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A qualitative exploration of barriers to, and interventions to improve, chlamydia retesting in England using the behaviour change wheel

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SUMMARY

A study of young people in England found that awareness of the recommendation to re-test following a chlamydia diagnosis was low and identified opportunities for service providers to support retesting.

ABSTRACT

Background

Chlamydia is the most diagnosed STI among young people in England. Repeat infections are common, and the risk of complications from chlamydia increase with the number of lifetime infections. National guidelines recommend re-testing three to six months following treatment; however, re-testing rates remain low at 10-14%. The objectives of this study were to explore barriers to, and identify potential interventions to improve, chlamydia re-testing among young people in England, using the behaviour change wheel (BCW).

Methods

Qualitative semi-structured interviews were conducted with twenty-two people aged 16-24 who had previously been diagnosed with chlamydia. Participants were recruited from sexual health services in London, the South West, and the North West of England. An inductive thematic analysis was conducted, followed by thematic categorisation to the BCW.

Results

Barriers to re-testing included low awareness and knowledge of the recommendation, and differences in how the term "re-test" was interpreted. Participants' experience of the initial test influenced their willingness or intention to re-test. Possible interventions to overcome barriers include routine discussions of re-testing at diagnosis and the rationale behind the recommendation, re-testing reminders from service providers, and opt-in self-sampling kits.

Conclusions

Lack of awareness, and varied interpretations of “re-test” present challenges to retesting. Interventions such as routine discussions, text reminders, opt-in self-sampling kits, and clear guidance could improve awareness and understanding, and streamline the process. Future strategies should be developed with stakeholders and patients, and assessed for acceptability, practicability, effectiveness, affordability, side-effects, and equity, to maximise their real-world implementation and public health impact.

KEY WORDS

Sexual health, chlamydia, STI management

INTRODUCTION

Chlamydia is the most common sexually transmitted infection (STI) in England, accounting for nearly half of all STI diagnoses made at sexual health services in 2023[1], with the highest prevalence of infection in the 15-24-year-old age group.[2] There can be serious adverse consequences from chlamydia infection, particularly among women and other people with a womb/ ovaries including pelvic inflammatory disease, tubal factor infertility, and ectopic pregnancy.[3,4] Young people who test positive for chlamydia are at higher risk of subsequently testing positive for chlamydia[5,6] with repeated infection being a risk for poorer health outcomes. Therefore, UK national guidelines for the management of chlamydia infection recommend that people aged 15-25 years re-test between three and six months after treatment[7]. However, re-testing rates in England remain low; the audit report from the 2019 National Chlamydia Screening Program (NCSP) showed rates of re-testing in integrated sexual health services (SHS) was 34%, and it is estimated that the re-testing rate is 10-14% across all services where chlamydia testing is offered.[8,9]

Despite significant work to understand the barriers to, and enablers of, taking an initial chlamydia test[10–12] (i.e., a test without a prior diagnosis in the previous 6 months), there is little research specifically focused on chlamydia *re-testing* as a behaviour. Given the potentially serious consequences of repeat infections, it is important to develop theory-guided behaviour change interventions to improve rates of re-testing.

The Behaviour Change Wheel

The behaviour change wheel (BCW) is one such framework for the design of behaviour change

interventions (File, Supplemental Digital Content 1).[13] The BCW is underpinned by the Capability, Opportunity, Motivation – Behaviour system (COM-B) at its hub; a model of behaviour and the factors that influence it. In this system, capability (the capacity to engage in the behaviour), opportunity (factors that lie outside the individual that prompt the behaviour or make it possible) interact to generate a behaviour, and motivation (brain process that energise and direct behaviour), and the behaviour can in turn interact with and impact these domains. The next tier of the BCW are intervention functions, which describe potential ways to impact or address deficits in the COM-B domains. The outer tier contains policy categories that can enable or support the implementation of interventions to bring about a desired behaviour change.

Study aims

The aims of this study were to explore barriers and enablers to chlamydia re-testing and identify potential interventions to address barriers and support re-testing, using the BCW.

METHOD

Positionality and Design

This qualitative research was conducted by multidisciplinary team of experienced qualitative researchers and primary care and sexual health clinicians. The research was designed from a health service delivery and improvement perspective. The lead author (MC) explained to study participants that the information and experiences shared during interviews would be used to identify ways to improve chlamydia management and re-testing rates. All members of the research team were over the age of 25.

Patient and public involvement (PPI) representatives (aged 18-28 years old) provided input on the recruitment methods and reviewed and provided feedback on the interview topic guide. Ethical approval was granted by the Health Research Authority (IRAS project ID: 319194; REC reference: 23/NW/0186). The Standards for Reporting Qualitative Research[14] were used to report this study (see File, Supplemental Digital Content 2 for the checklist).

Participants and recruitment

Individuals aged 16-24 who had previously tested positive for chlamydia and lived in England were eligible to participate. Participants were identified and referred from specialist sexual health services in three Patient Identification Centres (PIC) in the North West and South West of England, and London. Local clinical and research teams identified potential participants during clinic attendance and through clinical records searches. Potential participants were invited to complete an online expression of interest form and contacted by a researcher (MC or TW) who provided more information about the study and scheduled interviews. Leaflets and posters with a link to the online form were also on display in some services to allow eligible individuals to self-refer to the study. Purposive sampling was used to ensure that different age groups, genders, and geographic locations were represented in the study population. Participants gave informed consent to take part and had the opportunity to ask the researchers questions before participating.

Procedure

Data were collected via semi-structured, one-to-one interviews, guided by an interview topic guide (see File, Supplemental Digital Content 3). The topic guide was developed by TW and MC, based on expert consensus and with input from the study team. Interviews explored participants' usual

testing habits, their experiences of testing positive for chlamydia (e.g., accessing testing, treatment, and follow up), their awareness and knowledge of the re-testing recommendation, and their perspectives on how to improve re-testing rates. Interviews were audio recorded and conducted by an experienced researcher (MC) via Microsoft Teams or telephone, depending on participant preference, and lasted between 20 and 80 minutes. Participants were offered a £30 voucher as appreciation for taking part. Data collection continued until the research team judged that sufficient information power had been achieved to address the research question.[15]

Analysis

Data collection and analysis were conducted simultaneously to allow developing topics of interest to be discussed in future interviews. Initially, an inductive thematic analysis was conducted to code and generate themes and subthemes, supported by the software NVivo 14. The themes were validated by discussion between the research team, and subthemes were mapped onto the appropriate tier of the BCW; i.e., barriers and facilitators to re-testing were mapped to the COM-B system and possible interventions to improve re-testing rates were mapped to the appropriate intervention and policy categories.

RESULTS

One hundred and sixty people completed an expression of interest, of whom 22 were recruited to the study and retained in the final analysis (see File, Supplemental Digital Content 4). Participant demographics, and the reason for their initial chlamydia test, are included in Table 1. The intervening time between testing positive for chlamydia and the interview date ranged from two weeks to seven years. Around half of the participants had had a repeat chlamydia test between

three to six months after testing positive and taking treatment, while five participants participated in the interviews less than three months since testing and treatment and had not entered the re-test window.

Three key themes were generated from the analysis: re-testing information gaps, experiences of chlamydia testing and the consequent impact on re-testing and improving chlamydia re-testing. The first two themes explore participant's perspectives on the barriers and enablers to chlamydia re-testing, while the third theme presents possible interventions to improve rates of re-testing. A summary of the themes and subthemes for the barriers and enablers to re-testing, mapped to the corresponding COM-B domains are provided in Table 2. Interventions, mapped to the barriers they address and the corresponding BCW intervention functions and policy categories, are presented in Table 3 (for supporting quotes for all themes see Table, Supplemental Digital Content 5).

Re-testing information gaps

Awareness and knowledge of re-testing: Psychological capability

Few participants were aware of the recommendation to re-test, or that people who had tested positive for chlamydia had higher positivity rates in subsequent tests. When asked what they thought the purpose of the recommendation was, many speculated that the primary reason was to ensure that the treatment had cleared the infection, rather than to test for reinfection.

Interpretation of the term "re-test": Psychological capability

Interpretations of the term "re-test" varied. During interviews, the researcher used the term "re-test" specifically to refer to a repeat test taken three to six months after treatment (Table 4), whereas

many participants interpreted or used the term to refer to a test of cure (TOC; a repeat test taken three to five weeks after treatment)[7], or to refer to a test taken any length of time after treatment, i.e., any subsequent test was referred to as a re-test. In some instances, participants were surprised to learn about the recommendation to re-test, as they had been told not to take a re-test during treatment and follow up discussions. This was because some healthcare professionals would use the term "re-test" when discussing a TOC.

Forgetfulness: Psychological capability

Following a discussion of the re-testing recommendation and rationale, feelings and intentions to re-test were mixed among the sample, although this in part related to the individual circumstances and experiences of each individual's initial test (see "Experiences of the and the impact re-testing" below). Even when participants were positive about re-testing or expressed intentions to re-test, there were concerns that they would forget to book a test after three to six months.

Re-testing recommendation: Social opportunity

Participants expressed that they were given enough information and support around some aspects of chlamydia management and had discussions about partner notification and treatment with healthcare practitioners following their diagnosis. However, few participants recalled being specifically told about the recommendation to re-test, and if re-testing was discussed it was usually referring to a TOC (see above). Participants felt that the recommendation to, and advice around, re-testing should come from healthcare practitioners, who they perceived as trusted sources of information and experts in chlamydia management. Because of this, some participants felt that the lack of encouragement to re-test from healthcare practitioners meant they were less likely to

prioritise or remember to re-test.

Experiences of chlamydia testing and the impact on re-testing

The reason for the participant's initial test (i.e., when they tested positive for chlamydia), and their experiences booking, attending, and receiving treatment, had an impact on their intentions and willingness to take a re-test.

Reason for the initial test: Reflective motivation

Many of the participants took their initial test for a specific reason, e.g., they were experiencing symptoms, because of partner notification (i.e., a sex partner had tested positive), or they wanted to test after having sex with a new partner. In these cases, the reason why they sought out the test was addressed and resolved with treatment (e.g., their symptoms were resolved, or they had not had sex again with the same partner), and so they would not plan to, or did not feel the need to re-test, or no longer felt testing was relevant to their circumstances.

Reason for the initial test: Automatic motivation

Other participants described habitually testing at regular intervals (e.g., every three months), sporadically for "peace of mind" when they remembered to, or when they felt there had been a long enough interval since their last test. When participants were not testing to resolve a specific circumstance or issue, they were more willing or expressed stronger intentions to take a repeat chlamydia test. Overall, although these repeat tests would tend to be within the recommended re-test window of 3 to 6 months. They would not be taken intentionally as a re-test, rather as part of an established testing habit.

Reason for the initial test: Physical opportunity

Two participants were offered a test while attending SHS for a contraception appointment. Neither participant had symptoms nor had tested for chlamydia before accepting the offer of a test. The opportunistic test introduced these participants to chlamydia testing, and both participants expressed intentions to re-test and to establish a testing habit after having sex with new partners.

Diversity of experiences at the initial test: Physical opportunity

Participants described a diversity of experiences when booking and taking their initial chlamydia test These differences existed both between and within the services in which they had been seen. Some participants found the process of booking and taking the test straightforward and therefore did not foresee any issues booking a re-test. However, others had experienced difficulties trying to access testing. Some participants preferred to use at-home self-sampling kits, but it was not always possible for them to access them, as the daily allocation of tests from their local SHSs would run out before they could request one. Participants described setting alarms to ensure they could request a kit as soon as they became available each day, and still having to retry over several days before they were successful. In other cases, participants were unable to schedule appointments or attend SHS at a convenient time, which was difficult for those enrolled in education and/or in employment. Participants who encountered difficulties booking their initial test expressed reluctance in booking a re-test, particularly when the reasons or circumstances for attending were resolved by the initial test (see reason for initial test: reflective motivation).

Proposed interventions to facilitate re-testing

Participants discussed ways to make re-testing easier and more accessible. The full table of

interventions, including the barriers/enablers they address, the BCW intervention functions they include, and the policy categories that would enable the interventions, are provided in Table 3.

Discussion of testing frequency

Participants felt that recommendation to take a re-test should be a routine part of chlamydia management and discussed after receiving a chlamydia diagnosis. Discussions should include the rationale behind the recommendation, and information on how/where to book a re-test.

Service reminders

Email, text message, and telephone prompts sent approximately three months after treatment were seen as acceptable ways to remind individuals to book a re-test. Many participants indicated that they would welcome service reminders, particularly those who did not have an established testing habit. Messages that included weblinks to book an appointment were preferred, especially by participants who had experienced difficulties booking tests in the past.

Opt-in at home self-sampling kits

A few participants had been instructed to have a TOC and were sent an at home self-sampling kit a few weeks after completion of treatment. Many participants suggested that this strategy could also be used to improve rates of re-testing if kits were sent closer to or during the re-testing window, as it would bypass some of the difficulties that were encountered in trying to book a test and take away the burden of remembering to re-test. It was important that the test kits were opt-in, as some participants were not comfortable receiving a kit to their residence.

Testing flow chart

The different interpretations of the term "re-test" among participants and healthcare professionals meant that there was a lack of certainty around repeat testing. To address these barriers, the research theme developed a prototype flow chart as a visual aide for discussions around testing frequency that bypasses the term "re-testing" altogether (Figure 3). The flow chart begins with a chlamydia test and proposes two divergent paths, depending on the test results. Unlike the other interventions above, the flow chart was developed over the course of the data analysis, rather than discussed in interviews with participants.

DISCUSSION

Lack of awareness, varied interpretations of the term re-test, and difficulties booking tests present challenges to re-testing. This study found that the circumstances of a patient's initial test can impact their intention and willingness to take a re-test. These findings highlight the needs for interventions, such as routine discussions of re-testing as part of chlamydia management and service reminders, to improve the rates of repeat testing three to six months following a positive diagnosis.

Beyond changes to service delivery, the results of this research highlight how the term "re-testing" is ambiguous and is not used or interpreted consistently among patients or practitioners. This ambiguity itself presents a barrier, particularly as there are different recommendations around repeat resting for chlamydia and other STIs such as gonorrhoea. The case for consistent nomenclature has previously been made to reduce confusion around terminology in reproductive medicine[16] and for self-sampling and self-testing for STIs and HIV.[17] We propose that a similar

strategy is adopted for repeat testing following a positive chlamydia diagnosis. This could be achieved by adopting a new term that is specific for testing three to six months after treatment, or by avoiding the use of term "re-testing" when discussing testing frequency for chlamydia, as demonstrated in the prototype flow chart presented above. Consistent terminology would not only support patient's understanding, but could help improve the training, service-delivery, and evaluation of chlamydia treatment and management. Any guidelines and materials intended to support, including the prototype flowchart presented above, must be generated, refined, and/or assessed by stakeholders for acceptability, practicability, and effectiveness before being implemented in practice.

Some of the interventions discussed above are already in practice in some services[18], including text message service reminders and verbal offers of re-testing when test results are delivered. Active recall strategies (i.e., reminders to return for a repeat test) are associated with higher reattendance/re-testing rates for HIV and STIs generally[19], and this research shows that not only could these models of practice address some of the barriers to re-testing that patients experience, but that patients are likely to find them acceptable. However, the success of these strategies relies on robust and equitable digital infrastructure, and it is not known how widely they are adopted in services where chlamydia testing is offered.

Unlike other aspects of chlamydia management (e.g., results notification, time to treatment, partner notification), re-testing is not currently an auditable outcome measure and there is no national standard for the proportion of young people returning for a test three to six months after treatment. In addition to the strategies to improve re-testing rates among patients, it may be important to

design and implement additional interventions that enable services to prioritise re-testing, for example by establishing audit and feedback[20] standards for re-testing in line with other aspects of chlamydia management. While this study focused on individual and service-level barriers, wider structural factors such as regional service provision, digital access, and resource constraints may also impact re-testing opportunities and should be considered in intervention design.

The inclusion of participants who were previously diagnosed with chlamydia is a strength of this research, as it highlighted the impact that the initial test has on an individual's intentions and willingness to re-test. However, all participants were recruited from SHS, and therefore the experiences of people who test in other settings, such as in primary care or pharmacies, have not been captured. Although some of the results of this study may be transferable to other settings, particularly those concerned with improving awareness and understanding of the re-testing recommendation, people tested in settings outside SHS may encounter different or additional barriers to testing. It will be especially important to design interventions that are effective in a range of settings. The 2019 NCSP audit report showed rates of re-testing in from GPs and other community settings were below 3%, compared to 34% from integrated SHS[9]. The NCSP guidelines state that all sexually active women and other people with a womb or ovaries aged 15-24 years old should be offered an opportunistic chlamydia test in GPs[21], and interventions may need to be tailored to different settings to ensure that all patients have the information and access they need after testing positive for chlamydia.

CONCLUSION

Low rates of re-testing following a chlamydia diagnosis present a missed opportunity to reduce

the reproductive harms of a common sexually transmitted infection. This study suggests low rates may be driven by low awareness, lack of clarity around language and difficulties accessing services. Interventions such as routine discussions, text reminders, opt-in home testing, and clear guidance could improve awareness and understanding of re-testing and streamline the process. Future strategies should be co-designed with stakeholders and patients, and assessed for acceptability, practicability, effectiveness, affordability, side-effects, and equity, to maximise their real-world implementation and public health impact.

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LIST OF SUPPLEMENTAL DIGITAL CONTENT

1. File, Supplemental Digital Content 1 – Behaviour Change Wheel
2. File, Supplemental Digital Content 2 – SRQR Checklist
3. File, Supplemental Digital Content 3 – Recruitment Flow chart
4. File, Supplemental Digital Content 4 - Retesting topic guide
5. Table, Supplemental Digital Content 5 – Supporting quotations

Figure 1

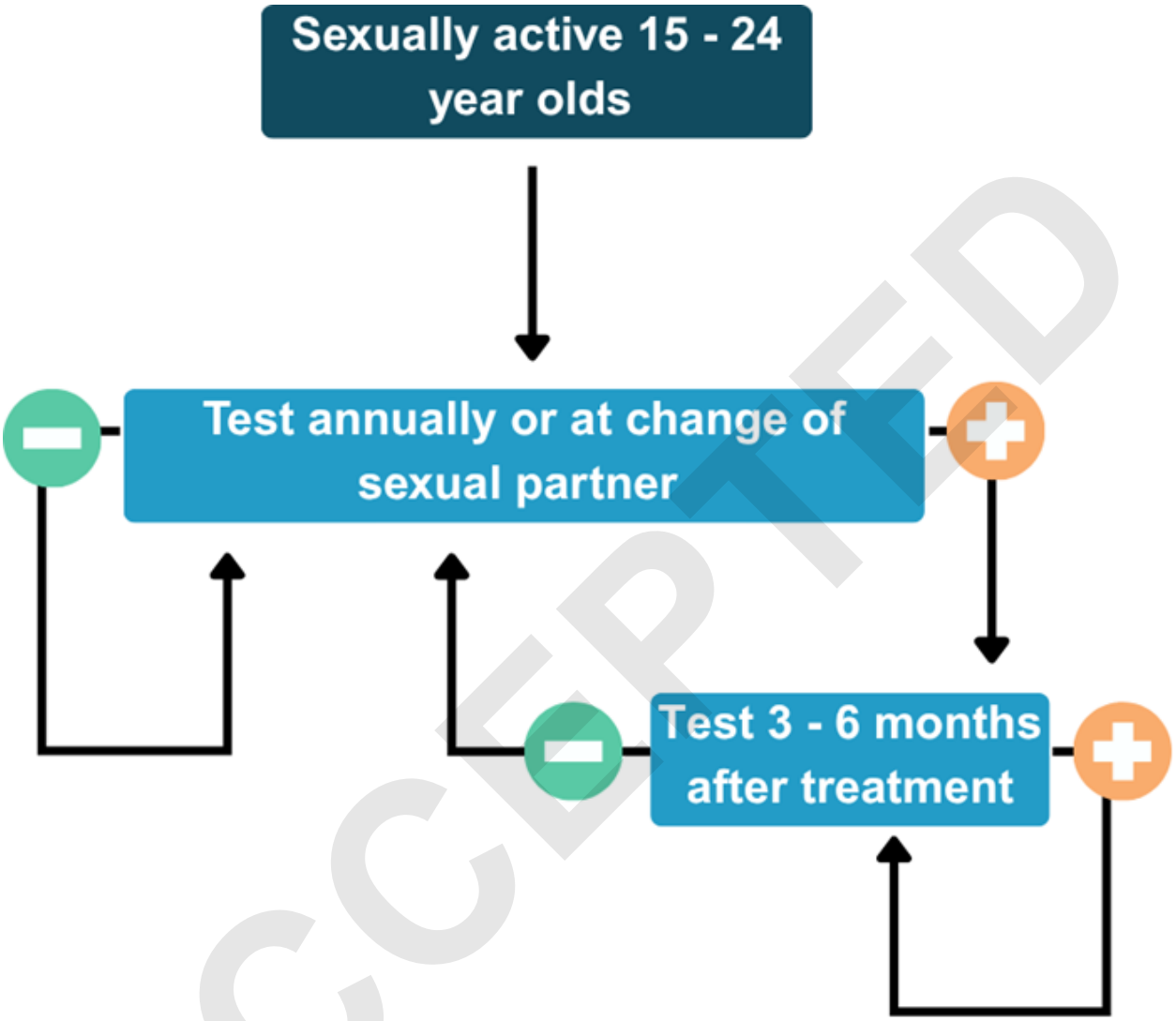


Table 1. Participant demographics

	n	%
Age		
16 - 20	9	40.9
21 - 25	13	59.1
Ethnicity		
Asian/Asian British	2	9.1
Black/Black African/Black British	2	9.1
Mixed	2	9.1
White/White British/White European	16	72.3
Gender		
Female	12	54.6
Non-binary	3	13.6
Male	7	31.8
Sexuality		
Bisexual	7	31.8
Heterosexual	11	50
Gay	4	18.2
Recruitment site		
North West	10	45.5
South West	7	31.8
London	5	22.7
Reason for initial chlamydia test		
Symptoms	9	40.9
Sexual behaviour (new partner)	2	9.1
Partner notification	4	18.2
Testing habit/peace of mind	4	18.2
Opportunistic test	3	13.6

Table 2. Barriers and enablers to chlamydia retesting

Theme	COM-B domain	Subtheme	Description
Re-testing information gaps	Psychological capability	Awareness of re-testing	Participants were not aware of the recommendation to test again between 3- and 6-months completing treatment
		Knowledge of re-testing	The rationale for taking a repeat test 3 to 6 months after treatment was not clear
		Interpretation of the term "re-test"	The term "re-test" was ambiguous and was used to refer to a number of different scenarios (e.g., any repeat test, test of cure)
		Forgetfulness	Some participants felt they would not remember to take a test again 3-6 months after treatment
	Social opportunity	Re-testing recommendation	Healthcare professionals were perceived as experts in chlamydia management, and specifically being told about the recommendation made a difference to participant's willingness and intentions to retest
Experiences of chlamydia testing and the impact on re-testing	Reflective motivation	Reason for the initial test: Testing because of partner notification, sexual behaviour or symptoms	When reason for seeking out the test that led to the positive diagnosis was resolved by that test and treatment, patients may lack motivation to test again
	Automatic motivation	Reasons for initial test: Testing out of habit or for peace of mind	Participants who had an established testing habit are likely to test again

			within 3 to 6 months after treatment, however not as an intentional retest
	Physical opportunity	Opportunistic test	Participants who were offered an opportunistic test (i.e., as part of another appointment), expressed intentions to retest and establish a testing habit
		Difficulties booking initial tests	Encountering difficulties when booking an initial test impacted participant's willingness or intentions to book a retest

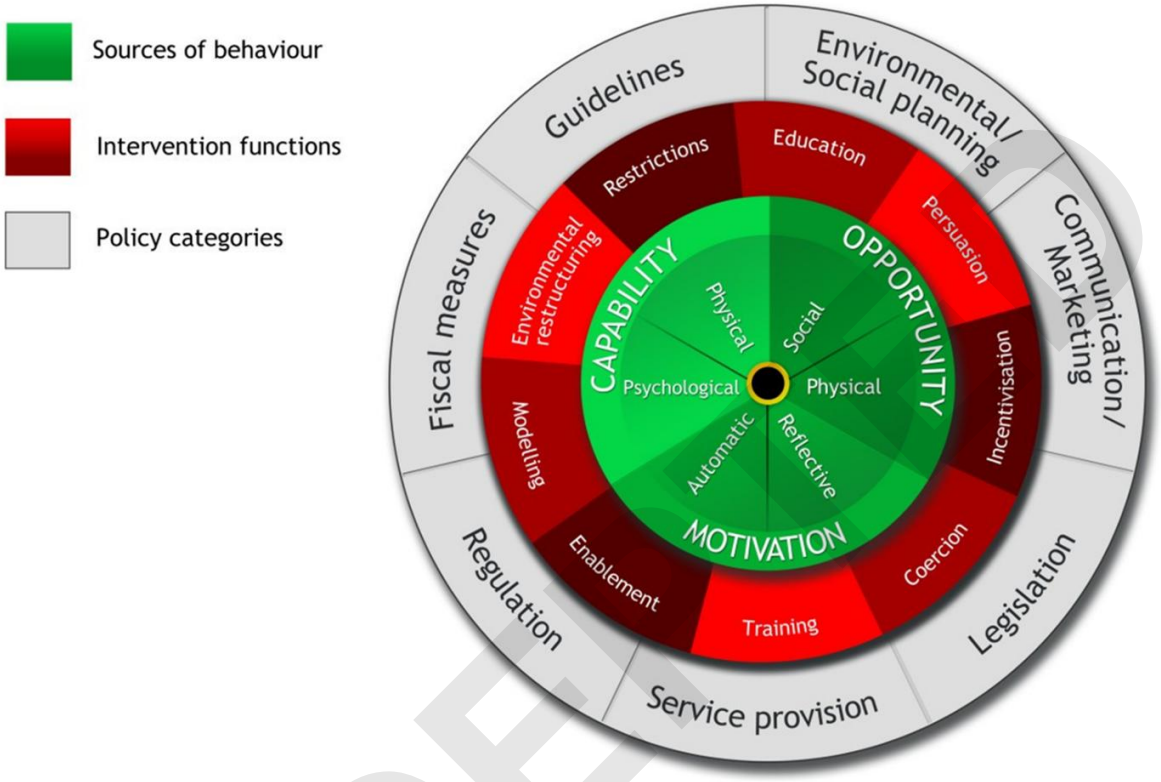
Table 3. Proposed interventions to improve chlamydia re-testing rates, mapped to the corresponding Behaviour Change Wheel intervention functions and policy categories

Proposed intervention	Description	Barriers addressed (COM-B Domain)	Intervention Function(s)	Policy category
Discussion of testing frequency	A discussion of when to take another chlamydia test as a routine part of chlamydia management. The discussion should include information on when to next test, and the rationale for testing again.	Psychological capability (awareness, knowledge, and understanding of the recommendation) Reflective motivation (reason to test again after 3 to 6 months) Social opportunity (explicit recommendation from a health care practitioner)	Education, persuasion	Guidelines, service provision
Service reminders	Text message, email, or telephone prompts reminding patients to book a follow up test sent approximately 3 months after receiving treatment. Reminders could include information on testing frequency, and/or information on how to book a test.	Psychological capability (forgetfulness) Physical opportunity (difficulties booking tests)	Enablement	Service provision, communication
Opt-in at home self-sampling kits	The option for a self-sampling kit to be sent to patient's homes approximately 3 months after completion of treatment	Psychological capability (forgetfulness) Physical opportunity (difficulties booking tests)	Enablement, environmental restructuring	Service provision
Testing flow chart	A flow chart describing the recommended testing frequency for sexually active 15 - 25-year-olds (Figure 3).	Psychological capability (awareness and knowledge) Social opportunity (re-testing recommendation)	Modelling	Communication

Table 4. Chlamydia testing terminology

Terminology	Definition
Repeat test	A test taken any length of time after a diagnosis with chlamydia and completing treatment. Repeat tests include re-tests and tests of cure.
Re-test	A repeat test taken three to six months after completing treatment to test for reinfection
Test of Cure	A repeat test taken three to five weeks after completing treatment to test for treatment failure

SDC Figure



Standards for Reporting Qualitative Research (SRQR)*
http://www.equator-network.org/reporting-guidelines/srqr/

Title and abstract

Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	Page 1, line 1-2
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	Page 3-4, line 43-72

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	Page 4, line 76-94
Purpose or research question - Purpose of the study and specific objectives or questions	Page 6, line 108-110

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	Page 8, line 153-160
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	Page 6, line 113-118
Context - Setting/site and salient contextual factors; rationale**	Page 6, line 126 - 131
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	Page 7, line 135-136; Line 149-151
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	Page 6, line 121-122

Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	Page 7, Line 140-148
Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	Page 7, line 146-148
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Page 8, line 162-169; Table 1
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	Page 8, line 153-160
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	Page 8, line 153-160
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	N/A

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	Page 8-14, line 162 – 290; Tables 2 and 3
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Table, Supplemental Digital Content-Supporting quotations

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	Page 14, Line 291 – 333; Page 16-17, line 351 - 359
Limitations - Trustworthiness and limitations of findings	Page 16, line 334 - 348

Other

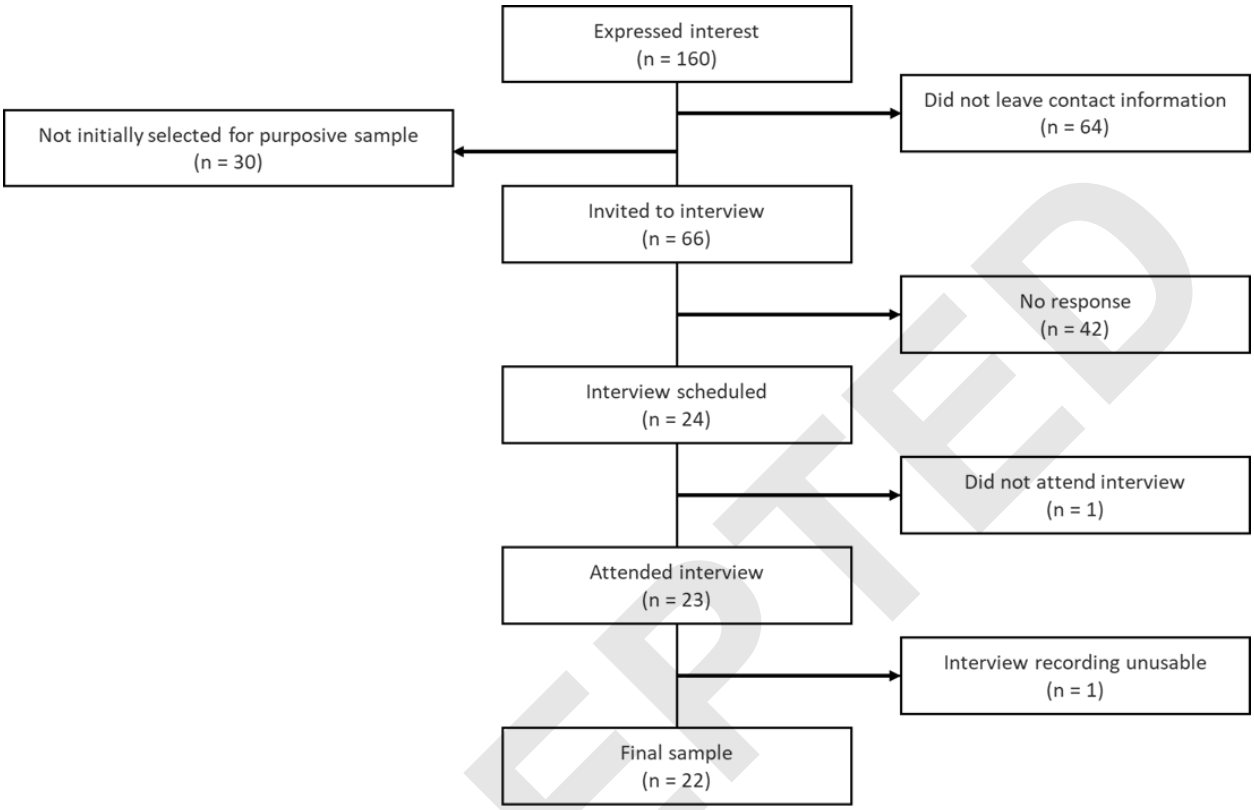
Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	Under heading: Conflict of interest statement
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	Under heading: Funding

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:
O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.**
Academic Medicine, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388

SDC Figure



Interview topic guide

- Check participant is comfortable and able to speak safely and privately
- Brief project overview
- Check/complete consent documents
- Reiterate anonymity and confidentiality
- Reiterate right to withdraw
- Discuss protocol in case of participant distress
- Signpost support organisations and provide list
- Check for questions

CHECK OK TO RECORD

1. Can you talk me through how you came to participate in this study?
    - ↳ Prompt: Where did you see it advertised?
    - ↳ Prompt: What motivated you to sign-up?
    - ↳ Prompt: Is there anything you are hoping to gain from participating?

2. A lot of people talk about 'safer sex' can you tell me what it means for you?
    - ↳ Probe: Where did you learn this information?
    - ↳ Probe: Has your understanding changed recently?
    - ↳ Probe: What has influenced the way you think about it?

3. Tell me about your approach to sexual health screening?
    - ↳ Prompt: How often do you test for sexually transmitted infections?

- ↳ Probe: Was this your first experience testing?
- ↳ Probe: Where do you test?
- ↳ Probe: How do you feel about testing?

4. Are there any sexually transmitted infections that you are particularly concerned about?
    - ↳ Probe: What concerns you about it?
    - ↳ Probe: Are there any others that don't concern you? What about them doesn't?

In this section, I would like to talk to you about your experience with chlamydia testing, diagnosis and retesting

5. To start, can you tell me…
    - ↳ When did you receive the diagnosis/positive test result[1]?
    - ↳ Why did you decide to test for chlamydia?
        i. Prompts: symptoms, partner notification, partner's symptoms, routine test, opportunistic screening
    - ↳ Probe: Where did you test?
    - ↳ Probe: How did you receive the result?
    - ↳ Probe: Where did you access treatment?

[1] Added 12/04/2024. There is a gap between when people expressed interest and have signed up, therefore there may be differences between people taking part after a recent diagnosis vs at three months past

6. Can you tell me what happened when you went to get treatment[2]?
    - ↳ Prompts: Questions, follow up, advice, partner notification?

7. Did anything in that experience make getting a test easier?
    - ↳ Prompts: self-sampling, social support, confidentiality, HCP support, ease of treatment, taking responsibility, self-care, accessibility of testing/treatment
    - ↳ Probe: Can you tell me more about [experience]?

8. Did anything make getting a test more difficult?
    - ↳ Prompts: lack of knowledge, low-risk perception, embarrassment, shame, stigma, fear, accessibility of testing, self-sampling/testing process
    - ↳ Probe: Can you tell me more about [experience]

9. People who are diagnosed with chlamydia are recommended to get retested about 3 to 6 months after treatment. Were you aware of the recommendation?
    - ↳ If yes, where did you hear this from?
        i. Consultation, leaflet, when you got the results back
    - ↳ If yes, was it explained why people are recommended to retest?
    - ↳ [3]Why do you think people are asked to retest?

[2] Added 23/05/2024. To give participants more of an opportunity to describe what happened at the appointment rather than going through it piece by piece

[3]Moved to be it's own question 05/06/2024 following data clinic

↳ How do you feel about re-testing?

i. Probe to understand positive or negative emotions (e.g., fear/worry over being diagnosed again, having to notify partners again, relief at a negative result etc)

10. Did you subsequently re-test for chlamydia?

↳ If yes, can you talk me through the process

i. What prompted your retest?

1. Prompts: symptoms, partner notification, partner's symptoms, routine test, opportunistic screening

ii. Where did you retest

1. Same service or between services?

a. Why did you decide to retest there?

iii. How did you find the process?

1. How did you get the results, when did you get the results? And preferences around this[4]

2. How did you feel receiving the result?

iv. How did that make you feel?

v. What made it easier?

[4]Added 17/04/2024 after the fourth interview. Earlier questions ask about CT results for the initial one, but not for the retesting experience.

1. Prompts: self-sampling, social support, confidentiality, HCP support, ease of treatment, taking responsibility, self-care, accessibility of testing/treatment

vi. What made it harder?

1. Prompts: lack of knowledge, low-risk perception, embarrassment, shame, stigma, fear, accessibility of testing, self-sampling/testing process

vii. How was your experience of retesting different to the initial test?

↳ If no, are you planning to retest?

i. Probes: How did you make that decision?

↳ If no, can you talk me through why you did not test?

i. Prompts: Intent to retest, prompts to retest, accessibility of retesting, risk perception, asymptomatic, social support

ii. Did anything put you off retesting? Please tell me more about that

1. Prompts: lack of knowledge, low-risk perception, embarrassment, shame, stigma, fear, accessibility of testing, self-sampling/testing process

iii. Is there anything that would encourage you to retest?

1. Prompts: reminders, self-sampling/testing, more convenient services, responsibility towards partners, retesting made more "normal" or "usual"

11. People are recommended to retest because chlamydia reinfection is common. Repeat infections in women are associated with an increased risk of complications such as tubal infertility and PID. And if you are reinfected, you can pass it along to your partners[5].
    - ↳ How does this make you feel about retesting?
    - ↳ Does knowing this change whether you might take a retest in the future?

12. We are looking into ways to improve rates of retesting after people are diagnosed with chlamydia[6].
    - ↳ In your opinion, what is the best way to learn about retesting? (Probe: how would you want to receive this information?)
    - ↳ What would make it easier for you to retest? What would make it harder? (Probe: reminders, booking links, home self-sampling kits)

13. Have you tested since you were diagnosed with chlamydia[7]?
    - ↳ When did you test?
    - ↳ Where did you test?

[5] Added 05/06/2024 following data clinic discussion to explore participants' understanding of retesting and how their perceptions might change given information about retesting

[6] Added 05/05/2024 following data clinic discussion to explore interventions to improve retesting rates

[7] Added 05/06/2024 following data clinic to ensure the discussions were capturing testing behaviour and subsequent tests (if any). In part important to catch retesting behaviour that's not intentional retests but could be within the retesting window

↳ Why did you test?

14. We've talked about the experience of being diagnosed with chlamydia. Is this the first time you were diagnosed?
    ↳ Did you retest after you were diagnosed?
    ↳ If yes, why?
        i. How was this experience compared to the most recent experience?
    ↳ If no, why not?

15. Is there anything else that you would like to tell me about your experience that we have not discussed so far?

16. Do you have any questions for me?

TURN OFF THE RECORDER

Wrap up

- How did you find that, how did that go for you?
- Right to withdraw- if you change your mind within the next month we can remove this, after that it will all be anonymised
- If you have any questions or thoughts afterwards, get in touch
- I will email the voucher with instructions

Theme	Subtheme	Illustrative quotes
Re-testing information gaps	Awareness of re-testing	**Interviewer**: Did you know about this recommendation to re-test? **P12**: No, I didn't. (22, Female, North West)
		Interviewer: Were you aware of this recommendation to have a re-test three months after you finish your treatment? **P13**: No, I was not. (24, Female, London)
	Knowledge of re-testing	**Interviewer**: If this is the first you're hearing about it, why do you think people are asked to take a re-test? **P03**: To ensure the treatment worked (19, Female, South West)
		P05: Is this about resistance to chlamydia? For some people, they say it usually works for most people most of the time but maybe there are some very resilient strengths of chlamydia that might not be very sensitive to these antibiotics that I'd got. So, I think there was a period where you might get false alarm results as well. So, I guess there was a window where it was better to get it tested to make sure the antibiotic worked. (24, Male, North West)
		P10: Because sometimes the antibiotics don't always get rid of the chlamydia completely so obviously it can still be positive. And obviously lots of people with chlamydia are asymptomatic so by doing this re-test you know you have got time to see it if it is still positive or time for the doxycycline to have worked and to have got rid of the chlamydia. Because sometimes it can take a while for the chlamydia to actually like go and not show up on the tests. (20, Female, South West)
	Interpretation of the term "re-test"	**P02**: But they said to me that I don't need to re-test because it's my first time getting chlamydia, and if it's your first time getting it, they put me on, I think the antibiotic was called, doxycycline (...) and they said that it's like, they know that it works. I didn't need to re-test. (18, Nonbinary, London)
		P18: I just I remember asking them on the phone like, "Should I test again?" and they were like, no it's fine just after your antibiotics you are okay so I just thought that that was the recommended thing to do. (19, Female, South West)
	Forgetfulness	**P08**: I think it's fine it's just a matter of, now thinking about it I would absolutely forget to rebook it myself. I would have to have it rebooked with the NHS. That would have to happen essentially when I get my diagnosis because otherwise I would just completely forget. (24, Male, South West)

		P11: I'd probably forget, to be honest, because I'm quite forgetful. But if I put like a reminder of my phone, I probably would do it just to ease my mind that everything was fine. (19, Female, London)
	Re-testing recommendation	**P04**: Yeah it was mentioned I, I, I think they said like yeah, it was, it was, it was like it was suggested but I wouldn't say it was like particularly prioritised it was like a recommendation (…) Like they said, like you know, we recommend- it was almost like we recommend that you do this but like, you don't have to was the way it was put. (23, Nonbinary, London)
		P12: If it had been recommended by a doctor then I would have done it. I'd want to follow the advice of people who know what they're doing. (22, Female, North West)
		P16: So if someone told me I needed to go and get re-tested, as a younger person, I would more like have just gone and done it for the sake of, I guess, you know, you kind of listen to people. If they're a professional, you listen to them and kind of do as they say. (21, Male, Manchester)
Theme	**Subtheme**	**Illustrative quotes**
Experiences of chlamydia testing and the impact on re-testing	Testing because of partner notification, sexual behaviour or symptoms	**P09**: I'll be honest, at a certain point in time, I just stopped trying because I had done my course of medication and I felt I just kind of took it for granted that it would have kicked it. (24, Nonbinary, North West)
		P14: Yeah, especially for one swab, it just doesn't make sense for me, so that's why I was like you know, I've taken the treatment, I've taken it in the past, so in the situation I was fine, there's no need for me to come back. (24, Male, Manchester)
		P20: While I had the symptoms, that sort of effect and stuff, to then after the treatment, fully gone and then you'll be back to normal and so, in my brain I was like, oh, it's all gone. (20, Male, Manchester)
	Testing out of habit or for peace of mind	**P07**: But yeah, I guess it was more precaution and like, I guess, you know, when you test every few months, or every month, or, I normally say every two months, to be fair, I feel like, in yourself, I feel better because, you know, if you can have it for longer, it can affect your fertility, or it can affect your health longer. So, just kind of, it's kind of a regular thing that I do now. (22, Female, North West)

		P02: Yeah, no, I think, yeah, yeah, I would. I would re-test. Because, like, even though they said to me, that I don't need to re-test, I was thinking of re-testing anyways, just to, like, just to know that it's fine and have like, peace of mind, I guess. But yeah, after getting tested once and seeing that it's actually not a big deal, you know, I will, re-test after every new partner or whatever. (18, Nonbinary, London)
		P17: Because I am following the every three months. Well I didn't follow it last time but if I am following the every three month I think it is still important to do it around the three month mark. (19, Male, London)
		P08: Hmm. Yeah. The only question is if it's every three months, technically speaking I do, I think I end up testing every two months at the very most or at least monthly anyway. Wouldn't just normal regular testing count as a re-test or does it not really count, it's very specific? (24, Male, South West)
Theme	**Subtheme**	**Illustrative quotes**
Experiences of chlamydia testing and the impact on re-testing	Opportunistic test	**P02**: And I went to [Clinic] to, like, get emergency contraception, but they make you do an STI test anyways. So, that's how I ended up, like, you know, doing the screening. (18, Nonbinary, London)
		P06: So I went to sexual health clinic, and it was regarding an implant, to get the implant inserted, and they offered to do a test at the same time. So, I agreed to it, not knowing I had anything at all. And then the test came back and said it was positive for chlamydia. (22, Female, South West)

		P19: I didn't get tested because I had symptoms, I only got tested because it was just by chance. So, obviously, I was going to go on the 21-day pill or whatever, and she was like, "Oh, do you want to get tested?" I thought I had no reason to, I wasn't planning to get tested, and it was like, "Oh, just while you're here we'll get you tested just in case." So, I got tested and obviously, it came up positive, and I was a bit shocked, that was surprising, I was a bit surprised. (19, Female, North West)
	Difficulties booking initial tests	**P09**: I have found that the NHS's sexual health services can be a bit difficult to wrangle sometimes. If you're talking about causes for not re-testing, that would probably be first and foremost on there, it's just difficult in accessing the testing that you need without having to try again, and again, and again or go well out of your way to access it. (24, Nonbinary, North West)
		P20: I don't know, the process of ordering a test kit is really hard as well because they get like; I don't know if the correct term is sold out because you're not really buying it, but you click on to order it and they've all gone out for today, try again tomorrow morning and it goes on for days and days, and days, where you have to keep trying to see if you can order one. It's unnecessary. (20, Male, Manchester)
Theme	**Subtheme**	**Illustrative quotes**
Interventions to support re-testing	Discussion of testing frequency	**P13**: I believe at your appointment, even when you're going there to get tested, I feel like you should mention it then. (24, Female, London)
		P11: Well, it'd probably just make it more of an important matter if there was a specific reason why, after three months? And then I'd probably act on it more. (19, Female, London)

		P22: Yeah I think so. I think it would have, obviously you know it would have been a little bit sort of frightening to hear but I think done in the right way sort of as you have done, sort of explaining why it is quite beneficial for people to understand the sort of importance, you know, you take it on a bit more. Rather than someone going oh can you just re-test in three months and you are like, yeah, yeah, yeah sure. Knowing that it can lead to sort of complications for your health, I feel you would be more likely to test again. (24, Female, South West)
	Service reminders	**P15**: I think if it was able to kind of get an email or a text message from any clinics or anything like that to kind of, as like a check-up and say it's been three months etc since your antibiotic, I think that definitely would be really helpful for- I mean, thankfully I remembered but I think- I think from the first time, if I'd gotten a notification, I definitely would have done a re-test. (20, Female, Manchester)
		P08: I genuinely don't mind. Instead of being told to rebook I wouldn't mind, I genuinely don't mind, getting texts saying oh you have a booking with the NHS and just showing up and them telling me oh you are here for a test. I don't mind that happening ever. I think that has happened a bunch and I never cared. I actually quite liked, I found it to be, what's it called, them helping me out, get rid of a task that I would have had to do anyway, getting rid of a chore for me. (24, Male, South West)
		P22: I think I would like it to say something like you said it's coming up to three months since you tested positive, we recommend you get a re-test. And maybe a little bit of information sort of this is for your safety, you know, we don't want to see this, we don't want you to develop this. And also just like a link. I think it would be good if there was a link to booking a test or a phone number, like contact details, a way of contacting someone to book that test as well. (24, Female, South West)
Theme	**Subtheme**	**Illustrative quotes**

Interventions to support re-testing	Opt-in at home self-sampling kit	**P01**: Yes, that would be amazing because I really hate going to the clinic and stuff like that because it is so hard to get an appointment and when I get it, it is always so far from my house and it is just such an inconvenience, you know, that is one of the biggest factors I would say. If there is a home test I would definitely go for it. 23, Male, Manchester)
		P06: I feel like in my house, in my like home life, it can be quite like, not private. So I think, personally, I would prefer going to somewhere, so they don't really know what's going on. But I feel like it would be fine for most people if they don't have a family who's so, you know, inserted in somebody's life. (22, Female, South West)
		P10: I think one of the really great things for me was sort of when I had that initial like phone call with them telling me, a follow up phone call. I think that they sent me it in advance so they just did it so I didn't have to request anything. I didn't have to do anything. Like the re-test just appeared at my door and they had written the date of when I should do it after on it and so I could just keep that away. Like I kept it in a place that I could see it but it was kind of out the way to remind myself. (20, Female, South West)
		P21: It would be good to have an opt in option. I personally would just let it arrive at my house but if there was an opt in option just in case you lived with people and you didn't want them to know in case they aren't aware of. Because I know they are really discreet the postal kits but if you didn't want them to know. (23, Female, South West)