

Supplementary data

Table S1: Focus Group Composition

Focus Group ID	N (Total Participants)	Role (n)
FG 1	9	Health care assistant (2) Practice nurse (7)
FG 2	10	Administrator (1) Health care assistant (1) Practice nurse (8)
FG 3	3	General practitioner (3)
FG 4	6	Administrator (1) General practitioner (4) Health care assistant (1)
FG 5	6	General practitioner (6)
FG 6	8	GP registrar (3) Health care assistant (1) Nurse practitioner (1) Practice nurse (2) Senior dispenser (1)
FG 7	10	General practitioner (7) GP registrar (1) Practice nurse (2)

Note: FG = focus group, GP = general practitioner

Box S1: Topic Guide

Guide for Discussions: Chlamydia Testing in General Practice

Thank you so much for your time and taking part in the research interview today. My name is [named researcher] and I am currently a researcher in the Research Department of Primary Care and Population Health at University College London. My research is focused around young people's health in primary care with a particular focus on chlamydia testing.

What we are looking at and what we want to discuss today are primary health care professionals' approach to young people's health and ways in which this might be improved. By young people we mean those who have reached adolescence up to age 24. As part of this we specifically want to find out how primary health care professionals currently approach young people in practice and anything that has or could be done in the practice to promote young people's health. More specifically we want to know how professionals feel about offering chlamydia tests, what might affect their decision to offer/ not to offer a test and finally what it is we can do to increase testing in this setting. Does that make sense?

- Go through information sheet.
- Go through consent form. Have they signed?
- Ask them the demographics questions.

Just so you know what is coming up, first we will talk about young people's health in general, we will then move onto questions around sexual health and chlamydia, and your experience with offering testing. Following this, we'll discuss the reasons why patients are/ are not tested for chlamydia. Finally. we will talk about possible interventions approaches that may improve young people's healthcare as well as chlamydia testing in primary care.

Before we start, it is important for you to know that there are no right or wrong answers. We are just exploring this topic and are really interested in hearing about your opinions. If you don't feel comfortable answering any questions, you don't have to.

Do you have any questions before we start?

OPENING QUESTIONS RELATING TO YOUNG PEOPLE

1. How often do you see young people in your routine surgery?

2. How do you think you approach this age group?

Probes:

- Do you alter your consulting style?
- How does this compare to a younger demographic?
- How does this compare to an older demographic?

3. How does your practice as a whole approach young people's health?

Probes:

- Does the practice run any health promotion programs?
- Do you do any specific screening focused on young people (e.g., NCSP)?
- Do you have leaflets/posters/media directed at young people in the waiting room?
- Do you run special surgeries?

4. What do you think are the main reasons that this age group come to see their GP?

Probes:

- Mental health / sexual health / physical health / social issues such as housing / family breakdown/bullying?

5. How to you think primary health care should be approaching young people's health?

Probes:

- Do you think primary health care professionals have a role in preventative medicine (vs reactive)
- If yes, what can be done to support this
- If no, who should preventative medicine be responsibility of?

6. In your opinion, what are the priority areas that should be focused on when approaching young people's health?

7. Where do you think the best place is to focus on young people's health?

- *Prompt:* primary care/school/youth centres for example

WE ARE NOW GOING TO MOVE ONTO SOME QUESTIONS RELATED TO SEXUAL HEALTH:

8. Have you had any training in relation to sexual health?

Probe:

- Any recent updates/courses?
- Do you think it had any impact on your day-to-day practice?
- Has this impact been sustained or short-lived?

9. Have you had any training specifically related to chlamydia?

Probe:

- What are your thoughts on the National Chlamydia Screening Program?

10. What do you think the role of primary health care professionals is in relation to testing for chlamydia?

Probes:

- Should chlamydia testing be routinely done in primary care?
- What is your opinion on routine chlamydia testing being the responsibility of sexual health clinics instead of general practice?

11. What is your experience of chlamydia testing in day-to-day practice?

Probes:

- How regularly, if at all, do you think about testing for chlamydia among young patients?
- What about the patient or clinical scenario would make you test for chlamydia?
- Do you bring up testing in consultations not related to sexual health?

12. What opportunities does your practice take to screen patients for chlamydia?

Probes:

- Is there anything specific your practice does to screen young people for chlamydia?
- Does this differ between older patients and younger patients?
- Does this differ between male and female patients?

13. What do you think makes it difficult [OR prevents] for you to test for chlamydia in your day-to-day practice?

- LIST OF EXAMPLES OF BARRIERS TO HAVE ON HAND

Probe: [explore each issue]

- How do you think you could overcome this?

14. What do you think would make it easier [OR facilitate, encourage] you to provide chlamydia testing for young people in your everyday practice?

- LIST OF EXAMPLES OF FACILITATORS TO HAVE ON HAND

Probe: [explore each suggestion]

- How would you implement this [OR make this happen]?

FOR FOCUS GROUP DISCUSSIONS

Let us consider two scenarios:

13. James – 21-year-old just left university and comes in with viral illness, you are not worried and give him simple symptomatic advice. You have time left in your consultation – what else could you talk about?

14. Lily is a 16-year-old doing GCSEs and has come in for the contraceptive pill. What else would you want to discuss with her?

WE'RE COMING TO THE INTERVIEW NOW, AND I JUST HAVE A COUPLE OF CLOSING QUESTIONS

15. Is there anything else you would like to say/add?

16. Did you have any questions regarding today/the research?

Turn off Dictaphone

Debrief

- £20 thank you gift voucher.
- Remind of list of services to contact should they require further support with issues discussed.
- If you would like to receive a copy of the final report, give email address.
- Thank you very much for your time.

Box S2: Thematic Map and Illustrative Quotations of Barriers to Testing Using the Behaviour Change Wheel

COM-B Components	Themes	Subthemes	Quotations
Psychological capability (knowledge, memory, attention, decision processes, behavioural regulation)	Low perceived knowledge	Infection prevalence	"... I couldn't actually tell you off the top of my head what the rates of chlamydia are among young people in London." (Interview 03, female, GP)
		Testing process	"It's a lack of familiarity with the equipment, with what you're meant to order, when you're meant to do the tests, what the test result means, what the local antibiotic policies are, how to do partner notification. It's probably every step of the process as well..." (Interview 23, female, GP)
		Who should test	"... It has been a little bit confusing with getting it worked out between where patients should be best seen." (Interview 06, female, GP)
	Forgetting		"... Not being able to remember. I have to remember so many things in my day to day practice..." (Interview 09, male, GP) "My biggest one is I forget... if you're seeing someone with an unrelated thing to sexual health..." (Focus group 07, female, GP)
Physical opportunity (environmental context and resources)	General practice context	Time constraints	"It's only a ten minute consultation and I'm constantly under pressure for time" (Interview 13, female, GP)
		Reactive approach	"... But we more just deal with the immediate problem they've come in with, rather than thinking preventatively..." (Interview 15, female, GP)
	Lack of resources compared to sexual health services	Full testing capabilities	"... The value of sending them to the GUM clinic is that they can get the whole works done." (Focus group 06, male, GP registrar)
		Partner notification system	"I know a lot of doctors at our practice don't swab for chlamydia... if it comes back positive they need to have the contact tracing. It's better for them to go to a sexual health clinic..." (Interview 15, female, GP)
	Sexual health provision	Loss of funding	"We did some promotion a couple of years ago about chlamydia screening, but the funding came to an end so that stopped... We're really focusing on the high cost areas: so diabetes and lung disease..." (Interview 07, male, GP)
		Lack of access for underserved populations	Rural: "... So access is extraordinarily frustrating... They can't go in and just get tested really or talk to a health professional." (Interview 08, male, practice nurse) LGBTQIA+: "I think the other thing that sometimes is really sadly lacking are clinics, certainly rurally and stuff, for men who sleep with men. I think that's probably a more difficult subject for [patients] to talk about sometimes..." (Interview 21, female, practice nurse)

			LGBTQIA+: "... I think the gay community is fairly switched on, like there are dedicated clinics and sexual health centres for gay men especially, not so much for gay women." (Interview 03, female, GP)
	Testing process	Screening forms (electronic or paper)	"The paperwork is a nightmare." (Interview 02, female, practice nurse)
	NCSP losing momentum		"I know, for a while, there was a big programme on opportunistically screening all young people, and we were sent kits in the post that we were to give out to young people to do their own chlamydia testing. But, that seems to have stopped, and then I haven't heard anything about that for a long time now." (Interview 16, female, practice nurse)
Social opportunity (social influence, pressure, norms, conformity, comparisons)	Cultural norms	Easier to offer to women than men	"I think it's easier to talk to females because I could imagine incorporating that conversation along with contraception. I think it's more difficult with males." (Interview 16, female, practice nurse)
		Impact on doctor-patient relationship	"I think sex isn't something that we talk about regularly and as a culture and so I think, and I think that does translate into like a doctor, patient relationship when perhaps there shouldn't." (Focus group 03, female, GP)
		Private subject	"Well, I just think [sex]... it's a private subject." (Interview 20, female, advanced nurse practitioner)
		Offering to patients of opposite sex	"If they're young, adolescent male patients who are perhaps from a really different background from myself, maybe I feel slightly uncomfortable." (Interview 22, female, GP registrar) "Obviously, with sexual health, if it's mainly females, then often they like to see females, so that can sometimes be restrictive for someone like myself." (Interview 11, male, GP)
Reflective motivation (beliefs about capabilities and consequences, roles, identity, intentions, goals, optimism)	Belief general practice should not test		"Well, I think it should be done in the dedicated sexual health clinics, as opposed to in primary care..." (Interview 11, male, GP)
	Perception that patients do not come to general practice	Patients' reluctance	"Because, if that's the only port of call for them, then sometimes they're reluctant to come." (Interview 11, male, GP)
		Feeling invincible	"I think they're just a young group that think things will never happen to them. And, they just don't see their health as important, they've got a bit of a feeling that they're invincible..." (Interview 14, female, nurse practitioner)
		Men come infrequently	"Men are an unknown entity coming to a doctor's unless they feel truly unwell." (Interview 20, female, advanced nurse practitioner)

	Not testing in unrelated appointments	Inappropriate	<i>"If... you're very distant from steering it over towards sexual health... I'd probably feel a bit like it wasn't appropriate actually to turn around and say 'Oh by the way, can you just do this chlamydia test for me?'" (Focus group 03, male, GP)</i>
		Difficult to broach	<i>"Whereas if they've just come in for, I don't know, a headache or something like that, it's just impossible to do that." (Interview 01, male, GP)</i>
		Preference for sexual health appointments	<i>"It's easier to bring up in consultations about pill checks, periods, or things like that." (Interview 19, female, practice nurse)</i>
	Testing not prioritised		<i>"... Chlamydia sort of tends to drop off the bottom when there's so many other priorities." (Focus group 03, female, GP)</i> <i>"... I don't tend to, no, unless they've mentioned it." (Interview 13 female, GP)</i>
Automatic motivation (emotions and impulses)	Concern of patient reaction	Offending patient	<i>"Possibility of causing offense..." (Interview 02, female, GP)</i>
		Embarrassing patient	<i>"Embarrassment... from the younger people..." (Focus group 06, female, practice nurse)</i>
		Catching patient off guard	<i>"I think if it was totally unrelated to their presenting complaint then I guess that might make me a bit more reluctant... you're sort of catching the person a bit off-guard and they're therefore not expecting you to ask them to talk about sexual health screening..." (Interview 03, female, GP)</i> <i>"... No, I think they are well aware of it, they're often given it in schools..." (Interview 10, female, GP)</i>

Note: GP = general practitioner

Box S3: Thematic Map and Illustrative Quotations of Intervention Options to Increase Testing Using the Behaviour Change Wheel

Intervention Functions	Themes	Subthemes	Quotations
Education (increasing knowledge or understanding)	Staff education	Awareness	"... The issue is the whole service has a swathe of people who are maybe not that clued up, and I think that kind of the education side of things is also huge, of people just actually being aware of, OK, there are these issues..." (Interview 03, female, GP)
		Testing process	"And education, so for the healthcare provider understanding, again, which areas we're specifically looking at and just making sure we're all up to date with the latest information and how it's tested, who's paying for the testing, how they get their results, what do you do if you need to follow them up?" (Interview 18, female, practice nurse) "... So maybe a little educational sessional on it, what the testing involves and who we should be offering it to, I think that would be quite helpful, raising knowledge and it wouldn't take very long." (Interview 02, female, GP)
	Leaflets		"... Generally, people want information to look at... also if you're in a very tight consultation there is information for them to read if you haven't got time to go through it in detail" (Interview 18, female, practice nurse) "... I always feel more confident if I've given somebody something." (Interview 18, female, practice nurse)
Persuasion (using communication to induce positive or negative feelings, or stimulate action)	Normalising testing offers to patients	Presenting as universal item to check	"And just to say, this is something we offer to everybody, just like we check everyone's blood pressure, we check everyone's height and weight." (Interview 03, female, GP)
		Reduce shame	"... If you had a situation where you do it as a universal thing than there wouldn't be any shame for it." (Focus group 01, male, practice nurse)
	Posters	For staff - reminder	"I think maybe if I had some posters in my room, that would help, as well." (Interview 13, female, GP) "... I mean I've got the chlamydia poster up in my room but you know when you just see stuff all the time and it doesn't jump out so it's not an aide memoire..." (Interview 19, female, practice nurse)
		For patients - priming	"So then at least they're subliminally primed for it, if they've seen the posters." (Interview 03, female, GP)

Incentivisation (creating expectation of reward)	Financial incentives for staff		<i>“There would need to be a financial incentive like there is with most things.” (Focus group 07, female, practice nurse)</i>
	Incentives for patients		<i>“And it was a positive thing to do even though it’s only going to see a film but at least it just made it an everyday word rather than a sexual disease that nobody talks about.” (Interview 18, female, practice nurse)</i>
Environmental restructuring (changing the physical or social context)	Computer reminders	Age-related	<i>“That and age, and I might have overlooked an age and so didn’t ask them, so it is good to have that reminder, otherwise it just doesn’t cross your mind.” (Interview 04, male, GP)</i>
		As motivation	<i>“... And if you did it, it would remove the alert, because doctors like removing the alerts, and so if it was properly alerted then...” (Focus group 03, female, GP)</i> <i>“I think they’re helpful for some situations, but I think there is trigger fatigue, where you’re being triggered about so many different things that you just end up ignoring everything.” (Interview 19, female, practice nurse)</i>

Note: GP = general practitioner

Box S4: Thematic Map and Illustrative Quotations of Policy Categories to Support Intervention Options to Increase Testing Using the Behaviour Change Wheel

Policy Categories	Themes	Subthemes	Quotations
Communication and marketing (using print, electronic, telephonic or broadcast media)	Advertising tests through social media	Increase patient awareness	<i>"... Advertising for the younger population, they're more with WhatsApp and texting, social media, so advertising on there would probably be a way to make them aware or get them worried enough to come in."</i> (Focus group 05, male, GP)
		Prime patients to expect offer	<i>"So that teenagers will expect to be offered it... maybe it's Facebook adverts... reminding people to get tested."</i> (Interview 02, female, GP)
	Campaign	Normalise offer	<i>"I think like [redacted] was saying, the blanket campaign going on as well, we're offering this to everyone."</i> (Focus group 07, male, GP registrar)
		Prime patients to expect offer	<i>"And also then it's something that everybody's doing together, so it's perhaps something they're not completely surprised by bringing it up in a random consultation because it's something out there that they know, and that would make it easier I think."</i> (Interview 18, female, practice nurse)
Service provision (delivering a service)	Self-tests	Patient responsibility	<i>"And that's easy because you can just shove a swab in their hand and tell them to drop it back at reception... That's really quick and you don't necessarily have to do it."</i> (Focus group 07, female, practice nurse)
		Discreet access	<i>"And having the test available in conspicuous places like the corridor or where someone's picking them up, a really good idea."</i> (Focus group 05, male, GP)
		Online tests	<i>"It is pretty good, it's just very easy. At the minute, it is just point them to a poster, there's the phone number, there's the web address."</i> (Interview 11, female, GP) <i>"And, the advantage now is, it's all self-testing now, so it can be all done by post, patients don't physically need to go to a service."</i> (Interview 09, male, GP)
		At reception	<i>"Yeah receptionist offering tests; I wonder, maybe you could just put a box of them at reception and make it a normal thing that you just take..."</i> (Interview 02, female, GP) <i>"In our surgery, there's no private area to talk to a receptionist, so if you come in and ask for a chlamydia test, that would be really off putting for a lot of young people."</i> (Interview 16, female, practice nurse) <i>"... Receptionists reported that they felt awkward offering the testing..."</i> (Interview 23, female, GP)
	Drop-in sessions at other venues	Youth centres	<i>"But, whether there are youth centres, if there can be drop in places there..."</i> (Interview 14, female, nurse practitioner)

	Testing in certain appointments	Schools & universities	<i>"... If you've got young people who are still in education, whether that's at school, whether that's at a college, whether that's at university, I think to have drop in sessions available in those sorts of situations." (Interview 14, female, nurse practitioner)</i>
		New patient registration	<i>"I think it should be done when patients register, because then it's always, like, as part of registering you need to do a chlamydia screening, in that age group." (Interview 15, female, GP)</i>
		Sexual health-related appointments	<i>"I mean if a child or a patient is going into contraception under a GP practice or in sexual health for their first time, potentially, you could make it compulsory then to have a chlamydia test." (Interview 04, male, GP)</i> <i>"So, I think, if we're doing smear tests we should be checking for chlamydia." (Interview 15, female, GP)</i>
	Nurses testing patients	Nurse-led service	<i>"... There's not enough appointments, not enough doctors, not enough time allocated... I'm wondering if a nurse-led service sounds quite good." (Interview 06, female, GP)</i>
		Personal relationship	<i>"The doctors now seem to all do shorter days so the patients say, 'The only ones who are always here are yourselves.' " (Interview 19, female, advanced nurse practitioner)</i>

Note: GP = general practitioner