence describes that those who test positive for chlamydia are at increased risk of subsequently testing positive, compared to those who test negative. This may be ascribed to a number of factors including reinfection from untreated partners, continuing risk behaviour and treatment failure. Re-testing should be built into the care pathway at as early a stage as possible (ie discussed at the first test). The evidence summary and supporting documents can be found on the NCSP's website for professionals under 'Re-testing of Positive Chlamydia Cases'. The link is provided in Table 1 below.

This report presents the findings of the first national audit on re-testing and measures how many patients re-test in the recommended time period of around three months following treatment. For pragmatic reasons to facilitate booking into clinics, we allowed for two weeks either side of week 12 (the proxy for three months) between treatment and re-test date.

At a national level, the NCSP monitors re-testing rates using existing data collection mechanisms, in conjunction with the routine reporting of the Chlamydia Testing Activity Data (CTAD). In June 2015, PHE published a report on re-testing rates in 2013 It can be downloaded by clicking on the link provided in Table 1.

At local level, service providers can use an excel tool that has been developed to help them monitor their re-testing rates. It can be found by clicking on the link in Table 1 below.

Table 1: Links to resources on websites

What	Where
Evidence summary and supporting documents on re-testing	www.chlamydiascreening.nhs.uk/ps/resources.asp
HIV/STI web portal	www.hpawebservices.org.uk/HIV_STI_WebPortal/login.aspx
PHE Health Protection on re-testing in 2013	https://www.gov.uk/government/publications/chlamydia-re-testing-following-a-positive-diagnosis
Re-testing local monitoring tool	www.gov.uk/government/publications/chlamydia-screening-re-testing-local-monitoring-tool

Methodology

The local monitoring tool has been adapted to use as an audit tool to measure re-testing rates across chlamydia screening providers in England.

The audit tool measured on a sample of 40 patients per provider:

the proportion of positive patients that came back for a re-test around three months (between 10 and less than 14 weeks) after treatment, or if treatment date unknown, after initial date of positive test

Appendix 1 contains more detail on the audit methodology and process used. Upon completion of the data entry, the tool showed the results of the audit straightaway in the following output indicators:

- proportion of patients that came back for re-testing at any time, and between 10 and less than 14 weeks
- number of weeks between treatment date or, if unknown, initial test date and date of re-test
- number of positive results of re-tests (positivity rate)
- most used recall method and their return rate
- detailed breakdown of re-test rates by number of weeks and by gender

Clinics returned data to the NCSP no matter when re-testing occurred, but for the purposes of this audit report, a number of windows between time of treatment (or test date if no treatment date available) and re-test were investigated in order to align with NCSP and BASHH recommendations. The relevant extracts of these recommendations and guidance documents are presented in Appendix 2.

Findings

In this section we report on:

- response rate
- re-testing rate: time between treatment and re-test date
- positivity at re-test
- recall methods
- re-test rate by original testing service type
- testing v re-testing service type
- those testing positive at re-test

Response rate

The response rate was 70% with some regional variation. This is presented in Figure 1 and Table 3.

Figure 1: Response rate to the invitation to take part in the audit

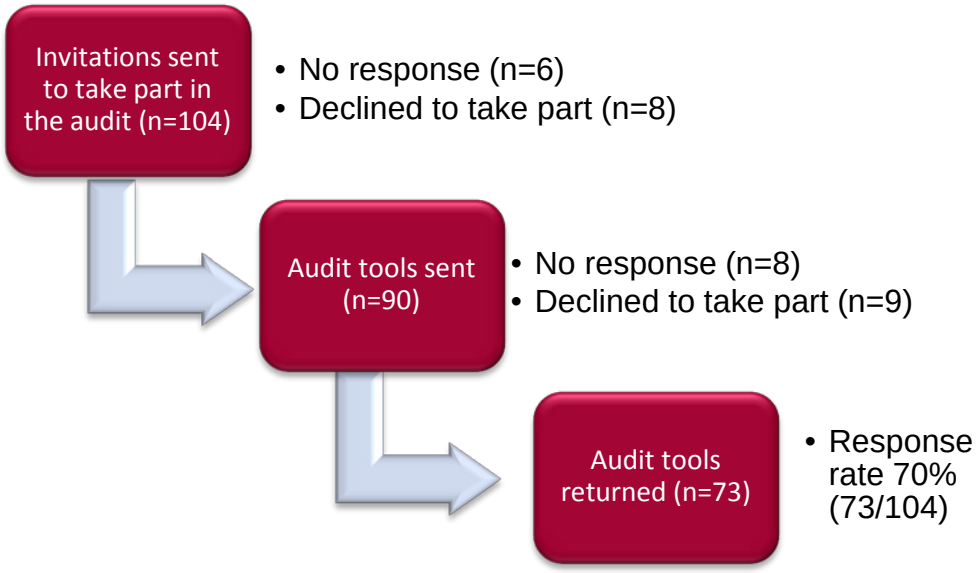


Table 2 shows the variation in response rate by PHE Centre. The response rate ranged from 54% (London) to 92% (North West).

Table 2: Audit response rate by PHE Centre

PHE Centre	Number of invitations sent	Number of tools submitted	Response rate
East Midlands	6	4	67%
East of England	13	9	69%
London	13	7	54%
North East	12	8	67%
North West	12	11	92%
South East	13	11	85%
South West	10	7	70%
West Midlands	11	8	73%
Yorkshire and Humber	14	8	57%
England	**104**	**73**	**70%**

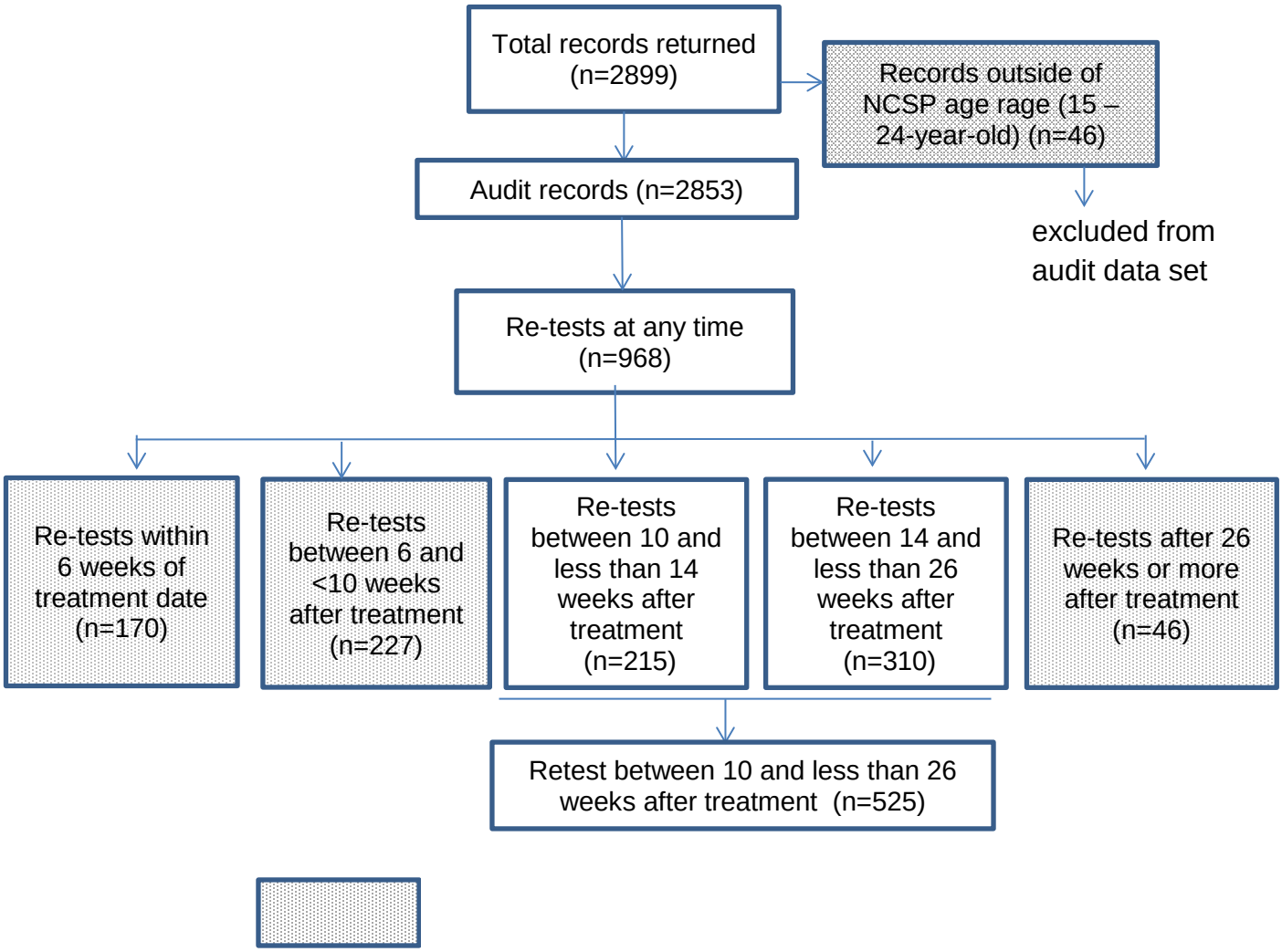
Table 3 presents the reasons given for declining to take part in the audit (eight upon receiving the invitation, and nine upon receiving the audit tool, a total of 17 providers). Five out of 17 providers indicated they were a new provider and did not have access to data from the previous provider.

Table 3: Reasons for declining to take part in the audit

Reason	Number
New provider, no data available for audit period	5
Not implemented recalling patients until after the audit period	4
Lack of capacity	6
Changed to a new database system and difficulty retrieving old data old system	1
New in role	1
Total	**17**

Figure 2 below presents the number of records that were submitted and that were analysed as part of the audit.

Figure 2: Audit data set

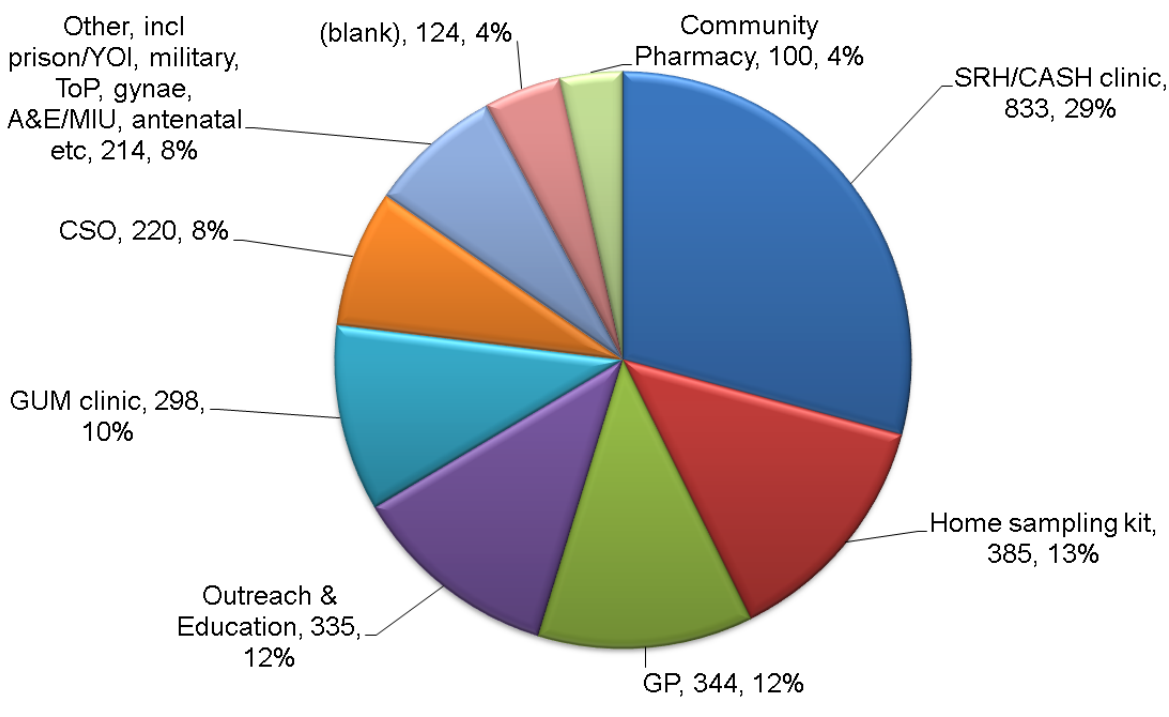


Response rate by initial testing service type

Chart 1 presents the distribution of the testing service types at initial positive test. The majority of audit records (29%) originated from contraceptive and sexual health services/sexual and reproductive health services (CASH/SRH) services, followed by those that tested using home sampling kits[1] (13%), general practice (GP) (12%) and outreach and education (12%). Level 3 genito-urinary medicine (GUM) services represent 10% of the audit data set.

[1] Home sampling and postal kits have been used interchangeably, also known as remote testing, ie sampling by the young person, that does not take place in a traditional healthcare setting

Chart 1: Proportion and number of audit records by initial testing service type (n=2853)

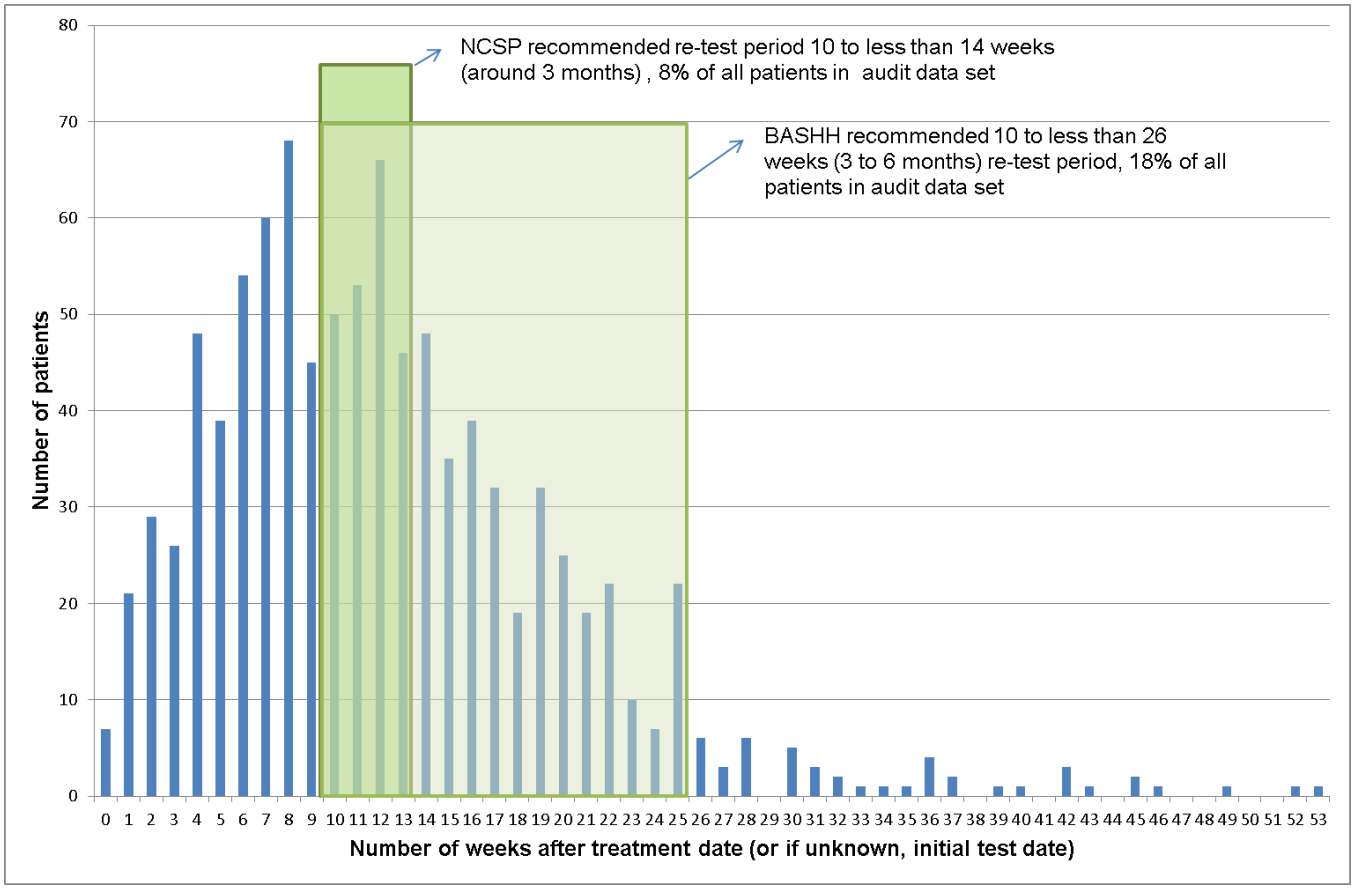


Re-testing rate: time between treatment and re-test date

Nationally, 968 patients (34%) came back for re-testing at any point in time, ranging from the same day as the date of treatment to just over one year later (0 to 53 weeks). Of those 968 patients, 215 (8% of all positive patients in data set) came back between 10 and less than 14 weeks after treatment date.[2] This is the recommended time period we audit against, allowing for two weeks either side three months (week 12) time between treatment and re-test date. Of all positive patients, 525 (18%) re-tested between 10 and less than 26 weeks, the proposed BASHH recommended period. This is presented in Chart 2.

[2] When treatment date was not known, the initial test was taken to calculate the time to the re-test date

Chart 2: Re-testing by number of weeks following treatment date



Positivity at re-test

Of the 968 patients that came back for re-testing at any point in time, 134 re-tested positive for chlamydia, a positivity rate of 14%. The positivity was higher among men (19%) than women (12%). The positivity of those re-testing between 10 and less than 14 weeks is 11%, and those between 10 and less than 26 weeks is 16% (Table 4).

Table 4: Number and proportion re-testing and positivity by number of weeks

		Number of positive patients in data set (a)	Re-test rates			Positivity	
			Number re-testing (b)	Proportion of positive patients(b/a)	Proportion of those that re-tested (b/c)	Number of positive re-tests (d)	Proportion of positive re-tests (d/b)
NCSP: between 10 and less than 14 weeks	Male	937	36	4%	16%	4	11%
	Female	1913	179	9%	24%	20	11%
	Overall	2853	215	**8%**	22%	24	**11%**
BASHH: between 10 and less than 26 weeks	Male	937	116	12%	52%	23	20%
	Female	1913	406	21%	54%	61	15%
	Overall	2853	525	**18%**	54%	84	**16%**
All tests (range 0 to 53 weeks)	Male	937	221(c)	24%	100%	42	19%
	Female	1913	747(c)	39%	100%	92	12%
	Overall	2853	968(c)	**34%**	100%	134	**14%**

Recall methods

The recall method had been recorded for 2,705 patients (95%). For those patients where no recall method had been recorded, this was due to a combination of the following factors:

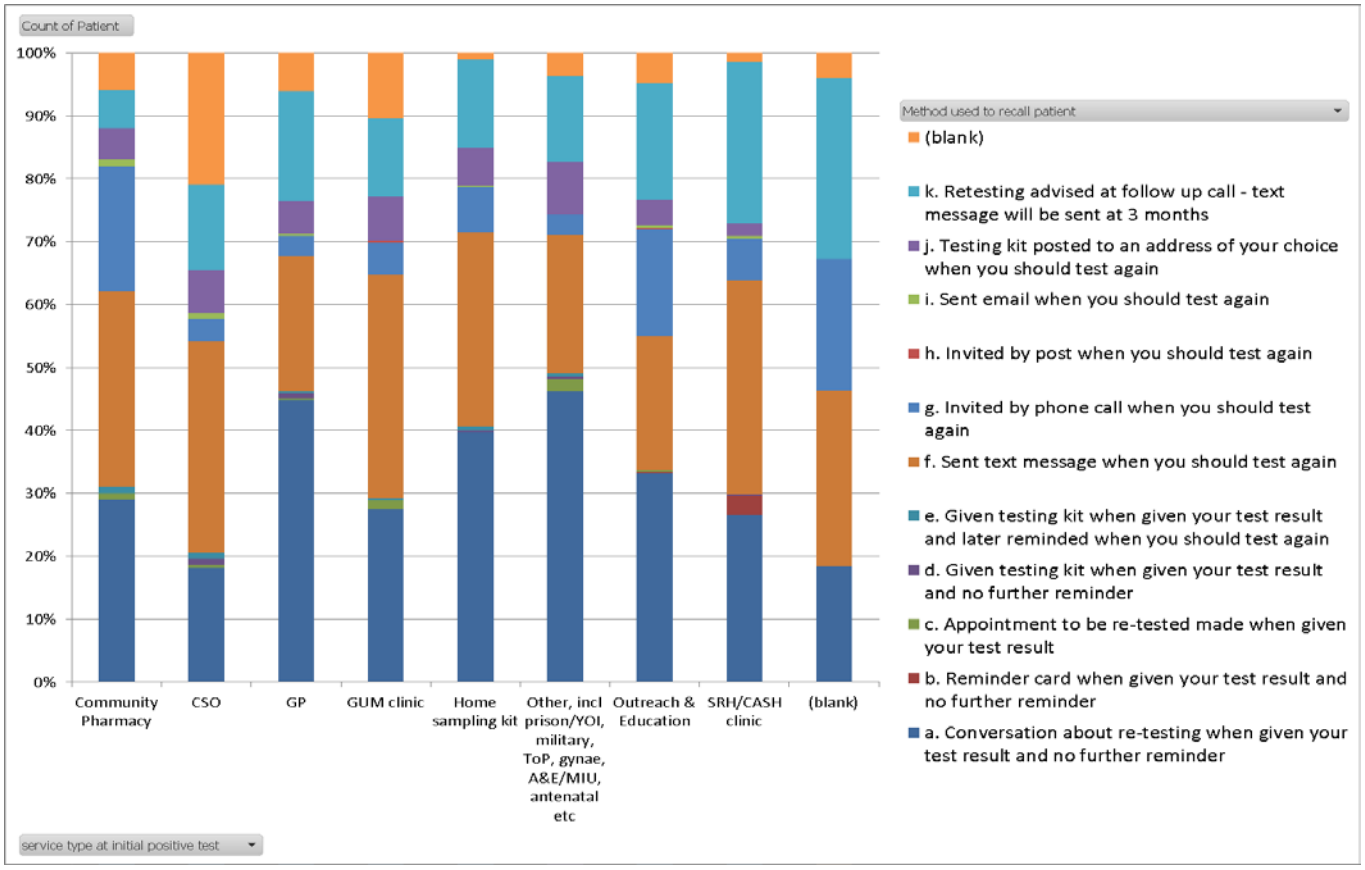
Provider not recalling patients[3]	40
Inconsistent recording of recall method at provider site	30
Inconsistent recording of recall method at provider site and/or in audit tool	78
Total number of records	148

Many providers (32 out of 73, 44%) use one recall method, although some apply a mixture of two (13 out of 73, 18%), three (15 out of 73, 21%), and four (8 out of 73, 11%) methods.

Most testing service types employ a range of recall methods. GPs and 'other' predominantly use a conversation about re-testing when the initial result is given, whereas texting when the re-test is due is used across all testing service types. The recall methods used are presented in Chart 3.

[3] One clinic did return a completed tool, but advised that they had not implemented recalling patients.

Chart 3: Recall methods used by initial testing service type



The following three recall methods were most frequently used:

- a conversation with the individual about re-testing when they were given their initial positive test result without any further reminder (option a, 912, 32%)
- a text message sent to the individual when they should test again (option f, 840, 30%)
- re-testing advised at follow up call two weeks after treatment with a further text message reminder sent at three months (option k, 528, 19%)

The re-test rate for these three most frequently used recall methods is between 33% and 37% when re-testing at any point in time. For those that came back between 10 and less than 14 weeks, the re-test rates for these recall methods range from 5% to 12%. Some other recall methods have higher return rates, but the numbers are low.

Analysis of positivity by recall method for those that re-tested between 10 and less than 14 weeks found that having a conversation about re-testing when given initial test result and no further reminder (a) attracted a positivity rate of 9%, sending a text message when individual should test again (f) had a positivity rate of 20%, and the positivity of those that re-tested after having been advised at follow-up call with a further text message reminder (k) was 6%. The positivity by recall method does not imply a causal

relationship between recall method used and positivity rates. Many other factors such as clinical practice, service testing type, risk perception and presence of symptoms may have impacted on this and can not be accounted for within the audit methodology. Table 5 summarises these data for those that re-tested between 10 and less than 14 weeks.

Table 5: Overview of data by recall method and re-testing between 10 and <14 weeks

Recall method	Number of times used	% usage	Number of patients re-testing	% re-test rate	Number of positive tests	% positivity
a. Conversation about re-testing when given test result and no further reminder	912/ 2853	32%	45/912	5%	4/45	9%
b. Reminder card when given test result and no further reminder	27/ 2853	1%	1/27	4%	0/1	0%
c. Appointment to be re-tested made when given test result	12/ 2853	0%	0/12	0%	0/0	-
d. Given testing kit when given test result and no further reminder	9/ 2853	0%	0/9	0%	0/0	-
e. Given testing kit when given test result and later reminded when to test again	8/ 2853	0%	2/8	25%	0/2	0%
f. Sent text message when to test again	840/ 2853	30%	70/840	8%	14/70	20%
g. Invited by phone call when to test again	227/ 2853	8%	14/227	6%	0/14	0%
h. Invited by post when to test again	2/ 2853	0%	0/2	0%	0/0	-
i. Sent email when to test again	10/ 2853	0%	1/10	10%	0/1	0%
j. Testing kit posted to an address of choice when to test again	130/ 2853	5%	13/130	10%	2/13	15%
k. Retesting advised at follow up call - text message will be sent at 3 months	528/ 2853	19%	65/528	12%	4/65	6%
Not recorded	148/ 2853	5%	4/148	3%	0/4	0%
Total	**2853**		**215/2853**	**8%**	**24/215**	**11%**

Re-test rate by original testing service type

Overall, 34% of those who tested positive for chlamydia came back for a re-test at any point in time across all service testing types. In order to ascertain if a particular testing service type is more effective at getting patients back for re-testing, we looked at the proportion returning for re-test by initial testing service type. The number of patients returning for a re-test include all testing service types, not just at the same as the initial testing service type.

At 42%, the highest proportion of patients that have a re-test at any point in time are those that initially used a home sampling kit. Of patients attending SRH/CASH and GUM clinics, GPs and outreach & education services, between 35% and 38% come back for a re-test. For community pharmacies this is 33%, and for 'other' testing service types 29%. Of patients attending chlamydia screening offices (CSOs), 25% of patients return.

When narrowing this down to those that re-tested between 10 and less than 14 weeks only (NCSP recommended period), the highest re-test rates are those that initially re-tested in SRH/CASH clinics (11%), using a home sampling kit (9%) and GUM clinics (7%). This is shown in Table 6.

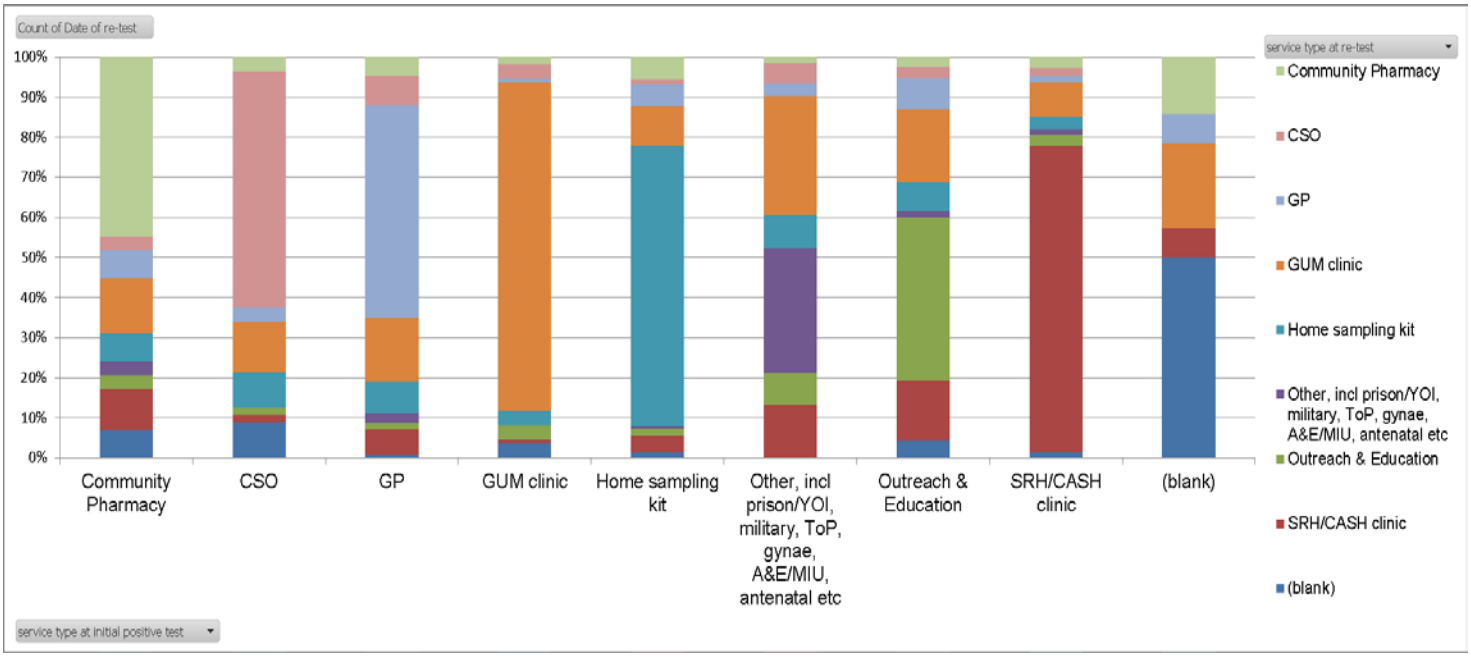
Table 6: Re-test rate at any service type by initial testing service type

Numbers re-testing by initial service testing type	Numbers by service testing type (a)	numbers re-tested at any time (b)	% re-test rate at any time (b/a)	Numbers re-tested between 10 and less than 14 weeks (c)	% re-test rate between 10 and less than 14 weeks (c/a)
SRH/CASH clinic	833	294	35%	92	11%
Home sampling kit	385	163	42%	35	9%
General practice	344	126	37%	21	6%
Outreach & Education	335	115	34%	17	5%
GUM clinic	298	110	37%	21	7%
CSO	220	56	25%	14	6%
Other, incl prison/YOI, military, ToP, gynae, A&E/MIU, antenatal	214	61	29%	8	4%
Not recorded	124	14	11%	1	1%
Community Pharmacy	100	29	29%	6	6%
Total	**2853**	**968**	**34%**	**215**	**8%**

Testing versus re-testing service type

Most patients (64%) returned to the same testing service type for their re-test (at any point in time, from 0 to 53 weeks) as the one they used for their initial test. This was particularly the case for patients using SRH/CASH and GUM clinics, and for those that used home sampling kits. For those that initially tested in 'other' settings, outreach and education, and community pharmacy there was some more variation in where they returned for re-testing. This is shown in Chart 3.

Chart 3: Service testing type at initial test and at re-test (at any point in time)



Those testing positive at re-test

For those whose test result was positive at re-test (n=134, and testing at any point in time, ie 0 to 53 weeks), some additional questions were included in the audit tool to ascertain which risk-taking behaviour may have impacted on the service user being at risk of re-infection. Unprotected sexual contact and a new sexual partner since being treated are two of the most commonly reported risk factors among those who tested positive at re-test (Table 7).

Table 7: Number of service users reporting risk taking behaviour*

Of those who tested positive at re-test, how many:	Number	%
Did not take their treatment as directed?	4	3%
Did not adhere to abstinence recommendation?	12	9%
Reported a new sexual partner since being treated?	41	31%
Reported sexual contact without using a condom	34	25%
Reported that all of their sexual partner(s) at the time of their last positive test had been treated?	40	30%
Reported that some of their sexual partners at the time of their last positive test had been treated	15	11%
Reported that none of their sexual partners at the time of their last positive test had been treated	7	5%

* These risk factors are not mutually exclusive and therefore do not add up to 134

Discussion and recommendations

The audit results show that only 8% of those who tested positive for chlamydia (215 over 2853) come back for re-test at around three months following treatment. It is important that a re-test takes place around three months as this is considered to be long enough that re-infections might have occurred by this time, but also short enough so that infections are not left untreated for a long period. This period is also recommended in order to maximise the likelihood that individuals will accept the offer of a re-test.

For patients returning for a re-test prior to 10 weeks (397 over 2853, 14%), this may be too soon for the purposes of re-testing. Unless there are clinical indications or reasons to undertake a test of cure, re-testing is not recommended prior to 10 weeks. Similarly, it is not clear whether in the case of a patient returning for a re-test after 26 weeks (46 over 2853, 2%), this re-test still relates to the infection detected at the initial positive episode.

The positivity rate of those that came back for a re-test is higher when compared to the national chlamydia positivity rate (all tests) in 2014, when 8% of chlamydia tests were positive.[4] Of those that re-tested between 10 and less than 14 weeks, 11% were found to be positive.

The most frequently used recall methods were:

- conversation about re-testing when given test result and no further reminder (a)
- sending a text message when to test again (f)
- re-testing advised at follow up call – text message to be sent at 3 months (k)

The proportion of patients that return for a retest at any time for these recall methods is between 34% and 37%, however, the re-test rates for those that come back between 10 and less than 14 weeks are significantly lower, ranging from 5% to 12%.

Even though the re-test rate was low, two of these recall methods attract relatively high positivity rates for those that come between 10 and less than 14 weeks: to have a conversation about re-testing when given the initial test result and no further reminder (option a, 9%) and to send a text message when to test again (option f, 20%).

The use of home or postal sampling kits appears an effective way of testing and re-testing for chlamydia: of those that use a home sampling kit, a high proportion re-tested, and they were also inclined to use a home sampling kit for their re-test.

[4] CTAD data tables 2014

Strengths: This is the first national audit of re-testing with a high response rate from services. Services from all regions in England took part and represent testing in all service types. Extensive piloting and testing of the tool was conducted prior to conducting the audit.

Limitations: Those that returned completed audit tools may have been self-selecting providers that implemented recall of those who tested positive for chlamydia. However, even if this were the case, levels of re-testing are still very low. Compared to national chlamydia testing activity, tests from level 3 GUM service are underrepresented in the audit data.

Recommendations

For commissioners and providers of chlamydia screening to:

- ensure patients who test positive for chlamydia return for a re-test and that this takes place around three months following treatment
- review local audit results against these national findings
- enable access to patient information for audit and operational purposes between previous and new providers of sexual health services
- reinforce sexual health promotion messages, including to:
  - to always use a condom correctly and consistently, and until all partners have had a sexual health screen
  - to reduce the number of sexual partners and avoid overlapping sexual relationships
  - that sexually-active under 25 year olds should be tested for chlamydia annually and on change of sexual partner
- ensure effective care pathways are in place for patients using home or postal sampling kits

Appendix 1: Audit methodology

The following data items were required for the audit on a sample of 40 patients found to be positive per provider, going back in time from 31 December 2014:

- date of initial positive test result
- date of treatment
- method used to recall patient
- age
- gender
- date of re-test
- service type at initial positive test
- service type at re-test
- treatment
- result of re-test

The drop-down list of recall methods offered one of the following choices:

a. Conversation about re-testing when given your test result and no further reminder
b. Reminder card when given your test result and no further reminder
c. Appointment to be re-tested made when given your test result
d. Given testing kit when given your test result and no further reminder
e. Given testing kit when given your test result and later reminded when you should test again
f. Sent text message when you should test again
g. Invited by phone call when you should test again
h. Invited by post when you should test again
i. Sent email when you should test again
j. Testing kit posted to an address of your choice when you should test again
k. Retesting advised at follow-up call – text message will be sent at three months

There were some additional questions to be completed only for those found to be positive at re-test:

- did patient take treatment as directed?
- did patient abstain from intercourse until they and their partner(s) had completed therapy?
- did patient report having a new sexual partner(s) since being treated?
- did patient report any sexual contact without using a condom since initial diagnosis?
- did patient report that their sexual partner(s) were treated following index patient's last positive test?

Upon completion of the data entry, the tool showed the results of the audit straightaway in the following output indicators:

- proportion of patients that came back for re-testing at any time, and between 10 and less than 14 weeks
- number of weeks between treatment date or –if unknown- initial test date and date of re-test
- number of positive results of re-tests (positivity rate)
- most used recall method and their return rate
- detailed breakdown of re-test rates by number of weeks and by gender

An initial email was sent to a range of chlamydia screening providers (or in some cases to commissioners) on 18 May 2015 to check that they were the appropriate contact person for the purpose of completing the audit. On 1 June, 104 invititations were sent to those who had confirmed they were the correct contact person to take part in the audit and the audit tool was attached. Submissions were accepted until 10 July. Follow-up emails to those who had not responded were sent throughout this period.

Appendix 2: Extracts relevant NCSP and BASHH guidance

Source	Recommendation/guidance
NCSP recommendation	Following an evidence review and professional and public consultation, the National Chlamydia Screening Programme (NCSP) updated its recommended case management for those testing positive for chlamydia to include routine offer of re-testing, around three months after treatment.
NCSP retesting document published on webpage	**Why is the recommended interval for re-testing 'around three months'?** Although the optimum interval for re-testing has not been empirically established, the recommended window of 'around three months' is considered to be long enough that re-infections might have occurred by this time, but also short enough so that infections are not left untreated for a long period. This period is also recommended in order to maximise the likelihood that individuals will accept the offer of a re-test. As stated in the British Association for Sexual health and HIV (BASHH) and NCSP standards, it is also important to wait at least five weeks (six weeks if azithromycin is given) before carrying out any re-test after the end of treatment, as NAATs can detect the presence of chlamydia for several weeks, even if the person is no longer 'infected'[12].
NCSP Standards 7th edition 2014:	"4.8 Test of cure Test of cure is not routinely recommended. However, if the young person has been treated with erythromycin, test of cure should be considered six weeks after the original test date (or three weeks after the end of the 14 day course). A test of cure prior to five weeks may miss patients with delayed therapeutic reaction to treatment or may detect non-viable organisms. All pregnant women are advised to have a test of cure.10 Providers who suspect patient or partner non-compliance with therapy may consider repeat therapy."
BASHH Draft Standards for the management of chlamydia trachomatis 2015	Test of Cure (TOC) TOC is not routinely recommended for uncomplicated genital chlamydia infection, because residual, non-viable chlamydial DNA may be detected by NAAT for 3-5 weeks following treatment[128,129]. TOC is recommended in pregnancy, where poor compliance is suspected and where symptoms persist (Level IV, Grade C). It should be noted that asymptomatic LGV infections have been identified in MSM[131-135] and such individuals who test positive for rectal chlamydia who are not also tested for LGV risk not being treated for this. Asymptomatic MSM with rectal chlamydia (unless an LGV test has been performed and is negative) should be retested after treatment with single dose azithromycin or 7 days of doxycycline to ensure that LGV infection is not missed. Alternatively, consideration should be given to a 3 week course of doxycycline to cover LGV if a

Source	Recommendation/guidance
	test is not performed (Level IV, Grade C). There is little data on the optimum time to perform a TOC; however, for the reasons discussed above, this should be deferred for at least 3 weeks after treatment is completed[120,128-130]. Re-infection and repeat testing The recent studies showing higher treatment failure rates with azithromycin compared to doxycycline have raised concerns about antibiotic resistance. There have been no published cases of isolates with genetic resistance to azithromycin in vivo[136-138], however, these concerns underline the need for further work in this area. TOC should be differentiated from testing for re-infection. Re-infection is common[139,141] and usually occurs within 2 to 5 months of the previous infection[142]. In practice, it may be difficult to distinguish between treatment failure and rapid re-infection. Following an extensive review of the evidence and a professional and public consultation, in August 2013, the National Chlamydia Screening Programme (NCSP) in England issued a recommendation that young people under the age of 25 who test positive for chlamydia should be offered a repeat test around 3 months after treatment of the initial infection [28]. This guidance is based on evidence that young adults who test positive for chlamydia are 2-6 times more likely to have a subsequent positive test, and that repeated chlamydia infection is associated with an increased risk of complications such as PID and tubal infertility[49]. Several other countries recommend repeat testing in individuals with a positive test at intervals ranging from 3-12 months [130,143-145]. A positive result following treatment is most commonly due to poor adherence to treatment, re-infection from an untreated or new partner, inadequacy of treatment or a false positive result. Mathematical modelling has shown that re-infections are likely to be important in sustaining a chlamydia epidemic [142]. Because individuals who test positive for chlamydia are at higher risk of a repeat infection, repeat testing allows rapid diagnosis and treatment thereby reducing the risk of onward transmission and long-term complications. Modelling studies in the USA have shown that repeat infection rates peak at 2-5 months after the initial infection [140] which provides the rationale for recommendations to re-test 3-6 months after treatment [28, 130, 143-145] (Level III, Grade B) Data regarding the utility of repeat testing in over 25 year olds are limited, as the majority of published studies are in 16-25 year olds. Studies that have included subjects over 25 years of age found a significantly greater incidence in younger subjects than in older individuals [139,141]. There is therefore, at present, insufficient evidence for extending the recommendation for repeat testing to adults over the age of 25 years. The introduction of repeat testing for all individuals with a positive chlamydia diagnosis is likely to result in a reduction in the prevalence of chlamydial infection which would have significant public health benefits.

Source	Recommendation/guidance
	However, careful consideration of the costs of this and the impact on service delivery is warranted. Effective partner notification, education and treatment remain paramount. The Sexually Transmitted Bacteria Reference Unit (STBRU) at PHE offers a *C. trachomatis* culture reference service which is available for clinicians to refer specimens from patients who have failed treatment and are at low risk of having been re-infected[146]. Recommendations • TOC is not routinely recommended following completion of treatment but should be performed in pregnancy, where LGV (in the absence of a definite negative result) or poor compliance are suspected, where symptoms persist and in rectal infection when single dose azithromycin or 1 week of doxycycline are used as these are inadequate to treat LGV. Alternatively, consideration should be given to treating for 3 weeks with doxycycline. (Level IV, Grade C) • TOC should be performed no earlier than 3 weeks after completion of treatment (Level III, Grade B) • Repeat testing should be performed 3-6 months after treatment in under 25 years olds diagnosed with chlamydia (Level III, Grade B) • There is insufficient evidence to recommend routine repeat testing in individuals over the age of 25; however this should be considered in those considered to be at high risk of re-infection (Level IV, Grade C)
BASHH Standards for the management of STI's 2014	Paragraph 4.4.8 All people under 25 diagnosed with chlamydia should be re-tested for chlamydia three months after treatment.
BASHH Clinical Effectiveness Group *Chlamydia trachomatis* UK Testing Guidelines 2010	"Test of cure (repeat testing to confirm clearance of infection) is not routinely recommended if: o standard treatment has been given o there is confirmation that the patient has adhered to therapy o there is no risk of re-infection However, if these criteria cannot be met or if the patient is pregnant a TOC is advised. This should be taken using the same technique and sample type as used for the initial testing. Few data are however available[18] regarding the optimal time to undertake a TOC. It is recognised that NAATs will detect residual DNA/RNA even after successful treatment of the organism four to six weeks after treatment (IIb, Grade B)."