A qualitative exploration of young people's, pharmacists', and contract managers' perceptions about community pharmacy chlamydia testing

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By Lara Aref Ahmaro

Abstract

Chlamydia is the most common bacterial sexually transmitted infection in England. Young people aged 15-24 are at greatest risk of the infection. As most individuals with chlamydia are asymptomatic, it is often left untreated. This increases the risk of transmission and also of serious adverse health consequences such as infertility in both sexes. Free chlamydia testing is available for young people in a range of settings, including community pharmacies, to increase detection and treatment of the infection.

Despite their geographical accessibility, uptake in England of chlamydia testing from community pharmacies has been low for the past few years running at 1% compared with other health- and non-healthcare settings. Following the establishment of testing in community pharmacies in 2008, several studies investigated feasibility of the pharmacy service, as well as pharmacists' and clients' experiences. However, there has been very little research since and testing activity remains low, necessitating further investigation in to why this may be. This study contributes to plugging that gap.

In-depth interviews were conducted with 26 young people, 22 pharmacists, and two contract managers in North East England to understand the multi-faceted perceptions of various stakeholders about testing, potential treatment, and suggested improvements to the service. Data from the interviews were subjected to thematic analysis. The Health Belief Model and Normalisation Process Theory Model were also applied to the results, to further analyse the findings.

The study found that young people's concerns about stigma and the long-term health consequences of chlamydia appeared to obstruct uptake of testing. Furthermore, gaps identified in the work processes involved in testing meant it was not fully integrated with other sexual health services. Promoting a confidential, young people-friendly, comprehensive pharmacy chlamydia testing service may increase a young person's self-efficacy to be tested. Additionally, pharmacists should be supported to feel well-equipped to address young people's perceived risk of chlamydia. Key findings from different stakeholders enabled the development of recommendations for local policy makers to maximise community pharmacy chlamydia testing.

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List of abbreviations

Abbreviation	Term
BASHH	British Association for Sexual Health and HIV
C-Card	Condom-Card
CPCF	Community Pharmacy Contractual Framework
CTAD	Chlamydia testing activity dataset
DOH	Department of Health
DHSC	Department of Health and Social Care
ECDC	European Centre for Disease Prevention and Control
EHC	Emergency hormonal contraception
GP	General practitioner
GT	Grounded theory
HBM	Health Belief Model
HCP	Healthcare professional
HIV	Human immunodeficiency virus
HLP	Healthy living pharmacy
IMD	Index of Multiple Deprivation
LA	Local authority
LPC	Local Pharmaceutical Committee
MSM	Men who have sex with men
NAAT	Nucleic acid amplification testing
NCSP	National Chlamydia Screening Programme
NEE	North East England
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
NPT	Normalisation Process Theory
PCN	Primary care network
PGD	Patient group direction
PHE	Public Health England
PHOF	Public Health Outcomes Framework
PID	Pelvic inflammatory disease
PN	Partner notification
PPI	Public and patient involvement
RTA	Reflexive thematic analysis
STI	Sexually transmitted infection
WHO	World Health Organisation

Declaration

Material contained in the thesis has not been previously submitted for a degree.

This thesis is not based on joint research.

Statement of copyright

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Dedication

I dedicate this thesis to my parents, Lina and Aref, for their love and support throughout everything, and for giving me the opportunity and strength to reach my goals. This thesis would not have been possible if not for them.

I also dedicate this to my brother, Eid, for his words of wisdom and encouragement, and my husband, Feras, for his immense support, particularly in the final months of writing the thesis.

Lastly, I dedicate this thesis to my children, Yousef and Layan, whose cuddles and endless words of encouragement motivated me to keep going.

Note from the Author

In the thesis, all mentions of *"pharmacy,"* or *"pharmacies,"* refer to those specifically in the community setting. The mention of *"community"* is omitted throughout in the interests of conciseness.

In sexual health research, the terms *'youth,' 'adolescents,'* and *'young people'* are often used interchangeably. The thesis adopts the term *"young people,"* given its frequent citing in sexual health policies in England. For the purpose of the thesis, this term refers to people aged 15-24 years.

In the thesis, the role of contract managers encompasses working under a lead provider model, in collaboration with local authority commissioners overseeing public services, to assign sexual health services and chlamydia screening to independent settings including pharmacies.

Chapter 1: Introduction

1.1: Introduction

This chapter introduces the study which lies at the heart of this thesis. In it the background concerning chlamydia is outlined and why it presents as a major health burden internationally and in England is identified. Then, the establishment of chlamydia screening in England to control and reduce its prevalence is described and the purpose and method of implementation of screening in pharmacies is presented. The chapter closes with an outline of the research aim and objectives, and an overview of the subsequent chapters in investigating pharmacy chlamydia screening.

1:2: Pathophysiology of chlamydia

Chlamydia is a widespread sexually transmitted infection (STI) caused by the bacterium *Chlamydia trachomatis (C.trachomatis)*, which is transmitted through sexual contact with an infected individual (Cecil and Quinn 2009). Up to 70% of women and 50% of men are asymptomatic to the infection because the inflammatory response tends to be mild (Cecil and Quinn 2009). As a result, a significant number of cases are left untreated leading to serious health consequences in men and women, including pregnant women and babies (Nwokolo *et al.* 2016). If symptoms are present, these include unusual vaginal discharge, abnormal bleeding and pelvic pain in women, urethral burning and/or discharge in men, and pain on urinating and genital ulcers in both sexes. The most associated complications are: pelvic inflammatory disease (PID)- infection of the female reproductive system; ectopic pregnancy- incorrect implantation of the fertilised egg; epididymitis- inflammation and pain of the testicles; and infertility (Cecil and Quinn 2009; Scidmore 2009; Nwokolo *et al.* 2016). The symptoms and complications of chlamydia are reported in **Table 1**. The main risk factors for chlamydia are young age, multiple sexual partners, inconsistent condom use and substance abuse (Cecil and Quinn 2009). Young women are most at risk, possibly because the cervix anatomy is not yet fully developed, increasing its susceptibility to the infection (Hwang *et al.* 2009).

The different strains, or biovars, of *C.trachomatis* that cause its symptoms are also presented in **Table 1**. The trachoma biovar is associated with eye infections and blindness, the genital tract biovar infects columnar epithelial cells and is the cause for most chlamydial STIs, and the lympho-granuloma venereum biovar crosses mucosal

cells and the lymphatic system, resulting in painful ulcers in the urinary, genital, and anorectal regions (Scidmore 2009; Elwell *et al.* 2016).

Table 1 Symptoms and long-term health complications of *C.trachomatis*

Symptoms and complications were compiled from the following references: Cecil and Quinn (2009); Nwokolo *et al.* (2016); and Elwell *et al.* (2016).

<table>
<tr><th></th><th colspan="3">Consequences of C.trachomatis infection</th></tr>
<tr><th>Biovar</th><th>Genital tract biovar</th><th>Trachoma biovar</th><th>Lympho-granuloma venereum biovar</th></tr>
<tr><td>In women</td><td>Symptoms
Inflammation of the cervix, genital ulcers, pelvic pain and abnormal bleeding/vaginal discharge.

Complications
pelvic inflammatory disease, ectopic pregnancy, infertility, and complications of pregnancy (e.g., premature rupture of membranes, premature delivery, postpartum endometriosis, and pneumonia and conjunctivitis in newborns).</td><td rowspan="2">Conjunctivitis and blindness</td><td rowspan="2">Proctocolitis (inflamed rectum and colon)</td></tr>
<tr><td>In men</td><td>Symptoms
Urethral burning, urethral discharge, genital ulcers, pain on urinating.

Complications
Urethritis (inflammation of the urethra), epididymitis (inflammation of the testicles), prostatitis (inflammation of the prostate glands), proctitis (inflammation of the rectum), and infertility.</td></tr>
</table>

Among bacteria, a unique function of chlamydia is its infectious cycle; once the bacterium is transmitted from an infected individual by vaginal, oral, or anal sex, its infective form, known as the elementary body, enters the epithelial host cell. Here, it differentiates into a larger reticulate body which then multiples (Elwell *et al.* 2016). This process is shown in **Figure 1**, which illustrates the development of the chlamydia bacterium in its host. After the reticulate body multiples, some of the resulting reticulate bodies modify back into elementary bodies, which are then released from the host cell

to infect neighboring cells (Scidmore 2009). This cycle length can take between 44-72 hours. In women, it has been suggested that entry and infection of *C.trachomatis* within epithelial cells of the fallopian tube leads to PID and ectopic pregnancy (Shaw *et al.* 2011). It has also been detected in the placenta of women who have had a preterm delivery (Rours *et al.* 2011).

In addition to chlamydia, the STIs gonorrhoea and syphilis are caused by bacterial organisms and are transmitted via epithelial cells of the genitalia and rectum. Furthermore, they share similar symptoms and health complications with chlamydia (Cecil and Quinn 2009). Although less prevalent than chlamydia, the rate of gonorrhoea has rapidly increased in the past few years (PHE 2021a). Therefore, individuals may be advised to test for both chlamydia and gonorrhoea where there is a risk of coinfection.

Chlamydia has also been associated with increased susceptibility to and transmission of human immunodeficiency virus (HIV) (Gewirtzman *et al.* 2011). HIV is an incurable virus, that is transmitted through vaginal and seminal fluid, and blood. It targets and progressively weakens the immune response (Fox and Fidler 2010). Treating chlamydia and addressing risky sexual behaviour reduces the risk of HIV transmission.

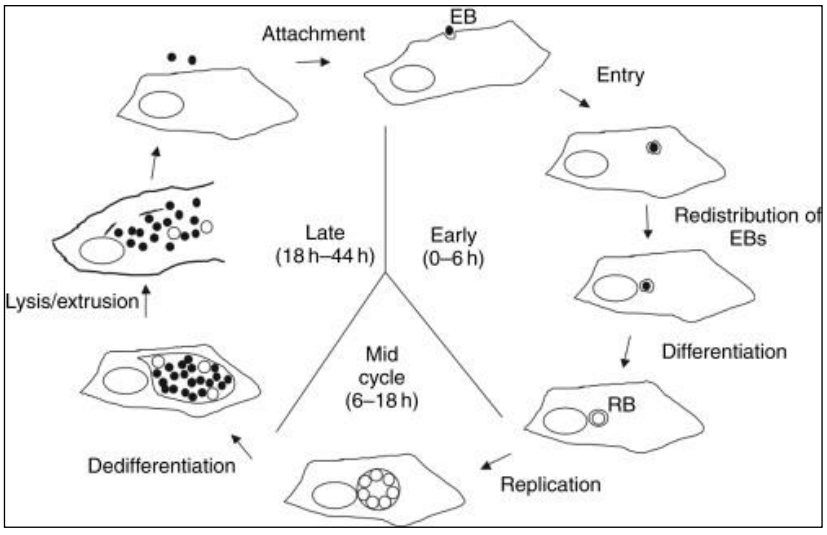


Figure 1 Chlamydial developmental cycle

Figure from Scidmore (2009). In the figure, the elementary body is abbreviated as *"EB"* and reticulate body as *"RB."* Permission to use image received from Academic Press on 2/11/2016.

1.3: The global spread of chlamydia

Globally, chlamydia represents a huge health burden. According to the World Health Organisation (WHO), the incidence of chlamydia is estimated to be 131 million each year (WHO 2016a). The WHO's most recent study investigating world-wide STI rates estimated that chlamydia was most prevalent in upper-middle income countries (Rowley *et al.* 2019). Furthermore, globally, its prevalence in women aged 15-49 was estimated at 3.8%, and in men at 2.7%, with highest occurrence in North and South America, and Africa. Compared with other STIs investigated, the prevalence of chlamydia was greater than gonorrhoea and syphilis (Rowley *et al.* 2019). Of note, both chlamydia incidence and prevalence rates in the study were similar to estimates in 2012, implying that it continues to be endemic globally (Newman *et al.* 2015; Rowley *et al.* 2019). As a result, it imposes a significant burden on both national healthcare and household budgets, particularly in lower income countries, and adversely affects individuals' health and well-being (WHO 2016a).

Comparatively, the European Centre for Disease Prevention and Control (ECDC) found that the chlamydia diagnosis rate across countries within the European Union and European Economic had remained high from 2009-2018 (ECDC 2020). In 2018, 406,406 cases of chlamydia were reported in total. The highest rates were from Norway, Denmark, Iceland and the UK (ECDC 2020). The organisation recognised that differences in testing and surveillance methods across the countries may have impacted the findings. It was evident that diagnosis was greatest among young people, particularly young women.

1.4: Management of chlamydia

The WHO defines sexual health as "a state of physical, emotional, mental and social well-being in relation to sexuality" (WHO 2006, p.5). Sexuality here may be experienced or expressed, and can be influenced by a combination of psychological, biological, social, religious, ethical, and spiritual components (WHO 2006). One element of sexual health is to have safe sexual experiences. Therefore, in addition to addressing sexuality and sexual behaviours, sexual health promotion activities should aim to reduce and prevent the transmission of chlamydia and other STIs through diagnostic testing and treatment (WHO 2015; WHO 2016a). The following sub-sections report on the management strategy for chlamydia.

Chlamydia detection and screening

Laboratory diagnosis of *C.trachomatis* is mainly by isolation of the bacterium from either vaginal or cervical swabs in women, urethral or pharyngeal and rectal swabs in men, or first catch urine samples from both sexes (Nwokolo *et al.* 2016). Nucleic acid amplification testing (NAAT) is the diagnostic tool of choice for genital infections and is highly sensitive to the organism (about 90-95%). It detects all biovars of *C.trachomatis* (Scidmore 2009). Techniques include polymerase chain reaction, and transcription mediated amplification which magnifies the *C.trachomatis* gene for detection.

If an individual presents with symptoms of chlamydia, they are offered a diagnostic test to establish whether they are infected and supplied with antibiotic treatment. As chlamydia is largely asymptomatic, a screening test is offered to individuals with no noticeable symptoms but at risk of the infection, such as that under England's National Chlamydia Screening Programme (NCSP) (WHO 2016a; PHE 2018). Screening is found to cost-effectively increase chlamydia testing rates in young heterosexual men and women, who are high-risk groups across regions, and reduce PID rates in women (Gottlieb *et al.* 2013). Furthermore, in reaching as many of the high-risk population as possible, screening aims to achieve a defined level of chlamydia control (Cassell 2007; Low 2007).

General screening strategies used for medical conditions include opportunistic and proactive screening (Low 2007). Opportunistic screening involves offering testing to high-risk individuals already attending healthcare settings for unrelated reasons, whilst proactive screening uses population or healthcare registers to identify high-risk groups, then individuals from these groups are invited to participate in testing (Low 2007). Chlamydia screening is currently implemented in some middle- to upper- income countries and regions including the USA, Australia, Switzerland, England, Belgium, Denmark, Sweden, and Norway (ECDC 2014; Keegan *et al.* 2014; Arnet *et al.* 2018; Quezada-Yamamoto *et al.* 2019). The most common screening location is within general practitioner (GP) settings. Successful opportunistic testing is evident in Sweden, where stakeholders' open attitudes to sexual health and financial support has facilitated free screening and treatment to women aged 15-29 (ECDC 2014).

Treatment for chlamydia

On confirmation of a positive chlamydia test result, the WHO recommends the use of either the macrolide antibiotic azithromycin as a one gram single oral dose or the tetracycline antibiotic doxycycline as a 100 milligram twice daily oral dose for 7 days,

as first choice treatments for uncomplicated genital chlamydia (WHO 2016b). Second choice alternatives include tetracycline, erythromycin and ofloxacin. In pregnant women the usual treatment of choice is azithromycin.

The WHO's strategy on STIs (2016a) identified the need for timely access to chlamydia treatment to prevent serious health consequences and reduce transmission of the STI. However, the development of new STI vaccines for primary prevention was also recognised as necessary in increasing STI prevention (WHO 2016a). A prophylactic chlamydia vaccine is currently under development in the UK, which works to enhance and sustain immune responses for long-lasting protective immunity (Abraham *et al.* 2019). Furthermore, condom use is also an effective form of primary prevention if used correctly and consistently, reducing the risk of STI transmission and its complications (PHE 2018).

It is important to note that diagnostic testing to detect and then treat chlamydia requires trained, qualified personnel, and laboratory equipment which can be costly (WHO 2013). Many low- and middle- income countries do not have adequate health facilities for testing and therefore follow a syndromic management of chlamydia. Here, they use algorithms based on symptoms of vaginal/urethral discharge and/or abdominal pain for same-day treatment (WHO 2013). This method is simple, cost-effective and rapid, and is provided in a range of healthcare settings including STI clinics, family planning clinics, and private GP clinics (Mayaud and McCormick 2001). However, symptoms such as vaginal discharge may be associated with many infections and are therefore a poor predictor of chlamydia alone. Furthermore, syndromic management misses asymptomatic cases of the STI (Garrett *et al.* 2016). As a result, diagnosis and treatment can often be inaccurate, increasing the risk of onward transmission.

Due to antibiotic misuse and overuse, a concern about the treatment of STIs is the emergence of significant antibiotic resistance (WHO 2016a; WHO 2016b). Compared with other STIs, notably gonorrhoea, chlamydia does not currently pose a high risk to treatment resistance (Tien *et al.* 2019). Of note, *in vitro* studies have detected resistant traits, or phenotypes, to *C.trachomatis,* suggesting that healthcare organisations should remain vigilant for the risk of the emergence of resistant strains (Sandoz and Rockey 2010; Zhu *et al.* 2010).To reduce this risk, patients should be advised on how to correctly take the treatment to complete the prescribed course, to refrain from sexual intercourse during the treatment, and to notify their sexual partner(s) to be treated (Gottlieb *et al.* 2014).

Partner notification

In addition to antibiotics, treatment packages tend to include partner notification (PN). PN is defined as the process in which the sexual partner(s) of an individual, or *index case*, diagnosed with chlamydia is/are notified of their exposure of the STI and are invited to access testing and treatment (WHO and Joint United Nations Programme on HIV and AIDS 1999). The term invited is used here as access to treatment is voluntary, as per WHO recommendation. However, in some countries such as Finland, Norway and Sweden, there is a legal duty that both the healthcare professional (HCP) and index case notify the sexual partner(s) about the chlamydia diagnosis (ECDC 2013). PN has several public health benefits, notably in controlling chlamydia transmission and in reaching more individuals who may be asymptomatic but do not present for testing (ECDC 2013). An audit report by Public Health England (PHE) showed that, on testing sexual partners of index cases, 62% were found to be positive for chlamydia, highlighting the benefit of the service (PHE 2016). There are a number of approaches to PN, which are listed in **Table 2**.

Table 2 Partner notification strategies used in the treatment of chlamydia

Definitions were compiled from the following references: Centers for Disease Control and Prevention, (2006); ECDC (2013); and McClean *et al.* (2013).

Partner notification strategy	Description of strategy
User-led referral	The index case informs their sexual partner(s) of their possible exposure to chlamydia and refers them to treatment services.
Provider-led referral	The name and contact details of the sexual partner(s) are obtained from the index case. Then, the provider informs partner(s) of their possible exposure to chlamydia for treatment.
Contract referral	An agreement between the index case and provider that the index case is to notify their sexual partner(s). On failing to do so, provider-led referral is carried out.
Expedited partner therapy	The provider gives the index case medication/information to pass to their sexual partner(s) to initiate treatment.
Accelerated partner therapy	The provider makes a medical assessment of the sexual partner(s) (via telephone or in person) prior to providing treatment.
Enhanced user-led referral	In addition to user-led referral, the provider gives written information, and a sampling kit to the index case to pass to their sexual partner(s). The sexual partner(s) is required to then contact the provider for treatment.

In many European countries user-led referral is the strategy of choice, with those infected often feeling it is their responsibility to inform their sexual partner(s) (ECDC 2013). Expedited partner therapy is a common strategy used in the USA to treat the sexual partner(s) without the need for a medical consultation (Centers for Disease Control and Prevention 2006). Of significance, a study evaluating this method of PN in the USA found that it resulted in fewer chlamydia re-infection cases, but it risked missed checks on partners' allergy status in case they may be allergic or sensitive to the antibiotic (Golden *et al.* 2005). In contrast, the UK advises on accelerated partner therapy, as a medical assessment of the partner(s) is necessary to comply with prescribing guidance (General Medical Council 2021). Globally, many countries do not implement PN strategies, particularly developing countries, as it appears that chlamydia and other STIs may be perceived as less major public health problems (Alam *et al.* 2010). Where PN is implemented, this tends to be for spousal rather than casual partners, implying that there may be sociocultural issues regarding pre-marital sex (Alam *et al.* 2010). Other barriers to PN include those who may be exposed to intimate partner violence fearing the consequence of PN, the challenges in notifying sexual contacts of sex workers, and a lack of resources and provider skills to carry out the service (Alam *et al.* 2010; Decker *et al.* 2011; ECDC 2013).

1.5: High-risk groups for chlamydia

Some groups of individuals are at greater risk of chlamydia than others due to a combination of factors mainly associated with high-risk sexual activity (Gewirtzman *et al.* 2011). These core groups include young people, men who have sex with men (MSM), sex workers and injectable drug users. From an epidemiological position, it appears that transmission of chlamydia is sustained *"upstream"* (Steen *et al.* 2009, p.860). Here, incidence of the STI is generally in the core groups of the wider population, where there may be a relatively high rate of sexual partner change. This contrasts with a *"downstream"* spread of the infection from the core group to the wider population (Steen *et al.* 2009, p.860). Therefore, focussing on lowering chlamydia rates in high-risk groups may be sufficient enough to reduce further transmission to populations at a lower-risk. The core groups are reported in the following sub-sections.

Young people

Young people represent around half of the global population, appear to be sexually active from an earlier age than previous generations did, and are likely to have multiple sexual partners and engage in risky sexual activity (WHO 2006; Gewirtzman *et al.*

2011; Wellings *et al.* 2012; United Nations Department of Economic and Social Affairs 2019). This risk may be further influenced by use of alcohol and drugs (Wellings *et al.* 2012). As a result, young people are most at risk of chlamydia.

One approach to reducing chlamydia rates among young people is through education about STIs and safe sex. A review of 83 world-wide studies on sex education programmes found that two thirds of programmes improved sexual behaviours among young people (Kirby *et al.* 2007). In contrast, studies from low-, and middle-income countries in South Asia and Africa have shown that parents and providers either lacked the knowledge and skill to teach young people about STIs or were unwilling to due to disapproval of pre-marital sexual activity (Molla *et al.* 2009; Kennedy *et al.* 2013; Godia *et al.* 2014). As a result, young people may worry about breaches of confidentiality and notification of the diagnosis to their families. Furthermore, in these countries, contraceptive services are often only for married women, and the requirement for young people to have parental consent to attend these services may further hinder their ability to practice safe sex (Dehne and Riedner 2005; Godia *et al.* 2014). In addition to cultural factors, other social issues may also obstruct testing for chlamydia. For instance, studies from the USA, Canada and the UK found that young people did not want to be tested for chlamydia in case they were stigmatised by their peers, as it was associated with being promiscuous (Royer and Zahner 2009; Richardson *et al.* 2010; Shoveller *et al.* 2010; Theunissen *et al.* 2015). Furthermore, young people may disassociate themselves from those they perceive to be at risk, thereby underestimating their own risk of chlamydia (Newby *et al.* 2012).

It is apparent that due to the changing trend in young people's sexual behaviour globally and, as previously reported, young women's anatomical vulnerability (Hwang *et al.* 2009), young people shoulder a significant portion of the burden of chlamydia and STIs. However, increasing the accessibility of healthcare facilities for chlamydia testing in this age group may not be enough to reduce chlamydia transmission; removing the stigma associated with the STI and addressing young people's perceptions of risk may also be necessary to raise detection and reduce prevalence (Gill *et al.* 2011).

Men who have sex with men

Attitudes towards MSM vary across the world, and in some contexts they are stigmatised and possibly even prosecuted for their sexuality (Nutland and Collumbien 2012). As a result, MSM may be reluctant to access chlamydia testing or treatment services. Furthermore, MSM are at increased risk of poor mental health contributing to

poor sexual health outcomes, and of transmission of the lympho-granuloma venereum biovar of chlamydia through anal intercourse (King *et al.* 2008; Mercer *et al.* 2016). A UK study (Mercer *et al.* 2016) showed that more MSM reported having condom-less sex, and sex with multiple sexual partners than men who have sex exclusively with women. Significantly, the study also found that 4.9% of MSM were diagnosed with an STI in the past year as compared to 0.9% in men who have sex exclusively with women. To encourage MSM to be tested for chlamydia, these factors need to collectively be addressed in screening programmes (Mayer 2013).

Sex workers and injectable drug users

Sex workers may be at increased risk of chlamydia and STIs from engaging in unprotected sexual intercourse with multiple clients (Gill *et al.* 2011). In a UK study, female sex workers were almost twice as likely to be diagnosed with chlamydia than other females accessing sexual health clinics (Mc Grath-Lone *et al.* 2014).

A country's approach to the sex work industry can influence both the physical and social well-being of sex workers, and the sexual health services that may be available for them (Pisani 2012). Some countries have worked with the structures that govern the industry to promote condom use and STI treatment to sex workers. For instance, under a collaboration between local authorities and sex business owners in Asia from 1989, known as the *'100% Condom Use'* programme, patient-centred support groups and education were provided to sex workers (Rojanapithayakorn, 2006). In Thailand, the programme increased the use of condoms from 14% in 1989 to over 90% since 1992, and a decline in both the rate of STIs and HIV (Rojanapithayakorn 2006). Comparatively, in China, condom use rose by 94.5% at a 15-month follow-up among sex workers (Zhongdan *et al.* 2008).

However, the *"relationship intimacy"* between sex workers and their clients, sexual coercion, and financial constraints can often result in inconsistent condom use (Murray *et al.* 2007; Bailey and Figueroa 2016, p.914). In low-income countries, female sex workers tend to be poorly educated single mothers who may have little perceived control of declining payment offers from clients for condom-less sex (Bailey and Figueroa 2016). A study in Nigeria found that sex workers demonstrated poor treatment seeking behaviour; 60.7% of workers with genital symptoms continued to have unprotected sexual intercourse, increasing the risk to chlamydia (Lawan *et al.* 2012). Furthermore, many street-based sex workers may sell sex to fund a drug habit (Pisani 2012). The use of injectable drugs, such as cocaine, can impair judgement and

heighten sexual arousal, increasing risk-taking behaviour in an already high-risk sexual network (Khan *et al.* 2013).

Migrants

It has been found that in low-income countries, foreign-born migrants who have relocated from areas of high prevalence rates of STIs, represent the majority of STI diagnoses (Wong *et al.* 2003). Furthermore, female migrants fleeing civil wars or forced into human trafficking can be exposed to sexual violence and rape in refugee camps and host countries, necessitating access to sexual health services (Busza 2012). However, such access can be limited due to illegal immigration status, vulnerability, and uncertainty of where to find these facilities (Mc Grath-Lone *et al.* 2014). In contrast, it should also be noted that some migrant communities who relocate to expand livelihood opportunities may be of better health than the host population, and engage in safe sex behaviours, thereby promoting sexual health. This is known as the *"healthy migrant effect"* (Busza 2012).

Pregnant women

Pregnant women are considered a high-risk group for chlamydia in some countries, largely due to the additional risk of the STI to the unborn child (WHO 2005; Ong *et al.* 2016). This implies there may be a heightened perception of risk for this group not only due to potential maternal complications but also neonatal complications as a result of transmission from mother to child. However, the WHO stresses that HIV and syphilis pose a particularly serious risk if transmitted from the infected mother to baby and, as such, screening efforts should be directed to these infections (WHO 2016a). Nevertheless, under syndromic management in developing countries, pregnant women can be treated for chlamydia (WHO 2005). Furthermore, new-born infants should receive prophylactic antibiotics against chlamydial conjunctivitis where possible, even if the mother is asymptomatic. Currently in the UK, chlamydia screening is not routinely offered in antenatal care, but pregnant women under the age of 25 should be informed of venues that offer screening for the STI to support them in their decision on whether to test or not (NICE 2017).

1.6: The need for a global chlamydia control strategy

Due to disparities in chlamydia screening activity across countries, and continued high prevalence of chlamydia, the WHO developed a strategy for the prevention and control of STIs in 2016-2021 (WHO 2016a). The strategy highlighted that, to implement and

strengthen interventions in managing chlamydia and STIs, stakeholders should primarily consider the broader political, social, and epidemiological contexts of STIs within regions.

Currently, surveillance systems in low- and middle-income countries use data from the syndromic management of chlamydia (WHO 2016a). In European countries, surveillance is monitored from chlamydia testing and diagnosis rates by the ECDC and the WHO's European region office (ECDC 2013). The WHO's strategy report recognised the inconsistency across surveillance systems, which may lead to inaccurate analysis of current chlamydia prevalence, and of progresses made (WHO 2016a; Seale *et al.* 2017). However, the WHO reported that additional funding was necessary to implement more streamlined systems.

A further strategy identified in the report was the development and provision of point-of-care testing for chlamydia. Here, the STI would be diagnosed in a non-laboratory setting during examination facilitating testing and rapid treatment (WHO 2016a). If implemented, point-of-care testing is estimated to prevent more than 16.5 million new cases of chlamydia and gonorrhoea in the high-risk group of sex workers in sub-Saharan Africa and Asia, and enhance surveillance monitoring (WHO 2013).

Lastly, the strategy identified that chlamydia management should be integrated with existing health systems; this would not only reduce costs on the system, improving efficiency, but leads to better patient outcomes as a result (WHO 2016a).

1.7: Control of chlamydia in England

The National Chlamydia Screening Programme

In 2019, 1.3 million chlamydia tests were carried out in England and over 134,000 diagnoses were made among young people aged 15 to 24, the main target population for the infection (Mitchell *et al.* 2020). Testing is provided by The National Chlamydia Screening Programme (NCSP) which delivers a free, opportunistic screening and treatment service to this age group in a range of clinical- and non-clinical settings (PHE 2018). The NCSP can be viewed as an *organised* screening programme, as screening is delivered to as many individuals from the high-risk group as possible at sufficiently regular intervals, to achieve a target detection rate that would control the infection (Low

2007). The main objectives of the programme are to: control chlamydia through early detection and treatment; reduce health complications and transmission of the STI; ensure young people are informed about chlamydia and can access screening; and encourage annual screening among young people and on change of sexual partner (PHE 2018).

The need for a chlamydia screening programme in England

There was a sharp rise in prevalence of chlamydia and other STIs in England in the late 1990s (Department of Health 1998). The cause for this rise was multifactorial, and influenced by economic, social and demographic factors (Hughes and Field 2015). As previously reported in the chapter, sexual behaviour may have a marked influence on STI transmission. Johnson *et al.* (2001) conducted a national survey in Britain in 2000 on residents' sexual behaviours and compared the findings to a previous survey conducted in 1990. They found that, during this period, there was an increase in reported risky sexual behaviours including higher rates of change of sexual partner among young people and those not married, and an increase in the number of heterosexual, homosexual, and concurrent partnerships, which may have facilitated the high rate of STIs (Johnson *et al.* 2001). As such, in terms of structural factors, the rise in STIs placed increased pressure on existing sexual health services to meet patient demand (Djuretic *et al.* 2001). In a survey study of genitourinary medicine physicians conducted across the UK during the rise of chlamydia, only half of physicians reported that their clinics managed to see patients requiring urgent appointments including for symptoms and untreated STIs within 24 hours (Djuretic *et al.* 2001). In addition, they reported that two-thirds of clinics had to turn away walk-in patients due to increasing workload. Such issues may have delayed STI diagnoses, increasing the risk of transmission and serious complications. Furthermore, at the time, Scholes *et al.* (1996) identified that testing and treating women at risk of chlamydia reduced the incidence of PID, a serious complication of the STI.

In response to the rise in chlamydia and other STIs, the Chief Medical Officer's advisory group identified the need for an opportunistic chlamydia screening programme in 1998 to reduce prevalence and serious complications, improving individuals' well-being, and lowering the health and societal costs for managing such complications (Department of Health 1998). Evidence for the service was reviewed against the Wilson-Jungner criteria; this criteria emphasises conditions for a successful screening programme, including that testing should be easy to perform and interpret, a clear policy should be in place stating the target group to be tested and that diagnosis and

treatment is cost-effective (Wilson and Jungner 1968). As a result of the evidence, in 2001 the Department of Health (DOH) published the sexual health strategy for England highlighting the need for the provision of sexual health services to expand from sexual health clinics to primary care settings for greater coverage of sexual health promotion, STI testing and treatment (DOH 2001).

The NCSP was established shortly afterwards in 2002 to control chlamydia transmission by encouraging young people to undergo screening annually or on change of partner. More recently, the programme was extended to re-test positive cases of chlamydia at around three months after treatment, when it was identified that the risk of repeat infection was high (PHE 2003; PHE 2013). Whilst it was clear that the overarching goal of the NCSP was to control chlamydia, a qualitative study with key stakeholders who established and implemented the programme found that it was also a vehicle to engage young people in sexual health and achieve wider improvements in sexual health delivery (Sheringham *et al.* 2012).

The NCSP was implemented in phases, with the aim of the final phase to deliver screening in a range of healthcare and non-healthcare settings including GP surgeries, pharmacies, sexual health clinics, abortion providers, youth centres and colleges by 2008 (DOH 2001; PHE 2014d). Initially, the Chief Medical Officer's advisory group recommended that the programme be targeted to young women only. However, shortly afterwards, it was identified that young men were at equal risk of chlamydia, warranting equal access to screening among men and women (Fenton *et al.* 2001; Sheringham *et al.* 2012). Consequently, in 2003, men were included in the target group, highlighting the role of both sexes in controlling chlamydia transmission (PHE 2003). In the first phase of the NCSP in 2003, of the 16,413 screening tests performed on young people, 10.1% women and 13.3% of men were tested positive for chlamydia (LaMontagne *et al.* 2004).

As a result of widespread accessibility of the NCSP, in 2019, an estimated 29% of young women and 11% of young men from those aged 15-24 were tested for chlamydia (Mitchell *et al.* 2020). Of the young people tested, 9% of women and 12% of men were positive for the infection.

The role of the National Chlamydia Screening Programme in reducing health inequality

PHE's recent report on chlamydia testing activity in England (Mitchell *et al.* 2020) found that, in 2019, both chlamydia testing and diagnosis rates were highest from young people in the most deprived areas. This supports earlier research of an association between high area-level deprivation and poor sexual health (Woodhall *et al.* 2015). In addition, it highlights that the NCSP's objective in providing widespread screening may contribute to a reduction in health inequality (PHE 2018). To understand the NCSP's impact more closely, it is worth referring to Dahlgren and Whitehead's representation of the determinants of health (1991). This model outlines a strategic approach to recognise and reduce the health inequality gap in society. **Figure 2** illustrates their rainbow model, which demonstrates the relationship between an individual at the core of the model with various influences on their health, such as social and community factors, and environment on the outer layers.

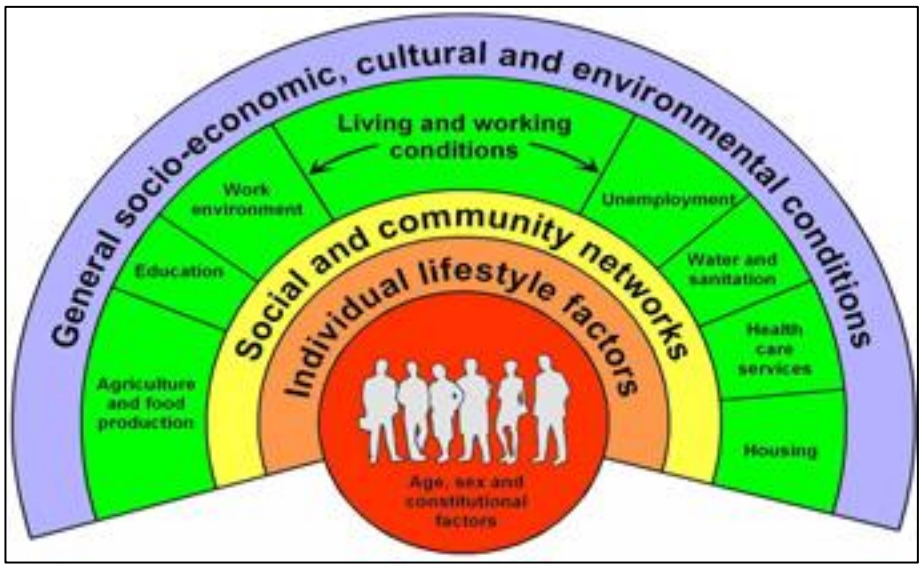


Figure 2 The Dahlgren-Whitehead Rainbow (Whitehead and Dahlgren, 1991)

Permission to use image received from the Institute for Future Studies on 10/01/2017.

Generally, it is believed that the health of an individual improves with increasing socioeconomic status, as a result of better living and working conditions and access to healthcare (Whitehead and Dahlgren 1991). Individual lifestyle factors are a particularly significant influence on sexual health promotion. Davison *et al.* (1992) suggested that with the appropriate education and advice, an individual would start to embrace healthier lifestyles. In relation to the implementation of the NCSP, the provision of sexual health advice with screening provides an opportunity for such discussions (PHE

and Department of Health and Social Care 2018). However, while targeting individual behaviour may appear to be a sensible approach, the spread of chlamydia from one individual to another within a high-risk group is not a random process, and such groups tend to present similar patterns of behaviour, such as engaging in condom-less sex or having multiple sex partners (Gill *et al.* 2011). Therefore, lifestyle choices may be due to social- rather than individual factors. If sexual behaviour is not addressed at this stage, over time chlamydia rates increase.

Under the living and working conditions determinant, the NCSP has implemented screening in schools and social settings including youth organisations to promote chlamydia testing and sexual health (PHE 2014a). Although chlamydia detection was greatest in areas of high deprivation in 2019, there has been an overall 13% reduction in the number of tests carried out over the last five years (Mitchell *et al.* 2020). Therefore, a continued effort is necessary to ensure easy access to screening for all young people.

Defined as the inverse care law, Hart proposed that “The availability of good medical care tends to vary inversely with the need for it in the population served” (Hart 1971, pg 412). In view of this, implementation of the NCSP follows careful local needs assessment to identify gaps in service delivery. Furthermore, comprehensive surveillance of testing activity and diagnosis helps to evaluate whether young people’s needs are being met (PHE 2018). Lastly, as screening and treatment is free, there are no financial barriers to young people, particularly in more deprived areas.

Commissioning of the National Chlamydia Screening Programme

Currently, the NCSP is commissioned by local authorities (LAs) in England (PHE 2014e). These organisations, which are responsible for local public services, work towards achieving a target chlamydia detection rate of at least 2,300 per 100,000 young people in each county. A high detection rate indicates better control of chlamydia, as more young people are treated, reducing the risk of transmission. This rate is a health protection indicator within the Public Health Outcomes Framework (PHOF), a tool that presents a range of data for public health indicators in England (PHE 2014e; PHE 2021b). The PHE report (2014e) on the commissioning of chlamydia testing recommends the following strategies to increase service uptake within each LA: determining the sexual health needs of the local population; ensuring young people can access a range of service types; and ensuring providers engage with service users. To increase accessibility, it was advised that 70% of total screening should be from *core*

services including primary care (GP surgeries and pharmacies), sexual health clinics, and abortion services (PHE 2014e).

For accurate surveillance, it is mandatory that testing data from primary care and community services is recorded on PHE's online chlamydia testing activity dataset (CTAD) (PHE 2018). This allows an estimate to be generated on population screening coverage and diagnosis rates. Findings are also measured against NCSP's seven standards for the implementation of testing delivery, which are based on robust evidence and cost-effective strategies to increase screening (PHE 2018). The NCSP works closely with the British Association for Sexual Health and HIV (BASHH), which is the UK's leading organisation in the promotion of sexual health, to implement its standards (Nwokolo *et al.* 2016). Staff responsible for PN must also be suitably trained in line with BASHH's guidance on PN in STI testing (McClean *et al.* 2013; Nwokolo *et al.* 2016).

In addition to preventing transmission and long-term health complications of chlamydia, generally, testing for the infection has shown to be cost-effective. A PHE peer review report evaluating the impact of the NCSP found that, among 15–24-year-old females with a 7.7.% chlamydia positivity rate, each diagnosis would save the health sector an estimated £89 versus no screening (Migchelsen *et al.* 2017). However, an earlier study found that screening young men and women under the aged of 20 rather than under 25 appeared to be more cost effective than no screening (Adams *et al.* 2007). This highlighted that the eligibility criteria for screening may need to be narrowed for the NCSP to be efficient. From these findings, PHE recognised that a more accurate analysis of data was necessary to estimate service productivity (Migchelsen *et al.* 2017).

The National Chlamydia Screening Programme Care Pathway

Each LA follows a specific, agreed care pathway to deliver the NCSP in its testing venues (PHE 2014c). The pathway is supported by local sexual health networks and ensures that providers follow a strategic approach to delivering screening. Components of the pathway, for instance PN and treatment provision, are also assessed for feasibility within different healthcare and non-healthcare settings.

Figure 3 illustrates the general NCSP pathway commissioned by LAs. It incorporates the NCSP standards report (2018) and BASHH guidance (2016) on the management of infection with *C.trachomatis*. Before a client can be offered a test, their age and

capacity to consent must be confirmed. Clients under the age of 16 must also be assessed for *Fraser competence* to be screened (PHE 2018). Under this term, the provider should determine the following: that the young person understands the sexual health advice given to them; that the young person is encouraged to involve their parent or carer in their decision; and that, without the advice or supply, the young person's mental or physical health may likely suffer (*Gillick v West Norfolk and Wisbech AHA* 1985).

If a client presents with symptoms, they may be referred to a suitable venue for management. The process on how to take a sample for testing is explained, which is preferably a vulvo-vaginal swab for women and first-void urine for men. In some testing sites, MSM are offered rectal swabbing, as there may be a risk of asymptomatic rectal infection due to the chlamydial lympho-granuloma venereum biovar (PHE 2018).

For submission of testing data onto the CTAD, the following mandatory fields are to be completed on test request forms during consultation with the client: gender; residential postcode; postcode of testing venue and GP; specimen type (e.g., chlamydia testing sample); date the sample was received and result; ethnicity; and the type of testing venue (e.g., GP surgery, pharmacy) (PHE 2018). The following are required but not mandatory fields: venue code; date of birth; and client's NHS number.

Depending on the care pathway commissioned, the sample is either sent to the laboratory by the provider or posted by the client. Then, the result notification is made confidentially, either by the laboratory or provider, by phone call or text message within 7-10 days after testing. If the result is positive, the provider arranges treatment for the client and initiates PN (PHE 2018). Only medical practitioners, or other HCPs trained to work under a Patient Group Direction (PGD) including pharmacists, can supply treatment. A PGD permits the supply of prescription-only medicines to young people with chlamydia without a prescription, facilitating access to treatment (NICE 2013). **Table 3** illustrates the antibiotic treatments used for chlamydia.

Table 3 Treatments used for chlamydia.

Information was compiled from Nwokolo *et al.* (2016). Doses follow those as stated by the WHO in their guideline on the treatment of *Chlamydia trachomatis* (2016b).

	Treatment
First choice	Azithromycin or doxycycline
Second choice (if first choice is contraindicated)	Ofloxacin or erythromycin
In pregnant women	Amoxicillin

Treatment also includes providing safe sex advice, advising on a comprehensive STI screen for gonorrhoea, syphilis and HIV, and signposting to suitable venues offering this full screen. Clients, and their sexual partner(s), are advised to re-test for chlamydia at around three months in case of re-infection (PHE 2013).

BASHH's statement on PN for STIs (2013) states that all sexual contacts of a client who was sexually active within 6 months of the client's diagnosis should be notified and invited for screening. This is known as a look-back interval. For male clients who have urethral symptoms, all contacts up to and including four weeks prior to the onset of their symptoms should be invited for testing/treatment (McClean *et al.* 2013). This ensures effective control of chlamydia and prevention of further transmission. Depending on the care pathway and testing venue, either the provider or diagnosed client contacts the sexual partner(s) for testing and/or treatment (McClean *et al.* 2013).

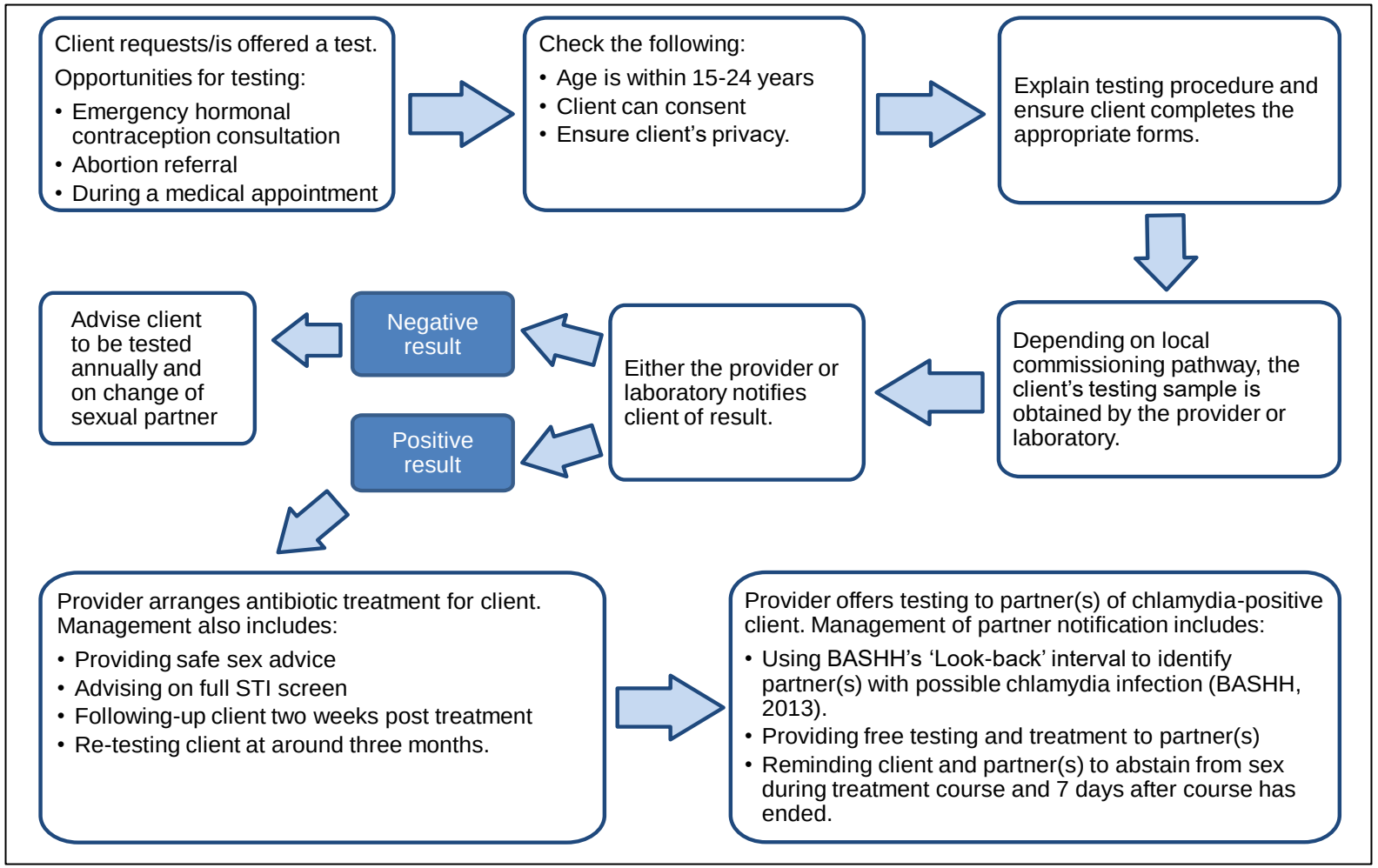


Figure 3 Overview of the National Chlamydia Screening Programme care pathway

Information was compiled from BASHH (2016) guideline on chlamydia management and NCSP standards report (2018). Guidance on partner notification, treatment, and notification of test result varies between testing venues and LAs.

Chlamydia screening venues

Chlamydia screening is available in a range of settings, such as specialist sexual health services providing enhanced genitourinary medicine care, GP surgeries, pharmacies, sexual health clinics, internet, education settings, prisons, and other outreach settings (PHE 2018). PHE reports that enabling access to different settings, together with incorporating screening with other sexual health services in these settings facilitates *integration* of the service (PHE 2014b). As a result, screening becomes a more seamless, and indeed cost-effective, service that encourages conversations about STIs and sexual health.

There are differences in the approach of screening for chlamydia across the settings. According to BASHH (2019) and PHE (2019a), these approaches are based on three levels of management of STIs: level 1- which screens and treats asymptomatic patients; level 2- which manages patients with or without symptoms; and level 3- which incorporates both levels 1 and 2 and complex STI cases. The three levels and corresponding service providers are listed in **Table 4**.

Specialist sexual health services are level 3 and provide comprehensive testing and treatment for STIs including chlamydia, and HIV. These services are also often tailored to offering care to high-risk groups including young people, MSM and pregnant women (PHE 2019a). Non-specialist sexual health services such as sexual health clinics, and some GP surgeries are level 2 service providers. They manage patients who present with or without symptoms, but who have uncomplicated infections (PHE 2018).

As part of the management of symptomatic patients, level 2 and 3 service providers conduct a genital examination, where they have the appropriate facilities and qualified HCPs for this procedure (BASHH 2019). In contrast, level 1 providers, which include pharmacies, other GP surgeries, and internet-based postal STI testing, test and treat asymptomatic patients without a genital examination. Therefore, those presenting at level 1 sites with symptoms are referred to level 2 or 3 service providers for further investigation (BASHH 2019). The minimum age for internet-based testing is 16 years, whilst primary care settings including pharmacies can test patients from 15 years, where Fraser competence can be assessed.

The maximum specifications for each service level are listed in **Table 4**. Within the level, providers may offer several or all components listed depending on the local agreement. It should be noted that all providers incorporate level 1 services including

sexual history taking to assess the risk of STIs and unplanned pregnancy; screening for chlamydia and other STIs in asymptomatic, uncomplicated cases; treatment for chlamydia; PN; sexual health promotion; and condom distribution (PHE 2018; BASHH 2019). BASHH advises that providers of level 1 and 2 services should have access to teams from level 3 services for support and to refer patients where necessary.

Table 4 The components of care for each service level in the management of sexually transmitted infections

Information was compiled from PHE (2019a) and BASHH (2019). STI – Sexually transmitted infection, MSM – Men who have sex with men.

<table>
<tr><th></th><th>Service level 1
(Asymptomatic patients)</th><th>Service level 2
(Patients with or without symptoms)</th><th>Service level 3
(Complex cases)</th></tr>
<tr><td rowspan="2">Settings under the service level</td><td>- Pharmacy.
- Internet-based testing.</td><td>- Sexual health clinic.
- Online sexual health service.
- Prison service.</td><td rowspan="2">- Specialist sexual health service providing genitourinary medicine alone or integrated with sexual health.</td></tr>
<tr><td colspan="2">- GP surgery.
- Outreach programme (e.g. mobile clinic).
- Young people’s service.</td></tr>
<tr><td>Components of the service level</td><td>- Sexual history taking.
- Screening for STIs and chlamydia.
- Treatment for chlamydia.
- Partner notification.
- Sexual health promotion.
- Condom supply.</td><td>Components of level 1 plus:
- STI testing and treatment in symptomatic patients.</td><td>Components of level 1 and 2 plus:
- Management of MSM.
- Management of pregnant women.
- Recurrent conditions.
- Complications of STIs.</td></tr>
</table>

In their sexual health clinical governance report (2013), DOH recommended that there should be appropriate structures in place to support sexual health promotion and STI testing by smaller, independent providers including GP surgeries and pharmacies, within local areas. One structure proposed was the commissioning of one or several specialist providers who then sub-contract with independent providers, and deliver training, governance, and support by clinicians with specialist knowledge and experience.

Chlamydia testing activity across venues

In 2019, the largest proportion of chlamydia screens from young people were in specialist sexual health services, at 44% (Mitchell *et al.* 2020). Screening activity in this setting has remained stable for the past few years. Furthermore, in 2019, 12.7% of its tests were positive for chlamydia which, compared with other settings, had the greatest test positivity rate. This result is not surprising, given its comprehensive STI management services available (BASHH 2019). Screening from non-specialist settings in 2019 has dropped by 27% since 2015 (Mitchell *et al.* 2020). As a result, there has been an overall decrease of 13% in the number of tests completed over these years. **Figure 4** illustrates the proportion of chlamydia tests conducted in each setting out of the total number of tests in England among 15–24-year-olds in 2019. From the tests in each setting, the proportion that were positive for chlamydia, or the test positivity rate, is illustrated in **Figure 5.**

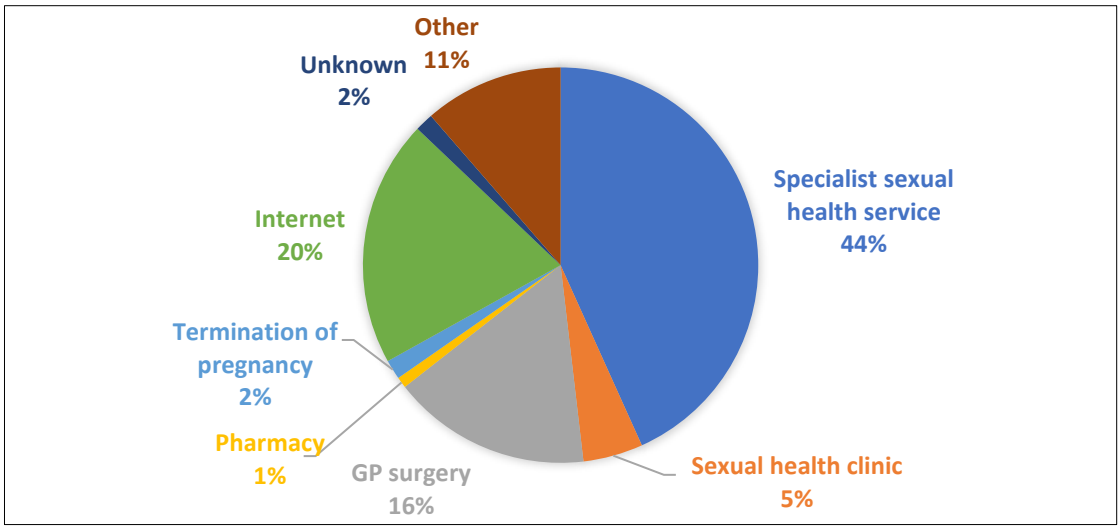


Figure 4 The proportion of chlamydia tests conducted in each setting out of the total number of tests in England among 15-24-year-olds in 2019

Data was compiled from Mitchell *et al.* (2020). The setting *'Other'* comprises young people's services and outreach settings. *'Unknown'* refers to testing data that did not specify the venue of screening.

Figure 4 shows that, following testing in specialist sexual health services, the next largest proportion of tests were from internet testing at 20%. This service has rapidly increased since 2018 by 22%, particularly in London, the West Midlands and the North East, indicating that it appeals to young people (Mitchell *et al.* 2020).

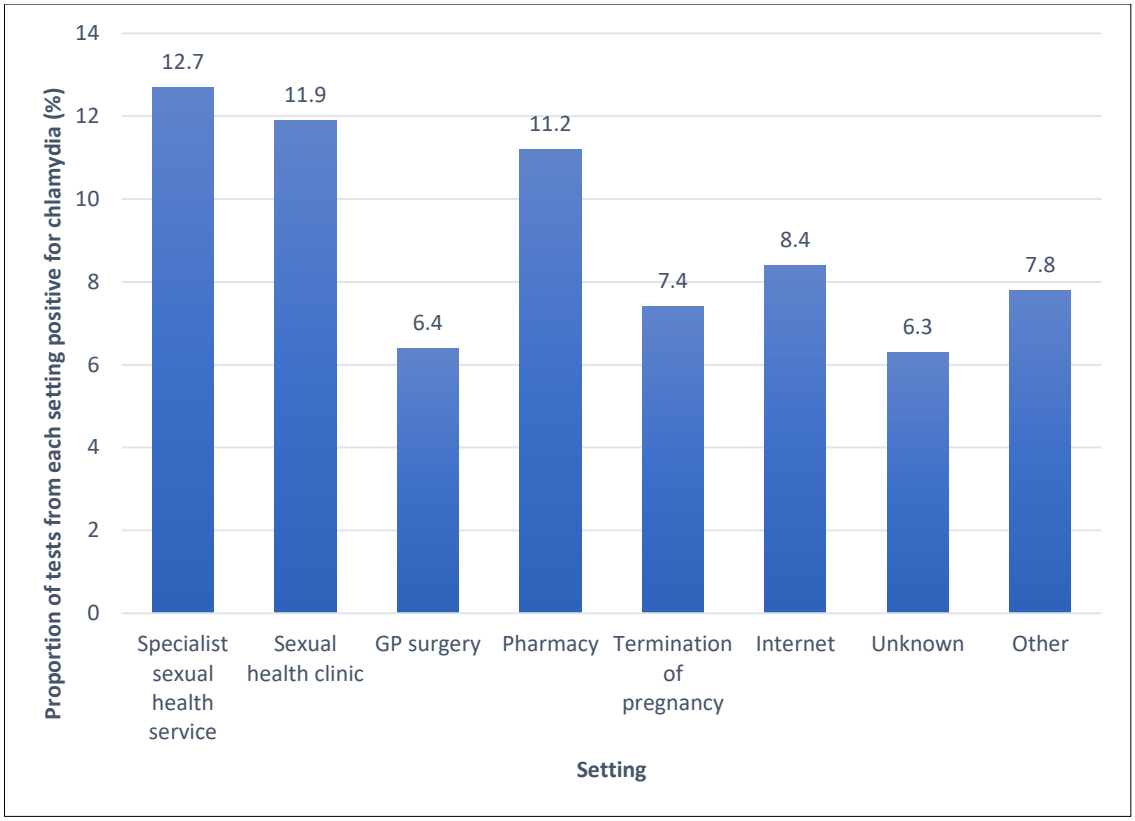


Figure 5 Proportion of chlamydia tests out of the total number in each setting that was positive for chlamydia in England among 15–24-year-olds in 2019

Data was compiled from Mitchell *et al.* (2020).

Testing activity in GP surgeries was at 16% in 2019. This was a 6% decline from the previous year (Mitchell *et al.* 2020). Testing in sexual health clinics was even lower at 5%. Despite this, **Figure 5** illustrates that the test positivity rate was greater in clinics than in GP surgeries, at 11.9% and 6.4%, respectively (Mitchell *et al.* 2020).

Out of all venues, testing activity in pharmacies was the lowest in 2019 at 1%. Furthermore, this figure has remained relatively stable since 2015 (Mitchell *et al.* 2020; PHE 2020a). However, the test positivity rate from pharmacies was comparatively high at 11.2% in 2019, indicating that this setting is ideally-located to meet the demands of local populations in detecting chlamydia (PHE 2014e; Mitchell *et al.* 2020).

Disparities in the uptake of chlamydia screening between young men and women

From 2015-2019, uptake of chlamydia screening across different settings in England has been considerably higher in young women than men each year (PHE 2020a). However, in men, a larger proportion of tests were positive. This suggests that further engagement of men in screening is necessary to control the transmission of chlamydia.

Lower testing activity in men than women may be attributed to differences in sexual health behaviour. Studies found that in men, maintaining a positive sexual identity among their peers and feeling invulnerable within the ideal of masculinity may influence their attitude towards screening for chlamydia (Shoveller *et al.* 2010; Balfe *et al.* 2011). Nevertheless, young men have also voiced their preference to how they would like screening to be delivered and the importance of education in informing young people about the risks of chlamydia (Lorimer *et al.* 2009; Saunders *et al.* 2012). Addressing their sexual health needs may help to promote testing activity.

1.8: Chlamydia testing in pharmacies

Pharmacy settings play a core role in sexual and reproductive health promotion by delivering a wide range of services in accessible locations across England. These services are outlined in **Table 5.** They have shown to be convenient for clients, particularly as pharmacies are open extended hours in the evenings and weekends, no appointment is required to see the pharmacist, and pharmacy locations include rural areas where sexual health services are not always readily available (PHE 2019c).

Pharmacy services in England are delivered under a contract, known as the Community Pharmacy Contractual Framework (CPCF). This consists of three service levels: essential – services provided by all pharmacy contractors including dispensing of medicines and support for clients' self-care; advanced – services that can be delivered once accreditation requirements have been met including the prescription intervention service and new medicine service; and locally commissioned – services delivered in response to the needs of the local population including chlamydia screening (Pharmaceutical Services Negotiating Committee 2015). Both essential and advanced services are commissioned by NHS England, whilst locally commissioned services may either be funded by NHS England, the LA, or clinical commissioning group which is a clinically-led NHS organisation working locally. **Table 5** illustrates that most sexual health services delivered by pharmacies are either essential or locally commissioned. Chlamydia screening is mainly contracted by local authorities to pharmacies (Pharmaceutical Services Negotiating Committee 2021b).

Table 5 Pharmacy services available in sexual health promotion.

Information was compiled from the following references: Pharmaceutical Services Negotiating Committee (2015; 2021b) and PHE (2019c).

HIV – Human immunodeficiency virus, STI – Sexually transmitted infection, HPV – Human papillomavirus.

Pharmacy Service	Level	Description
Dispensing NHS prescriptions for contraception, HIV medications, and STI treatment.	Essential	Included in the community pharmacy contractual framework.
Emergency hormonal contraception	Locally commissioned	Supply is free under a Patient Group Direction. Can also be sold after consultation.
Sale of condoms and other family planning products including pregnancy tests and fertility products.	Essential	Additional advice on effective use provided.
Screening, diagnosing, and treating chlamydia, and gonorrhoea. Includes partner notification.	Locally commissioned	Not all services may be commissioned in pharmacies.
Free supply of condoms under the Condom-Card scheme.	Locally commissioned	Free for 13–24-year-olds. Provided with safe sex advice.
Pregnancy testing	Locally commissioned	Urine tested in pharmacy, and results discussed with client.
Signposting for long-acting reversible contraception, symptomatic STI infections, STI screening.	Essential	Signposting to appropriate services is an essential role of pharmacists.
Provision of HPV vaccine to protect against cervical cancer.	Locally commissioned	Vaccine administered in the pharmacy.
Treatment of erectile dysfunction	Locally commissioned	Supply is free under a Patient Group Direction. Can also be sold after consultation.
Hepatitis C antibody testing	Advanced	Integrated with the needle and syringe programme service.
HIV point-of-care testing	Locally commissioned	Involves a finger prick blood test. Result is in 10 minutes.

Although pharmacy sexual health services and chlamydia screening are commissioned by different organisations, PHE and the Department of Health and Social Care (DHSC) advise that LAs, clinical commissioning groups and NHS England work collaboratively to design and commission local care pathways. This will promote the delivery of

integrated sexual health services and will prevent the risk of fragmentation of such services (PHE and DHSC 2018).

Establishment of chlamydia screening in pharmacies

The NCSP was piloted in pharmacies in 2005 after it was identified that pharmacies could effectively provide the opportunistic chlamydia screening test nationally (Taylor Nelson Sofres plc 2006). This would be incorporated in the role of the pharmacist delivering sexual health advice, as set out in the Pharmacy White Paper (DOH 2008). The pilot, which was launched in pharmacies across London and provided screening to 16-24 year olds, received a 7% chlamydia positivity rate (Taylor Nelson Sofres plc 2006). Questionnaires from the study found that clients first heard of the service from in store promotion, and convenience of location was the main reason why they selected a particular pharmacy. 90% of clients said they would recommend the service from a pharmacy setting (Taylor Nelson Sofres plc 2006). However, the pilot found that testing uptake was low, indicating that clients who perceived themselves to be at risk were more likely to use the service than those who did not. The pilot was continued over two more phases, with positive outcomes. As a result, pharmacies were involved in the national rollout of the NCSP in 2008 in which over 15,000 chlamydia screens were performed in this setting (PHE 2014c). The White Paper stated that accessibility would be an added strength of the service provision in pharmacies, with most of the population having access to a pharmacy by walking or using public transport (DOH 2008). Furthermore, the finding of a *positive pharmacy care law* in England in which access to a pharmacy is greater in areas of highest deprivation, and the association between these areas with poor sexual health, implies that screening would reach young people who may be most at risk (Todd *et al.* 2014; Woodhall *et al.* 2015).

Pharmacy delivery of chlamydia screening

PHE's recent guidance on the pharmacy offer for sexual and reproductive health (2019c) reported that pharmacies were well-placed to provide such services to decrease health inequalities, to improve sexual health, and to reduce the burden on other settings delivering sexual health. Furthermore, pharmacy screening would effectively manage low-risk, uncomplicated cases, increasing chlamydia detection and reducing the risk of health complications and associated health and social care costs (NICE 2019).

PHE recommended that, for successful implementation of pharmacy chlamydia screening, the service should be integrated with other pharmacy sexual health

provisions, accompanied with sexual health advice, as a level 1 STI management service provider. These provisions include emergency hormonal contraception (EHC)- the provision of a contraceptive tablet to women to reduce the risk of unintended pregnancy after unprotected sex, and the Condom-Card (C-Card) scheme – free condom supplies to young men and women (PHE 2019c). The general pathway commissioned by LAs for implementation of chlamydia screening in pharmacies is illustrated in **Figure 6.**

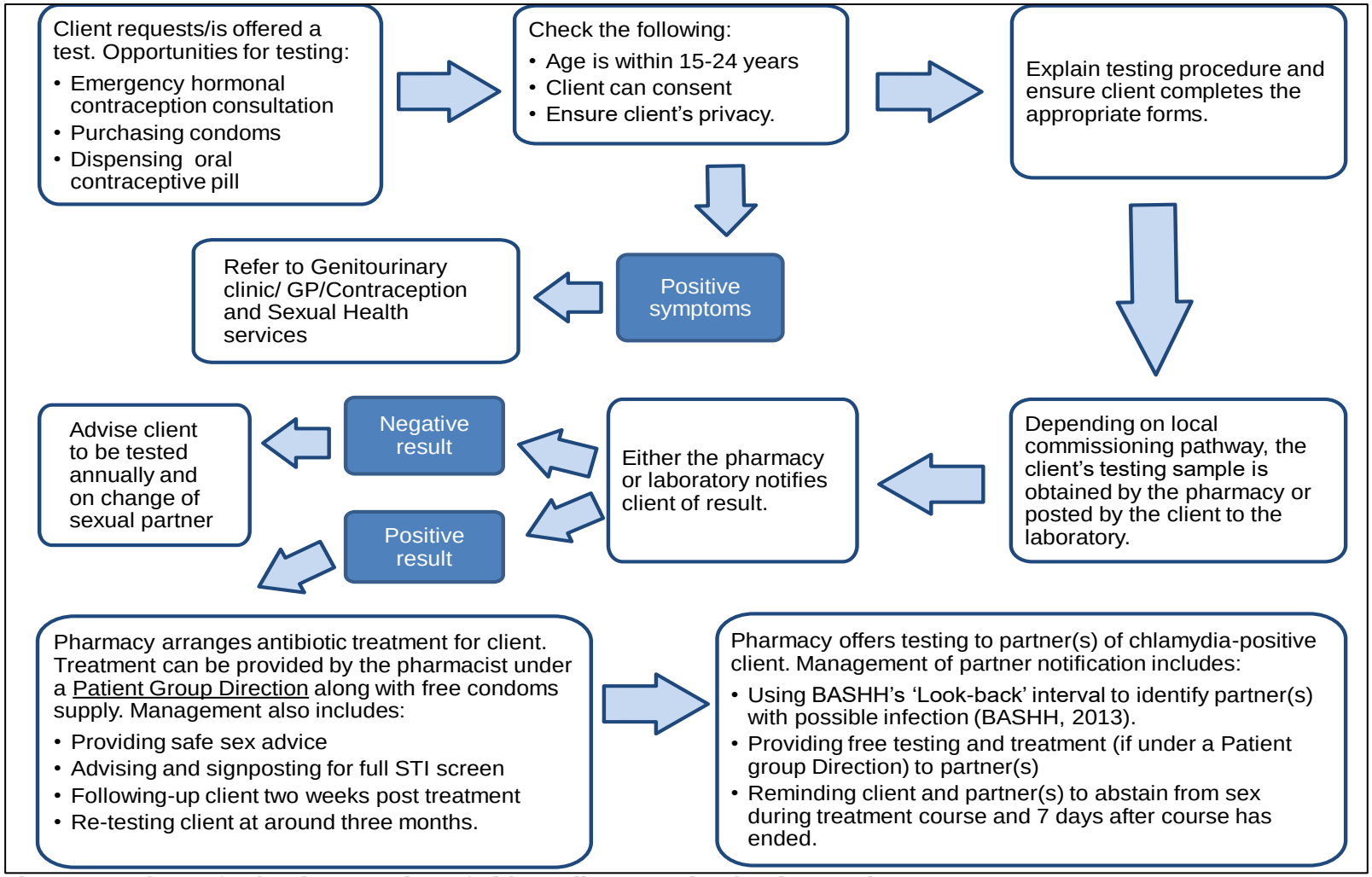


Figure 6 Pathway for implementation of chlamydia screening in pharmacies

Information was compiled from PHE report on chlamydia screening in pharmacies (2014c) and the pharmacy offer for sexual and reproductive health (2019). Guidance on partner notification, treatment and notification of test result varies between LAs.

Figure 6 shows that either the pharmacist offers a chlamydia screen, or a young person requests it. Consultation on the test is made in a designated room to respect the client's right to privacy (NCSP 2010). The young person is assessed for their capacity to consent to testing. If asymptomatic, they are offered a chlamydia postal testing kit. Instruction on how to complete the kit is provided; the young person takes the kit away to complete a urine sample, then the sample is placed in a freepost envelope and posted to an NHS laboratory for NAAT testing (PHE 2014c). Depending on the local agreement in place, the test result is disclosed either by telephone or text message. Where commissioned, pharmacies may also provide free treatment for chlamydia under a PGD and advise on PN (PHE 2019c). PN may be user-led or via accelerated partner therapy (PHE 2014c; Estcourt *et al.* 2015).

At a local level, one programme that has successfully integrated pharmacy chlamydia screening with other sexual health services in the setting is Umbrella Sexual Health in Birmingham and Solihull, England (NICE 2019). Initiated in 2015, the aim of the programme was to raise awareness and accessibility to STI- and blood-borne virus screening, to reduce prevalence rates of these infections, and to increase accessibility to contraception to lower unplanned pregnancy rates. Through regular stakeholder engagement meetings, pharmacies were set up to provide chlamydia testing kits, EHC, and C-Card as an integrated *Tier 1* package. In addition to the Tier 1 service, some pharmacies also delivered more advanced *Tier 2* packages including chlamydia treatment and initiation of regular contraception (NICE 2019). As a result of close collaborative engagement between disciplines, efficient use of an online surveillance and consultation framework, and structured training for providers, the programme has effectively met the needs of its local population (Gauly *et al.* 2020); from 2015-2018, a retrospective study of the programme recorded 60,498 requests for a pharmacy sexual health service across 120 participating pharmacies. Approximately 10% of requests were for STI and chlamydia testing (Gauly *et al.* 2020).

Low chlamydia screening activity in pharmacies

The above example of successful implementation of pharmacy sexual health services and chlamydia screening demonstrates that pharmacies are well-placed to deliver such services.

Out of all healthcare settings delivering EHC in England, many women obtain a supply from pharmacies (Black *et al.* 2016; Glasier *et al.* 2020). Furthermore, PHE reported

that almost half of pharmacies offered EHC between 2014 and 2015, highlighting accessibility of the service (PHE 2019c). The pharmacy C-Card scheme has also shown to be successful; between 2015 and 2016, out of all settings, uptake of the C-Card in young people was highest in pharmacies at 30%, followed by youth voluntary organisations and GP surgeries (PHE 2017). Furthermore, nationally, approximately an equal proportion of young men and young women accessed the C-Card indicating that it appeals to both sexes.

Despite the accomplishment in delivery of the above sexual health services, PHE figures show that pharmacy chlamydia screening activity has been low compared with other settings from 2015-2019. Even more significant is the fact that pharmacy screening also fell by 7% between 2018 and 2019, and that screening activity was considerably lower in men than women (Mitchell *et al.* 2020; PHE 2020a). These results are evident both nationally and within each PHE Centre.

Between 2014 and 2015, 28% of pharmacies offered chlamydia testing/treatment (PHE 2019c). Therefore, there is opportunity to increase the number of pharmacies delivering screening, particularly as the positivity rate in pharmacies is comparatively high and that prevalence of chlamydia continues to rise nationally (Mitchell *et al.* 2020). Furthermore, the successful implementation of other pharmacy sexual health services should facilitate integration of screening. The above findings raise intriguing questions as to *why* pharmacy chlamydia screening activity has remained low in the past few years, and how it can be maximised.

1.9: Summary

This chapter outlined the background to the study reported in this thesis; the high prevalence of chlamydia in young people both globally and nationally and its associated serious health consequences highlighted why large-scale screening and control of the STI was necessary. The implementation of chlamydia screening in England was summarised; a review of current screening activity identified a low uptake among young people in pharmacies. This finding defines the importance of the topic of the present study in exploring why pharmacy screening activity may be low and how it can be promoted to contribute to chlamydia detection in local populations.

1.10: Purpose of the study

The low pharmacy chlamydia screening activity among young people in England led to the development of the following aim, objectives and key questions that drive the research in investigating why this may be:

Aim

To inform pharmacy practice by exploring factors that influence uptake of chlamydia testing in pharmacies among young people.

Objectives

In order to meet this aim, the study objectives are 1) to understand young people's perceptions about receiving a chlamydia testing kit from a pharmacy 2) to understand pharmacists' perceptions about the delivery of the testing kit to young people, 3) to understand contract managers' perceptions about implementing chlamydia testing in pharmacies and 4) to propose recommendations, with the use of theoretical models, for maximising delivery of the testing service among young people.

Research questions

1. What are the perceptions of young men and women about receiving a chlamydia testing kit at a pharmacy?
2. What are the perceptions of pharmacist providers about the delivery of pharmacy chlamydia testing?
3. Why do pharmacist non-providers not offer chlamydia testing and what are their views if they were to deliver it?
4. What are the perceptions of contract managers about implementing pharmacy chlamydia testing and its delivery?
5. What do these views and an analysis of them suggest about how the service can be developed to maximise uptake of pharmacy chlamydia testing?

1.11: Structure of the thesis

The overall structure of the thesis takes the form of six chapters, including the Introduction. Chapter 2 reports on a review of the existing literature on pharmacy delivery of public health and chlamydia screening, to identify where there are gaps in knowledge that require further exploration to understand how screening can be promoted.

Findings from the review of the literature led to the development of the research aim, objectives and questions which are described at the start of Chapter 3. This chapter then outlines the methodological approach used to investigate the research questions, the application of theoretical models to organise the emerging findings, and the method of the empirical work conducted to explore the perceptions of young people, pharmacists, and contract managers about pharmacy chlamydia screening.

Chapter 4 reports on the themes generated, and their location within the Health Belief Model, from analysis of young people's perceptions about engaging in pharmacy chlamydia screening, and experiences of screening in both clinical and non-clinical settings. Chapter 5 reports on the themes generated, and their location within the Normalisation Process Theory Model, from pharmacists' and contract managers' perceptions about the implementation of pharmacy chlamydia screening delivery to young people.

Chapter 6 begins by discussing the comparison of views between young people, pharmacists, and contract managers about pharmacy chlamydia screening, within the context of existing literature. Then, findings from the application of the theoretical models to the results are described. The synthesis and evaluation of the key findings of the study, proposed recommendations to promote screening, study limitations and future work are then described.

Chapter 2: Review of the literature

2.1: Introduction

The previous chapter made the case that greater pharmacy chlamydia screening activity is necessary in England to contribute to the detection of chlamydia. This chapter begins with an overview of how the role of pharmacy has expanded over the years to include public health and sexual health, and the perceptibility to this enhanced role. Then, a review of existing literature focussing on pharmacy chlamydia screening is reported, to explore the current understanding about the service, and to identify potential gaps in knowledge. This included an evaluation of cross-sectional and retrospective studies investigating pharmacy chlamydia screening.

Where feasible, the NCSP care pathway recommends incorporating PN and treatment for chlamydia with the delivery of screening, for comprehensive management of the STI (PHE 2014c; PHE 2019c). Therefore, existing research that studied pharmacy provision of PN and chlamydia treatment was included in the review, to evaluate the impact of such services on pharmacy chlamydia screening.

The review of existing literature focussed on pharmacy screening. Nevertheless, a brief overview of studies that investigated chlamydia screening at other health- and non-healthcare settings was included to identify the feasibility and perceptibility of screening in these settings compared with pharmacy.

Of note, several papers in the chapter refer to the *method* of pharmacy chlamydia screening as *"testing",* relating to the postal chlamydia testing kit. Therefore, from this point forward, the thesis will adopt the terms *"test"* and *"testing"* when describing pharmacy chlamydia screening, to reflect this method.

2.2: The literature review process

Using the Ovid interface, the electronic databases Embase and Medline were searched for articles with the following terms: pharmacy/pharmacist, practitioner, primary care, internet, young people, client/consumer/patient, public health, chlamydia, screening/testing, partner notification and treatment. Different combinations of the terms were used, for instance, pharmac* AND chlamydia, to search for key words and titles. The search strategy took two forms. Firstly, articles reporting on the wider public health role of pharmacy were searched and evaluated. Then, articles focussing on

chlamydia screening in pharmacy, and in other settings were reviewed. With reference to chlamydia screening, the search strategy initially covered articles published from 2002, when the NCSP was established, to 2018, when gaps identified from existing literature led to the study design and data collection. The databases were periodically checked thereafter, to identify new research that may contribute to the field of study. Within the search strategy, results were screened by title and abstract to assess whether they were relevant to the area of chlamydia testing. Then, each article of interest was read in full and critically evaluated to assess for the following: whether it was peer-reviewed; the journal it was published in; the aims of the study were clearly reported; the method was logical and free from bias; and the conclusion reflected the findings of the study (Aveyard *et al.* 2011). The reference list of each article was also screened to identify additional sources that may contribute to the field of knowledge. On importing the included articles to a citation manager software (Endnote X9; Clarivate, 2013), notes were made under each article on the method, summary of findings and study limitations for a robust audit trail.

2.3: The public health role of pharmacy

Historically, the role of the pharmacist involved making and selling medicines and providing healthcare advice to local communities on a range of issues (Anderson 2007). However, following the establishment of the NHS in 1948, then the availability of drugs in ready-to-use form in the 1950s and 1960s, pharmacy's role shifted with a focus on dispensing medicines. It was not until early 1980 that the UK government recognised that pharmacy was under-utilised and could play a greater part in the nation's public health and in health promotion (Harding and Taylor 1997; Anderson 2007). A key independent inquiry followed to consider the present and future role of pharmacy including in health care (Clucas 1986). This led to a rise in pharmacy health promotion activities such as giving advice on contraception and family planning and, in the 1990s, harm reduction strategies including smoking cessation and brief alcohol intervention (Anderson 2007). As such, it was recognised that the increasing public health initiatives would require integration within the pharmacy contract. Therefore, in 2005 the CPCF was announced, incorporating the initiatives under essential, advanced and locally-commissioned levels of service provision, as reported in the Introduction chapter, including the sale of EHC and chlamydia screening (DOH 2005). Governmental reports and updates to the CPCF released since have further outlined and strengthened pharmacy's role in public health and sexual health (DOH 2008; DHSC 2019).

The above efforts in developing the role of pharmacy in health can be termed as *reprofessionalisation* (Birenbaum 1982; Edmunds and Calnan 2001). Edmunds and Calnan (2001) define this as the approaches that pharmacists use to reinstate and enhance their professional status within society, where previously such a position was recognised but then underwent a de-skilling process over time. Despite such developments, a focus remains on the delivery of microlevel processes such as medicines management and advice on prescribing and less so on broader public health services in targeting health inequality in local populations (Anderson 2007). There may be several reasons for this. Birenbaum (1982, p.872) reports that with reprofessionalisation, pharmacists "must convince the medical profession, reluctant members of their own profession, health planners, and the public of the need for these services". However, a number of studies have identified obstacles to recognising the evolving pharmacy profession. From qualitative interviews with 23 pharmacists in England, Cooper *et al.* (2009) found that pharmacists' subordination to doctors resulted in ethical problems including a shift of ethical responsibility. With reference to the EHC which had recently become available for purchase in pharmacies at the time, pharmacists felt more comfortable to supply it from a prescription, where ethical responsibility rested with the doctor. However, Birenbaum (1982) argues that ethical behaviour is a core component in enhancing the pharmacy status where professional self-improvement is demonstrated. Furthermore, in Cooper ***et al.'s*** study (2009), pharmacists described their isolation from peers, HCPs, and clients in their practice. Breaking out of such isolation would test pharmacy's flexibility and adaptability in collectively addressing public health issues (Anderson 2007), ultimately leading to closer relationships and greater transmission of professional values (Anderson 2007; Cooper *et al.* 2009).

When exploring doctors' views to pharmacy reprofessionalisation, Edmunds and Calnan (2001) found that they generally accommodated the developing pharmacy status. However, they had reservations about pharmacists screening for physical health parameters such as cholesterol levels and blood pressure which appeared to cross the boundary between HCP roles, jeopardising doctors' autonomy, and control. Whilst it is unclear whether this view would have extended to pharmacy chlamydia screening which had not yet been implemented at the time, it shares the same aim as other screening initiatives in detecting early disease and infection. In other research by Stewart *et al.* (2009), doctors voiced concern that pharmacists had inadequate skills for independent prescribing, where licensed medicines can be prescribed by the pharmacist in managing health conditions. These attitudes may negatively impact

reprofessionalisation. Nevertheless, Edmunds and Calnan (2001) argue that rather than threaten doctors' status, pharmacists are exploring strategies that would support them to survive in a context that has undermined their profession.

It is well documented that clients and pharmacists find the geographical accessibility, long opening hours and walk-in service of pharmacies convenient in addressing health needs, including sexual health (Baraitser *et al.* 2007; Alsaleh *et al.* 2016; Lindsey *et al.* 2016). However, Atkin *et al.* (2021) argue that this "somewhat contradicts a professionalising strategy that encourages the public to view pharmacist's time as valuable." In addition, studies have shown that whilst clients often welcome pharmacists' advice when given alongside recognised core services such as the dispensing of medication, this advice appears to be less readily accepted if provided beyond pharmacists' perceived professional duties (Krska and Morecroft 2010; Eades *et al.* 2011) This may be due to a knowledge gap of the extended role as found in a survey study on the general public's view of pharmacy by Krska and Morecroft (2010). Moreover, in the study, only around 25% considered pharmacies to be the best source of public health advice, as opposed to GP practices at 50%. There may be the perception that GPs are a more professional, and indeed recognised, source of information (Atkin *et al.* 2021). Nevertheless, 66.6% of respondents in the study agreed that they would accept voluntary advice on STIs in the pharmacy, suggesting acceptability of this service provision (Krska and Morecroft 2010).

The above highlights that pharmacy initiatives, including those that are sexual health-based, require greater recognition by stakeholders to enhance pharmacy status and, consequently, to contribute to public health promotion and tackling health inequality. The sections that follow in this chapter will focus on pharmacy delivery of chlamydia testing within the wider public health role and how the service is viewed and experienced among target users and pharmacists. A review of the literature on testing in other health- and non-healthcare settings, and how this compares to pharmacy is then outlined.

2.4: Pharmacy delivery of chlamydia testing

Studies investigating the pharmacy offer of chlamydia testing during delivery of contraceptive and sexual health services

Several studies investigated the pharmacy offer of chlamydia testing during a supply of EHC to clients including young women in Australia (Gudka *et al.* 2013) and England (Brabin *et al.* 2009; Thomas *et al.* 2010; Dabrera *et al.* 2011).

Two of the above studies collected data on the proportion of clients who were offered the test with the EHC; in Brabin *et al.'s* research (2009) only 24.8% of young women were offered it, and in Gudka *et al.'s* study (2013) it was 78% of women. In both of these studies, out of all women offered the test with the EHC, less than half accepted it, of whom only a few completed and returned the urine sample for diagnostic testing. It should be noted that Brabin *et al.* (2009) did not investigate why young women declined the test. However, in Gudka *et al.'s* study (2013), clients reported to the pharmacist that they declined it because they were married or in a stable relationship, or were recently tested for an STI. Furthermore, in both studies, the authors argue that not all women were offered the test due to selection-bias by pharmacists; pharmacists from Brabin *et al.'s* study (2009) were then interviewed in a separate paper, where they reported that they were less likely to offer the kit to EHC clients who were married and in long-term relationships, than younger women in casual relationships (Thomas *et al.* 2010). This undermined the opportunistic delivery of testing.

Pharmacists interviewed in a study by Dabrera *et al.* (2011) reported that they felt more comfortable offering a chlamydia testing kit to young women during an EHC consultation, than if clients attended for non-sexual health matters. The reason for this view was that pharmacists were concerned that clients might feel offended otherwise. Of note, the authors recognised that it would be invaluable to investigate the views of pharmacist *non-providers* about why they did not offer testing. This highlighted a potential gap in existing literature that, if explored, may help to understand how to implement testing delivery across more pharmacies.

A pilot study by Baraitser *et al.* (2007) in England recorded the number of chlamydia tests that had been completed by male and female clients who accessed three participating pharmacies. Out of all tests completed, 94% were from females. Furthermore, results from clients' evaluation questionnaires showed that most tests were offered by the pharmacist during an EHC consultation. This may explain why

testing activity was greater among females, who were more likely than males, to request the EHC. Nevertheless, the authors found that uptake of the service during the three-month study period was low; on average only 10 tests were completed per month in each of the three participating pharmacies.

In addition, studies that examined the delivery of chlamydia testing with general sexual health products and services by pharmacy staff to men and women in Australia (Emmerton *et al.* 2011) and with contraceptive products to young women in the Netherlands (van Bergen *et al.* 2004) found that testing was not always offered. Furthermore, in both studies, of the clients who accepted, only a proportion then completed the test. However, Emmerton *et al.* (2011) did not report on the number of males and number of females who received the test, which may have impacted the quality of the findings. In van Bergen *et al.'s* study (2004), 41% of young women who had completed an evaluation questionnaire following the offer of a test, stated they did not take it home either because they declined it or could not remember why. Taken together, findings from these studies appear to align with Brabin *et al.'s* (2009) and Gudka *et al.'s* (2013) research reported earlier, in that few clients readily accept the chlamydia test during delivery of sexual health services.

Studies investigating self-reported risk factors for chlamydia in clients accessing pharmacy sexual health services

In Emmerton *et al.'s* study described earlier (2011) and another study by Gudka *et al.* (2014), both based in pharmacies in Australia, clients who obtained contraceptive products and EHC completed a risk-assessment questionnaire to establish their risk of chlamydia.

In Emmerton *et al.'s* study (2011), most questionnaire responses were from women; the authors identified that 37% were at risk of chlamydia based on having multiple sexual partners in the past year, infrequent condom use and symptoms indicative of an STI. Similarly, in Gudka *et al.'s* study (2014), women who accessed the pharmacy for EHC completed the questionnaire. Most respondents were aged under 30, and 100% had one risk factor for chlamydia, inconsistent condom use. Furthermore, over half of women reported having more than one sexual partner in the past 12 months. Due to being identified as high risk of chlamydia, the paper concluded that all EHC clients should be offered the opportunity to test for the STI. It should be noted that Emmerton *et al.* (2011) did not report on the area demographic surrounding each participating pharmacy, where sexual health outcomes may be different. However, pharmacies in

Gudka *et al.'s* study (2014) were in metropolitan, rural, regional and remote areas. The study found that there was no difference between reported risk factors for chlamydia and area demographic.

Studies investigating clients' request for a chlamydia test at a pharmacy

Previous studies have investigated clients' request for a pharmacy chlamydia test in England and Wales (Baraitser *et al.* 2007; Anderson and Thornley 2011), and Australia (Parker *et al.* 2015; Debattista *et al.* 2016).

Two of the above studies analysed data on chlamydia tests purchased by clients including young people (Anderson and Thornley 2011; Debattista *et al.* 2016). The main findings from the data are illustrated in **Table 6.** Anderson and Thornley (2011) found that uptake of testing was almost twice as high among females than males. Furthermore, out of all test results, the highest positivity rate for chlamydia was among clients aged 19. The study did not record the number of tests purchased. Debattista *et al.* (2016) conducted a smaller scale study in which 109 tests were sold in pharmacies, yet only 43 were completed and returned for diagnostic testing. Most clients who returned the urine sample were females aged in their 20s. Of note, due to the nature of both studies, clients' experience of the pharmacy service was not investigated. Nevertheless, in Debattista *et al.'s* study (2016), it may have been helpful to examine why the return rate of kits for diagnostic testing was low.

Table 6 Results of chlamydia testing activity in Anderson and Thornley's study (2011) and Debattista *et al.'s* study (2016)

	Anderson and Thornley (2011)	**Debattista *et al.* (2016)**
Location	England and Wales	Australia
Period of study	24 months	9 months
No. of pharmacies	1000	18
No. of tests carried out	14,378	43
Test positivity	Male – 9.8%, female – 6.8%	Male – 4.7%, female - 11.6%

In a study by Parker *et al.* (2015), pharmacy chlamydia testing activity from young people who either requested the chlamydia test or were offered it was recorded at six pharmacies over a four-week period in Australia. This study differed to Anderson and

Thornley's (2011) and Debattista *et al.'s* (2016) studies, in that clients who then returned the completed urine sample for laboratory testing were issued with a cash incentive. Testing activity was high, with 900 urine samples completed within a four-week period across six pharmacies (Parker *et al.* 2015). It was found that uptake of the testing kit was mainly through the request for the test, after clients heard about the study through word of mouth. In addition, more urine samples were completed by males than females. It should be noted that, on evaluating the service, most young people reported that the incentive encouraged them to participate in the study. This highlights the potential role that incentives may play in promoting uptake of testing.

Studies investigating clients', pharmacists' and pharmacy staff views of pharmacy chlamydia testing

In addition to evaluating pharmacy testing activity, some of the previously reported studies also explored clients' and pharmacists' experiences of the service through surveys (van Bergen *et al.* 2004; Gudka *et al.* 2013; Parker *et al.* 2015), interviews (Baraitser *et al.* 2007; Thomas *et al.* 2010; Dabrera *et al.* 2011; Emmerton *et al.* 2011; Parker *et al.* 2015; Debattista *et al.* 2016), and focus groups (Gudka *et al.* 2013). However, the quality of the findings by Emmerton *et al.* (2011) and Debattista *et al.* (2016) may be somewhat limited in that the number of pharmacists and pharmacy staff interviewed was not specified.

In addition, survey studies in Australia and Switzerland investigated young people's and pharmacists' perceptions if they were to access/deliver chlamydia testing at pharmacies (Taylor *et al.* 2007; Arnet *et al.* 2018). Other survey studies (Brugha *et al.* 2011; Saunders *et al.* 2012) and one interview study (Balfe *et al.* 2010), in the UK and Ireland, explored young people's preference on the settings they would like chlamydia testing to be located in including pharmacies. Lastly, a study which included focus groups with female clients of the EHC, explored their views to pharmacist advice on STI testing during an EHC consultation (Bissell and Anderson 2003).

A review of the findings from the experiences of clients, and pharmacists and staff who provide pharmacy chlamydia testing, and the perceptions of potential users, pharmacists and staff about the prospective implementation of the service is reported.

Convenience of chlamydia testing in pharmacies

Clients of the pharmacy chlamydia testing service reported that the service was convenient, giving as their reasons that it was quick and easy to use and that pharmacies were open long hours to obtain the test (Baraitser *et al.* 2007; Gudka *et al.* 2013; Parker *et al.* 2015). However, young women in one study felt it was unusual to post the sample for diagnostic testing and that the waiting time for the result was too long (van Bergen *et al.* 2004).

Potential users reported that pharmacies were easy to get to, and that no appointment was necessary to see the pharmacist (Taylor *et al.* 2007; Arnet *et al.* 2018). Of the young men surveyed in Saunders *et al.'s* study (2012), 65% reported that pharmacies were an acceptable setting to receive a testing kit, but their reason for this was not investigated.

On reflection of the above studies, it appears that both users and potential users of chlamydia testing shared the perception that pharmacies were geographically accessible.

Privacy and confidentiality in the pharmacy during provision of chlamydia testing

In many of the studies, users and potential users, including young people, and pharmacists reported that there was a lack of privacy in the pharmacy for the provision of chlamydia testing on the shop floor or over the counter (Baraitser *et al.* 2007; Taylor *et al.* 2007; Balfe *et al.* 2010; Brugha *et al.* 2011; Dabrera *et al.* 2011; Gudka *et al.* 2013; Parker *et al.* 2015; Arnet *et al.* 2018). Clients suggested that there should be a dedicated area in the pharmacy to discuss testing (Gudka *et al.* 2013) and, similarly, pharmacists reported that they would counsel in the consultation room for the client's discretion (Dabrera *et al.* 2011).

Although pharmacists in Baraitser *et al.'s* (2007) study felt that pharmacy testing was more confidential than testing at the GP surgery, most young women in Taylor *et al.'s* (2007) study reported that they would attend a GP surgery rather than a pharmacy for privacy. It is worth noting that it appears that pharmacies did not have consultation rooms at the time of Taylor *et al.'s* (2007) study.

Speaking to the pharmacist and staff about chlamydia testing

Some studies reported that clients felt comfortable speaking with pharmacists about chlamydia testing, who they said were appropriate healthcare professionals (Gudka *et al.* 2013; Parker *et al.* 2015). In one study, clients reported that the pharmacist was non-judgemental and friendly (Baraitser *et al.* 2007). Pharmacists said that they were confident discussing and answering questions on STIs (Thomas *et al.* 2010). However, the views of potential users appeared to differ; those in Arnet *et al.'s* (2018) study reported that they would feel embarrassed to request the kit. Contrarily, pharmacists found it challenging to offer testing to young women because they thought that the women might feel offended (Thomas *et al.* 2010; Dabrera *et al.* 2011), or were not interested, or were limited for time (Gudka *et al.* 2013). Clients of EHC in one study questioned the practicality of STI testing advice during the EHC consultation, which they felt they could attend separately for (Bissell and Anderson 2003).

The workload associated with delivering chlamydia testing

There were mixed feelings from pharmacists and staff about allocating sufficient time to deliver testing; those in studies by Taylor *et al.* (2007) and Emmerton *et al.* (2011) reported that testing would add to workload pressure in the pharmacy. Furthermore, pharmacists in Gudka *et al.'s* (2013) study found that the paperwork associated with the service was time consuming to complete. In contrast, pharmacists in other studies reported that there was no time pressure to deliver the service (Thomas *et al.* 2010; Dabrera *et al.* 2011).

Pharmacists' and pharmacy staff's views to training and their competency to deliver chlamydia testing

From the papers that evaluated pharmacy delivery of chlamydia testing, most reported that pharmacists (Baraitser *et al.* 2007; Thomas *et al.* 2010; Dabrera *et al.* 2011; Gudka *et al.* 2013) and pharmacy staff (Emmerton *et al.* 2011; Parker *et al.* 2015) received training prior to delivering the service in the studies.

There were mixed views from pharmacists and staff across the studies of the impact that training had on service delivery. Some pharmacists reported that the training improved their confidence, knowledge, and skill to offer testing (Baraitser *et al.* 2007; Thomas *et al.* 2010; Dabrera *et al.* 2011). In contrast, even after receiving training, other pharmacists reported that they required further learning about STIs and STI testing (Gudka *et al.* 2013), and staff still felt uncomfortable to offer testing (Emmerton *et al.* 2011). Deeks *et al.* (2014), who explored the experiences of pharmacy assistants

delivering chlamydia testing in Parker *et al.'s* (2015) study, found that, despite effective training, assistants did not feel they had the necessary knowledge to offer it.

A study by Kapadia *et al.* (2012) investigated pharmacists' and support staff's competencies and training needs prior to establishment of pharmacy chlamydia testing in Scotland. Respondents reported that training was necessary on advising how to use the chlamydia testing kit and on offering testing to men and women. In particular, the study highlighted that guidance was necessary on effective communication about sexual health (Kapadia *et al.* 2012). Together, the studies in this section provide important insights into how training may influence pharmacists' and support staff's competency to deliver testing.

Summary of the literature on pharmacy delivery of chlamydia testing

The above review of the literature highlighted the following:

- Studies investigating the pharmacy offer of chlamydia testing during a sexual health service found that not all clients were offered it (van Bergen *et al.* 2004; Brabin *et al*. 2009; Gudka *et al.* 2013; Emmerton *et al.* 2011). These studies also showed that, of the clients who were offered the test, a small proportion accepted and completed it.
- Studies found that clients accessing pharmacy sexual health services reported to be at risk of chlamydia, highlighting the benefit for offering the test (Emmerton *et al.* 2011; Gudka *et al.* 2014).
- Among clients who requested the pharmacy chlamydia test, there were mixed findings between two studies on the rate of completion following a purchased test (Anderson and Thornley 2011; Debattista *et al.* 2016). The offer of an incentive encouraged clients to request a test (Parker *et al.* 2015).
- Studies investigating stakeholders' views about pharmacy testing found that pharmacies were geographically accessible but lacked privacy (Baraitser *et al.* 2007; Dabrera *et al.* 2011; Parker *et al.* 2015; Arnet *et al.* 2018). There were contradictory findings across the studies on feeling comfortable to request and discuss testing (Baraitser *et al.* 2007; Thomas *et al.* 2010; Arnet *et al.* 2018), allocating sufficient time to deliver testing, and associated training (Thomas *et al.* 2010; Dabrera *et al.* 2011; Gudka *et al.* 2013; Deeks *et al.* 2014).

2.5: Pharmacy delivery of treatment for chlamydia and partner notification

From the previously reported studies, two investigated the provision of treatment for chlamydia as part of the pharmacy testing service for men and women. These were by Baraitser *et al.* (2007) and Anderson and Thornley (2011) in the UK.

In Baraitser *et al.'s* (2007) study, out of all clients who evaluated the pharmacy testing service, 92% reported that they would return to the same pharmacy for treatment. Furthermore, pharmacists said that offering testing and treatment made the service fulfilling for them and for clients. In both studies, approximately half of the clients who were found to be positive for chlamydia returned to the pharmacy for treatment. Of the clients who received treatment, Baraitser *et al.* (2007) did not specify the proportion that were men and that were women. However, Anderson and Thornley (2011) reported that approximately, an equal number of men and women accessed treatment, indicating that it was acceptable to both sexes. Overall, the studies highlighted the feasibility of a test and treat pharmacy service.

In a recent study by Aicken *et al.* (2018) in England, clients positive for chlamydia selected a pharmacy on an online sexual health consultation platform from which to collect treatment. When interviewed on their experience, some clients reported that the pharmacy treatment service was prompt and discreet. However, others found that the pharmacy staff were not aware of the study or could not locate the treatment packs. As a result, clients had privacy concerns of attempting to explain to staff what they required in a public setting.

Clients positive for chlamydia in the studies by Baraitser *et al.* (2007), and Anderson and Thorley (2011) were advised by the pharmacist to inform their sexual partner(s) for treatment. As a result, of all users of pharmacy treatment in Anderson and Thornley's study (2011), 25% were the sexual partners of index cases. Here, the index cases were given a contact tracing slip by the pharmacist to pass to their sexual partner(s) for pharmacist assessment and treatment.

Other studies used a similar method of accelerated partner therapy, previously defined in **Table 2,** to treat sexual partners in pharmacies in Scotland (Cameron *et al.* 2010; Willetts *et al.* 2018) and England (Estcourt *et al.* 2015). In two of these studies, healthcare settings tested and treated index cases, then sent them a text message (Estcourt *et al.* 2015) or provided them with a paper treatment voucher (Cameron *et al.*

2010) to pass to their sexual partner to receive treatment at a pharmacy. In the third study, the index case was sent an electronic treatment voucher for themselves which could also be forwarded to their sexual partners for pharmacy treatment (Willetts *et al.* 2018). In all studies, pharmacists assessed whether treatment would be safe and appropriate prior to supplying the antibiotic. The median age of index cases in the studies was between 21-22 years, highlighting that the services were reaching high-risk groups. On evaluating the uptake of pharmacy treatment, the studies found that this method of PN was feasible and acceptable. It is important to note that the studies did not investigate partners' experience of the service. Nevertheless, in Cameron *et al.'s* study (2010), of the women index cases who completed an evaluation survey, most reported that their partners were satisfied with this method of obtaining treatment.

2.6: Screening for chlamydia across settings

Previous studies explored the risk behaviour of clients for chlamydia and STIs across health- and non-healthcare settings (Newby *et al.* 2017; Clifton *et al.* 2017), young people's preference of settings they want to be tested for chlamydia (Balfe *et al.* 2010; Brugha *et al.* 2011; Saunders *et al.* 2012), their perceptions of testing in GP surgery (McDonagh *et al.* 2020) and via the internet (Lorimer and McDaid 2013), and young people's, GPs' and nurses' experiences of screening in non-medical (Lorimer *et al.* 2009) and medical settings (Shoveller *et al.* 2010; Lorimer *et al.* 2014; Ricketts *et al.* 2016). A review of the above studies is outlined, and comparisons in findings found between these and research investigating pharmacy chlamydia testing are reported.

Two large-scale survey studies investigated chlamydia screening activity (Saunders *et al.* 2012; Clifton *et al.* 2017) and risk behaviour (Clifton *et al.* 2017) across England, by using a probability sampling method to recruit participants where findings would be broadly representative of the general population. One of these studies was by Clifton *et al.* (2017) who analysed data on chlamydia testing activity and location of testing among people aged 16-44 between 2010 and 2012, who had at least one sexual partner in the past year. Out of 2,349 participants tested for chlamydia, most were aged 16-24, the target group of the NCSP. Furthermore, a high proportion of these individuals were tested in non-specialist settings, other than GP surgeries, including pharmacies, schools and colleges, and internet, where they reported lower risk behaviours than those tested in specialist settings (Clifton *et al.* 2017). The assessment for risk behaviour encompassed having at least two partners in the past year, overlapping partnerships and condom-less sex. However, the relative STI-risk from

individuals tested in pharmacies compared with other venues was not specified. Despite lower risk behaviour in non-specialist settings, the authors concluded that the settings, including pharmacies, should have appropriate care pathways particularly to manage individuals in case they presented with risks (Clifton *et al.* 2017). In addition to their finding on risk behaviour, another study by Newby *et al.* (2012) showed that, from interviews with young attendees at a genitourinary medicine clinic in England, young people appeared to underestimate their risk of acquiring chlamydia due to inaccurate beliefs about safe sex and STI transmission.

The second large-scale study, by Saunders *et al.* (2012), surveyed 411 men on their preference of where they want to access STI, chlamydia, and HIV screening in Britain. Similarly to Clifton *et al.'s* (2017) research, this study found that the largest proportion of those tested were under the age of 25. However, most of these men accessed a specialist sexual health service where they may have had symptoms indicative of an STI or chlamydia. The study, which focussed on views of self-collected testing kits for STIs and chlamydia, showed that men of all ages preferred the following settings to collect a kit: GP surgery at 80%; sexual health clinic at 67%; and pharmacy at 65% (Saunders *et al.* 2012). Reasons for the chosen settings were not explored, however. Education, school, workplace, and sports settings were less favourable. Three-quarters of participants visited their GP surgery in the past year which may have contributed to preference of this setting. In conclusion, the study found that men favoured accessing a health- rather than non-healthcare settings for a chlamydia testing kit.

Other previous studies have shown mixed perceptions from target users on their preference to chlamydia screening venues, and users on their experiences in such venues. For instance, a study by Lorimer *et al.* (2009) who screened young people in non-healthcare settings of further education, health and fitness, and workplace in Scotland, showed that, following feedback interviews with the participants, men favoured this non-medical approach. They felt it was easy and convenient, with some preferring to be screened with their peers. This finding is in contrast to Saunders *et al.'s* (2012) study reported above. However, women reported that screening in such settings was not private enough, and they had embarrassment concerns of being seen by other peers (Lorimer *et al.* 2009). Women's views here reflect those from participants of pharmacy chlamydia testing in previous research, who reported that the pharmacy setting should be more private to reduce such concerns (Baraitser *et al.* 2007; Parker *et al.* 2015).

A study by Shoveller *et al.* (2010) interviewed young men on their experiences and perceptions of undergoing a genital examination and urethral swab for chlamydia and STI testing in medical settings in Canada. They felt uncomfortable exposing their body to a service provider and had preferences to being tested either by a male or female based on their sexual orientation. It should be noted that participants were unaware that chlamydia testing also encompassed a urine sample if asymptomatic, such as that provided by pharmacies, which the authors felt should be further promoted (Shoveller *et al.* 2010).

A study reported earlier in the chapter by Brugha *et al.* (2011), found that most young people surveyed preferred to be offered chlamydia screening by a doctor or nurse rather than a pharmacist. They viewed pharmacies as a non-traditional setting for screening, which may have contributed to this finding (Brugha *et al.* 2011). Similarly, research by Balfe *et al.* (2010) showed that young women interviewed favoured screening in GP surgeries, where the test could be offered in a private area. Furthermore, this was considered a discreditable setting which was not publicly associated with STIs. They were reluctant to be screened in a specialist sexual health clinic which was a *discredited* setting associated with STIs; this posed a risk to their positive sexual identity. In comparison, the greatest concern surrounded screening in pharmacies. Whilst viewed as a discreditable site, pharmacies were front-facing where customers could hear the request for a kit, which risked being judged. Privacy and judgement concerns were also reported by young people on their views to accessing a GP surgery for a self-sampling chlamydia test in a recent interview study by McDonagh *et al.* (2020); they did not want to be seen by friends or neighbours when at the surgery and they felt uncomfortable discussing sexual health particularly with a GP that they knew. Young people also had other perceived barriers to the GP service: they were concerned in case they completed the sample incorrectly; they had low perceived awareness about chlamydia, the testing process and availability of the test in GP surgeries; and they felt it was challenging to book an appointment to see the GP for a test (McDonagh *et al.* 2020). The last reported barrier is in contrast to studies on pharmacy testing where young people viewed pharmacies as accessible locations as an appointment was not necessary to speak with the pharmacist (Taylor *et al.* 2007; Arnet *et al.* 2018).

One study which investigated young men's views to internet-based postal chlamydia testing in Scotland found that it was considered an acceptable approach, and was easier and convenient than accessing a GP surgery or sexual health clinic (Lorimer

and McDaid 2013). However, some men felt that completing the test in a nearby clinic would be quicker. Furthermore, a few had concerns about a family member or partner opening the testing kit envelope once it arrived in the post, and consequently making judgements (Lorimer and McDaid 2013). Although the study did not refer to pharmacy, the method of completing a urine sample at home, then posting it to the laboratory for diagnostic testing is the same (PHE 2014c). Therefore, perceptions on privacy and feasibility of the service reported in the study may be comparable.

As reported earlier in the chapter, previous studies investigated the pharmacy offer of chlamydia testing with the EHC to women (Brabin *et al.* 2009; Thomas *et al.* 2010; Dabrera *et al.* 2011; Gudka *et al.* 2013). In comparison, a study by Lorimer *et al.* (2014), which interviewed GPs and practice nurses from GP surgeries in Scotland, showed that HCPs found it easier to consult on chlamydia screening to women than men, as women were more likely to access the surgery for sexual health services and contraception. In addition, many GPs reported being hesitant to initiate discussions about sexual health and STIs with men, and felt awkward and embarrassed to do so (Lorimer *et al.* 2014). Other perceived barriers included time constraints with delivering screening, as reported by pharmacists in previous research (Gudka *et al.* 2013), and lack of financial incentive. In another study by Ricketts *et al.* (2016), GP surgeries in England participated in a complex intervention with the aim of increasing routine chlamydia screening among young people. The intervention comprised computer prompts, practice-based workshops, and promotional material. Interviews with GPs, nurses, and receptionists following the intervention found that, although training on chlamydia screening delivery was helpful, the service remained a low priority among colleagues. Furthermore, there were confidentiality concerns about discussing screening with patients in the reception area (Ricketts *et al.* 2016), as perceived by pharmacists in previous studies on the pharmacy offer of chlamydia testing on the shop floor (Dabrera *et al.* 2011; Gudka *et al.* 2013).

Summary of the literature on chlamydia screening across settings

The above review of the literature highlighted the following:

- Studies found that clients tested in non-specialist settings including pharmacies reported lower risk behaviours for chlamydia than those in specialist sites (Clifton *et al.* 2017). However, clients also appeared to underestimate their risk for acquiring chlamydia (Newby *et al.* 2012).

- There were contradictory findings between studies on where men would access testing which was either a healthcare- (Saunders *et al.* 2012) or non-healthcare setting (Lorimer *et al.* 2009).
- Studies investigating clients' preference to testing found that they had privacy and judgement concerns across settings, including GP surgeries (McDonagh *et al. 2020*), specialist sexual health clinics (Balfe *et al.* 2010), internet testing (Lorimer and McDaid 2013) and educational venues (Lorimer *et al.* 2009).
- Similarities in findings between the above studies and research on pharmacy chlamydia testing were identified concerning lack of privacy (Baraitser *et al.* 2007; McDonagh *et al.* 2020), feeling uncomfortable to discuss chlamydia (Lorimer *et al.* 2014; Arnet *et al*. 2018), and time constraints with providing testing (Gudka *et al.* 2013; Lorimer *et al.* 2014).

2.7: The need for further investigation into why pharmacy chlamydia testing activity is low among young people

A review of existing literature has provided an important insight into the feasibility of delivering a pharmacy chlamydia testing service.

The evidence presented from cross-sectional, retrospective and interview studies show that chlamydia testing is not routinely offered by pharmacists, or readily accepted by clients, during delivery of other sexual health services (Brabin *et al.* 2009; Dabrera *et al.* 2011; Emmerton *et al.* 2011; Gudka *et al.* 2013). Of significance, most of the studies were conducted around the time of the establishment of the NCSP in pharmacies in 2008. Therefore, further exploration is necessary to understand *current* barriers to the offer of a pharmacy test. In addition, review of the above studies identified a knowledge gap concerning young men and women's acceptance of a chlamydia test during delivery of the C-Card; this may be significant in understanding how pharmacy chlamydia testing can reach both sexes (PHE 2020a). The review also found that, to date, the perspectives of pharmacists who *do not* offer testing has not been studied; their views and reasons for non-participation may be vital to service expansion.

Generally, research that investigated clients' request for a pharmacy chlamydia kit found that the rate of testing was high, implying that this method may be a feasible route in increasing testing activity (Anderson and Thornley 2011; Parker *et al.* 2015). Of note, the papers had targeted advertising in place promoting the service during the

study period. Taken together, these studies support the notion that current promotional activity in pharmacies should be explored. In addition, target users from survey and interviews studies had privacy concerns on requesting the test in the pharmacy (Baraitser *et al.* 2007; Balfe *et al.* 2010; Arnet *et al.* 2018); this warrants further investigation to understand how to facilitate testing delivery.

A review of the literature found mixed feelings from pharmacists and pharmacy staff on allocating sufficient time to offer chlamydia testing, and on their skill and knowledge to counsel on the kit (Taylor *et al.* 2007; Thomas *et al.* 2010; Dabrera *et al.* 2011; Gudka *et al.* 2013). These issues should be explored further to assess whether they continue to impede delivery of chlamydia testing.

Studies have shown that pharmacy provision of treatment to index cases (Baraitser *et al.* 2007; Anderson and Thornley 2011; Aicken *et al.* 2018), and assessment of, and treatment to sexual partner(s) (Cameron *et al.* 2010; Estcourt *et al.* 2015) is feasible. It should be noted that only one study investigated pharmacy delivery of testing, treatment of index cases, and accelerated partner therapy altogether (Anderson and Thornley 2011). Therefore, the acceptability of a pharmacy test and treat service, with PN, should be further investigated, to ascertain whether delivery of a more comprehensive service may likely increase testing activity. As previous studies focused on accelerated partner therapy as a method of PN in pharmacies, exploring the perceptibility of potential pharmacy-led PN will provide contributory insight into whether this method may also be acceptable in pharmacies, in reaching other individuals that may be at risk.

There were a number of similarities found between studies that investigated chlamydia screening in health- and non-healthcare settings, mainly through provision of a self-sampled chlamydia test in asymptomatic patients, with research on pharmacy, which offers a similar method of testing. Similarities were on the following matters: privacy and judgement concerns about testing delivery (Baraitser *et al.* 2007: Dabrera *et al.* 2011; Gudka *et al.* 2013; Ricketts *et al.* 2016; McDonagh *et al.* 2020); target users' preference of seeing a doctor or nurse for testing (Taylor *et al.* 2007; Brugha *et al.* 2011); time constraints faced with delivering testing (Gudka *et al.* 2013; Ricketts *et al.* 2016); and the necessity for further engagement with testing delivery among providers (Gudka *et al.* 2013; Ricketts *et al.* 2016). Additional investigation into the factors that may influence testing in pharmacies, to interpret how to promote the service in this setting, may provide supporting evidence for maximising screening in other settings,

where the method of testing delivery is similar. Another finding that requires further exploration was that, compared with other settings, young men perceived pharmacies as an accessible location for obtaining a self-sampling chlamydia test (Saunders *et al.* 2012), yet testing activity is lower in males than females (PHE 2020a).

In conclusion, the evidence presented in this chapter has identified a number of issues faced with delivery of pharmacy chlamydia testing by pharmacists, and barriers to engagement in the service by young people and clients. Despite findings from earlier studies, and the implementation of structured chlamydia care pathways in pharmacies in England, chlamydia testing activity in this setting has remained low for the past few years (PHE 2014c; PHE 2020a). Therefore, further exploration into the views of both target users and pharmacist providers and non-providers is necessary to highlight the gaps in current service delivery. In particular, focussing on the perceptions of young people who *have not* used the pharmacy testing service would provide an in-depth understanding into how to promote it to this high-risk group.

As previously reported in the Introduction, small, independent sexual health providers including pharmacies are often supported by contract managers within local areas to deliver testing within the NCSP framework (DOH 2013). Therefore, contract managers' views to current implementation of testing in pharmacies, the training delivered, service evaluation activities, and perceived barriers to these activities warrants investigation. Exploring the perceptions of multiple stakeholders of the service would reveal important comparisons in views that will be crucial to identifying how to develop pharmacy chlamydia testing and close potential gaps in service delivery.

2.8: Summary

In this chapter, a review of existing literature on the public health role of pharmacy identified that greater recognition from stakeholders is necessary in enhancing this role. Then, the literature investigating pharmacy chlamydia testing identified gaps in knowledge and areas for further exploration to understand why chlamydia testing activity may be low among young men and women in England. From the evidence, it was found that research into the views of young people, pharmacists, and contract managers is necessary to understand the perceived benefits and barriers to the pharmacy chlamydia testing process as a whole, the factors that may influence testing, and how the service can be promoted.

Chapter 3 : Methods and methodology

3.1: Introduction

The previous chapters identified the need for greater exploration into why pharmacy chlamydia testing activity is low among young people. This chapter describes the research aim, objectives and questions, and the methodological approach used to investigate these questions. Then, it reports on the methods of data collection and analysis applied under this approach, to interpret the findings from interviews conducted with 50 participants, of which 26 were with young people, 22 with pharmacists, and two with contract managers.

3.2: Aim, objectives and research questions

Aim

To inform pharmacy practice by exploring factors that influence uptake of chlamydia testing in pharmacies among young people.

Objectives

In order to meet this aim, the study objectives are 1) to understand young people's perceptions about receiving a chlamydia testing kit from a pharmacy 2) to understand pharmacists' perceptions about the delivery of the testing kit to young people, 3) to understand contract managers' perceptions about implementing chlamydia testing in pharmacies and 4) to propose recommendations, with the use of theoretical models, for maximising delivery of the testing service among young people.

Research questions

1. What are the perceptions of young men and women about receiving a chlamydia testing kit at a pharmacy?
2. What are the perceptions of pharmacist providers about the delivery of pharmacy chlamydia testing?
3. Why do pharmacist non-providers not offer chlamydia testing and what are their views if they were to deliver it?
4. What are the perceptions of contract managers about implementing pharmacy chlamydia testing and its delivery?
5. What do these views and an analysis of them suggest about how the service can be developed to maximise uptake of pharmacy chlamydia testing?

3.3: Developing and refining these research questions

From reviewing the existing literature and pharmacy chlamydia testing activity in England, research questions were proposed to explore stakeholders' perceptions of the pharmacy service and how it could be maximised. Considering how to answer the questions required thinking about methodological issues including sampling and suitable methods to collect the data. The research questions were refined as these considerations were taken into account and on that basis, a final study design developed. The iterative and dialogic process employed to define the research and planning of research activities is illustrated in **Figure 7,** which is adapted from Bickman and Rog's approach to research planning (2013, p.5). This process facilitated the development of a study design that was both feasible and would provide rigour and robustness in addressing the research questions.

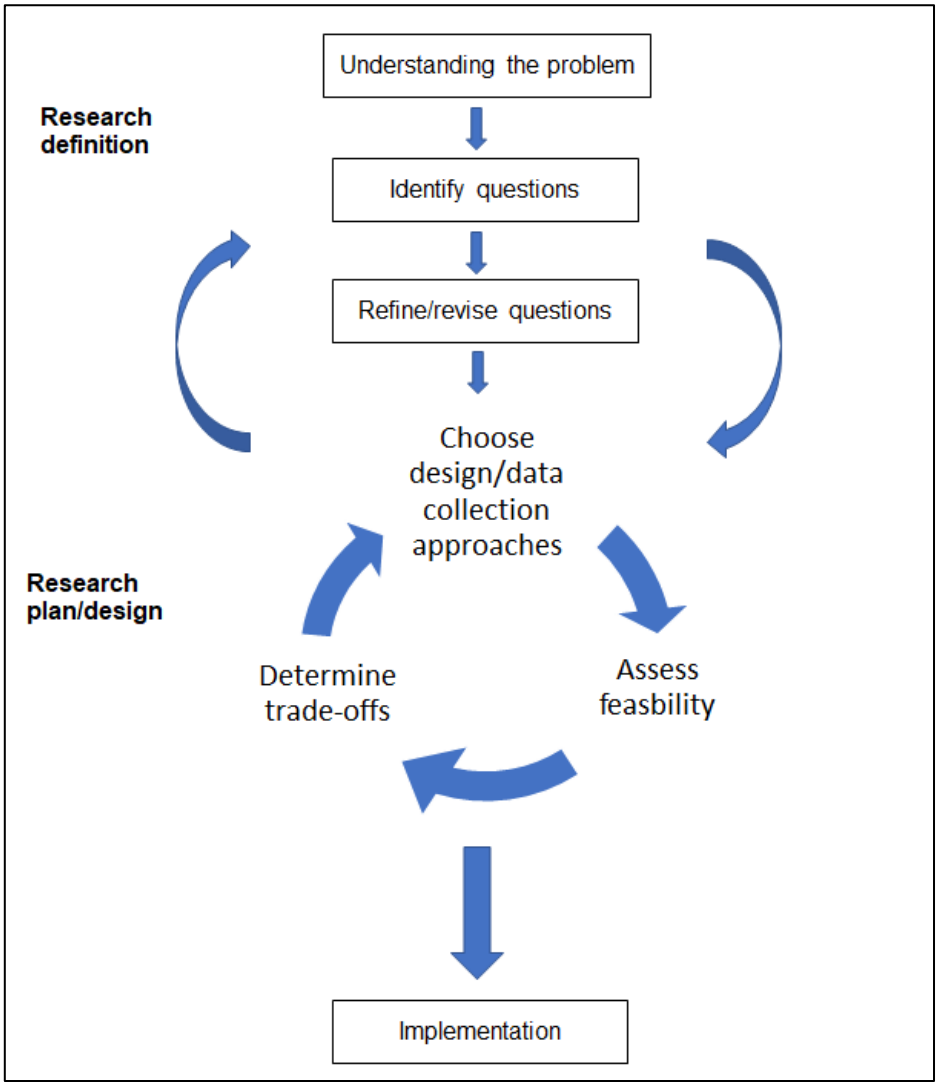


Figure 7 The interactive process involved in defining and planning the study design.

The figure is adapted from Bickman and Rog (2013, p.5). Permission to adapt image was not required, as confirmed with the publisher.

3.4: Choice of methodology

Research paradigm

Once the research questions were identified, it was necessary to define a philosophical approach, or paradigm, in which they could sensibly be fitted and thereby guide, in a fundamental and coherent way the shaping of the study. In its simplest term, Guba defines a paradigm as "a basic set of beliefs that guides action" (Guba 1990, p.17). This *set* can be envisioned as comprising three main building blocks: assumptions about the nature of the world – ontology, assumptions about the nature of knowledge – epistemology, and the appropriate strategies to discover or rather uncover these assumptions – methodology (Guba 1990; Guba and Lincoln 1994).

There are a number of paradigms in the literature which frame the ontological, epistemological and methodological reflections (Guba and Lincoln 1994). Prior to the study design, the paradigms and their approaches were closely examined to establish where the proposed research aim and questions best fit. The paradigm of constructionism was found to be closely aligned to the study. Referring to Crotty's (1998a) definition of constructionism, this is the view that the perception of reality is constructed by social and individual contexts during social interactions. Therefore, there can be multiple and varied views on social reality. From an ontological standpoint, it is assumed that the perceptions of various stakeholders on pharmacy chlamydia testing and the social influences involved may be specific or shared. This is aligned with a *relativist* ontology in which it is held that "there is no fundamental process by which the ultimate truth or falsity of these several constructions can be determined" (Guba 1990, p.26). The interpretation of the social contexts involved often follows gathering a range of in-depth accounts to construct a thorough picture of how the phenomenon is understood by individuals. This supports an *interpretivist* approach which, as such, shares some common philosophical roots with constructionism (Bunniss and Kelly 2010).

Another ontology worth noting is *realism*. This defines that a single, objective reality exists (Maggs-Rapport 2001; Bunniss and Kelly 2010). Crotty explains that constructionism has both relativist and realist properties; whilst an '*objective truth*' cannot be drawn from individuals' accounts, their engagement in and out of reality generates *truth* or meaning (Crotty 1998b).

The realism-relativism ontology of constructionism contrasts with the wholly realist position which emerges from another paradigm, positivism (Guba 1990). The reality posited by positivism may be measured and identified usually through quantifiable means which examine the assumed causal influences and relationships between variables. It is also important to note that whilst a reformed version of positivism, known as post-positivism, assumes that it may not be possible to maintain a wholly objective stance when examining the behaviour and actions of individuals, objectivity within this paradigm remains "a regulatory ideal" (Guba 1990, p.23).

Epistemologically, my interpretation of the study findings was driven by the meanings perceived to be interred within data collected and revealed through thorough analysis which stayed close to those data. This resonates with constructionism, where the enquirer's intent is to uncover and elucidate the meanings individuals have about the world through individuals' perspective and values (Guba 1990; Crotty 1998a). As such, presenting a view that the data stands in a unitary and objective relationship to a single, shared wider world experience would be inappropriate and likely impossible (Levers 2013). Nevertheless, reflexivity remains important, both at the recruitment stage of the study and data collection and analysis to better understand the relationship between myself and the study participants (Jamie and Rathbone 2021). The reflexive process will be outlined further in this chapter.

Applying interpretation to the data differs to positivism where the enquirer and participants are assumed to be "independent entities" with the enquirer neither influencing nor being influenced by the data (Guba and Lincoln 1994, p.110). Of note, the components of quality criteria, as defined in post-positivism, were recognised in the study. Reflecting on the study aim in informing pharmacy practice, the application of rigour increased transferability of the interpreted findings. Therefore, from an epistemological, and indeed methodological perspective, in effect this element was applied in the study, demonstrating a feasible collaboration across paradigms (Rapport *et al.* 2005).

Methodology

Studies based on a constructionist paradigm often use qualitative methods to gather thick, rich descriptions on respondent's perspectives (Crotty 1998a; Johannesson and Perjons 2014). Snape and Spencer (2003, p.5) argue that qualitative methods "address research questions that require explanation or understanding of social phenomena and

their contexts." It is important to note, however, that scholars have shown that quantitative methods can also be applied, particularly in combination with qualitative methods, to measure and investigate participants' perspectives (Hammersley 1996; Maxwell 2010). Quantitative methods, often shaped by a positivist approach, collect and analyse quantifiable data to investigate a phenomena (Snape and Spencer 2003). Where a study combines these methods, the findings are integrated and interpreted relative to the different data collection techniques (Tashakkori and Teddlie 2009).

In relation to the proposed research aim and questions in this study, the use of either a qualitative, quantitative, or mixed methods approach were considered. A quantitative method might offer up the possibility and potential to measure various stakeholders' perceptions about pharmacy chlamydia testing, say through use of questionnaires. These would incorporate brief, open-ended questions with the short answers analysed in numerical terms and questions with Likert scales to assess how strongly participants agreed with certain statements about the service. However, it would not easily explore the *how* and *why* of participants' perceptions and experiences about the service. Conversely, with qualitative methods, the use of, for example, interviews with open-ended questions would obtain a thick description and understanding of participants' views and contexts. As such, application of a mixed method over a solely qualitative approach would not expand understanding or *complete the picture* into why pharmacy chlamydia testing activity might be low. Furthermore, drawing interpretations, or *inferences* across the mixed methods may be difficult, particularly as multiple study participant groups are included, as patterns and connections would not easily be revealed.

There are historically two broad approaches to qualitative methods: gathering data which is naturally occurring, where participants are observed in their day-to-day activities; and researcher-generated data, where the researcher accesses and explores participants' perspectives within the setup of a research environment (Ritchie 2003). These approaches are chosen in relation to the methodology and focus of the study (such as participant experiences and cultures) (Potter and Hepburn 2005). Collecting naturally occurring data would effectively investigate participant behaviour and interactions in a real-world context. However, in this study, it would not facilitate access into exploring participant perspectives about pharmacy chlamydia testing, to interpret and understand both the emotional and contextual factors involved. Nevertheless, the approach used by myself was not to *generate* data as such. Rather, it was participants' accounts of their attitudes and perceptions reflected in the data that was generated.

Furthermore, through conversation with the participant, the researcher is seen as a co-creator of the data in the technical sense that my competence and experience as a practising pharmacist facilitated the generation of participants' accounts (Legard *et al.* 2003). This was beneficial in two respects: sexual health may be a potentially sensitive topic to discuss. I was accustomed to speaking with clients about the topic and reassuring them about confidentiality. This helped to develop rapport and trust with the participants, particularly young people, encouraging in-depth responses to be captured. Secondly, a further customary skill, active listening, was employed during the data collection, to allow the participants to reflect on each question before replying in their own time. Hammersley and Atkinson report that active listening also helps to assess how and why the participant's response relates to the topic in question, and how it reflects the future course of the dialogue (Hammersley and Atkinson 2019b). This further facilitated the generation of rich data. Whether I presented myself as a pharmacist or researcher to the participants may have also played a key role in participants' construction of their responses. This is discussed in Section 3.10.

Lastly, self-evaluation of my positionality throughout the analysis of the data and interpretation of the findings was crucial in ensuring that the findings remained close to the data. Simultaneously, my pharmacist experience and knowledge helped to understand particular work processes reported by pharmacist participants which led to a more in-depth and accurate interpretation of their accounts. The use of fieldnotes to record my thoughts, a repeated review of the results, and regular discussions on the findings with my supervisory team during this process ensured that my own experiences were not projected (Berger 2015). My positionality in the study is re-addressed in Chapter 6: Discussion.

Next, the methodological approach was considered, for which there are several in qualitative research. Deciding on the most appropriate can be a challenge. Yet, it is crucial to choose the right approach as it shapes *which* methods, and *how* they are utilised in the study. Aligning the proposed research questions to the processes involved in each methodology facilitated this decision. From the various methodologies explored, grounded theory (GT) was a strong contender. The pioneers of this methodology, Glaser and Strauss, define it as a generation of theory which is grounded in the data which has undergone systematic and inductive analysis (Glaser and Strauss 1967). Since its creation in 1967, many versions of GT have been developed, leading to variability in its application (Pawluch and Neiterman 2010). In essence, the process involves breaking down the data into smaller components or codes, then

combining and comparing the codes to form categories which in turn generate theory (Glaser and Strauss 1967; Charmaz 2014). Of particular significance is how and why these categories or concepts associate with one another to make up a "system of ideas" (Giacomini 2010, p.139; Morgan 2018). GT delivers a method that is high in quality and validity; it appears to have the strength on being context-specific and, therefore, a limitation in terms of alignment with the study's aims and questions, where perceptions from varied samples and sub-samples would be sought.

Reflexive thematic analysis (RTA) was chosen to analysis the data. It is termed as "a method for identifying, analysing and reporting patterns (themes) within data" (Braun and Clarke 2006, p.79). In some respects, this analytic tool differs from GT which is a *methodology* that incorporates various methods within a theoretical framework. Nevertheless, elements of the analysis process in GT and RTA are similar, in that the data is coded systematically, then collated to form patterns which are reviewed against the coded extract and the entire data set, to tell a *story* about the findings (Braun and Clarke 2006; Braun and Clarke 2019). The flexibility of RTA as a method means it can be applied across a range of theoretical and epistemological approaches and can address a wide range of research questions (Braun and Clarke 2019). Reflecting on the research aim and questions of this study, utilising RTA within a constructionist epistemology would allow interpretations and deeper meanings of the data to be conceptualised where there may be a number of social contexts involved, from exploring various stakeholders' perceptions. Similarly, other studies have shown successful use of RTA in policy and guideline development from a constructionist standpoint, to improve delivery of chlamydia testing services (McNulty *et al.* 2017; Aicken *et al.* 2018; McDonagh *et al.* 2020).

3.5: The use of theoretical models in the study

The emphasis of this study was to discover patterns, or themes, from young people's, pharmacists' and contract managers' perceptions about pharmacy chlamydia testing and to interpret the meaning of these themes. Theoretical models were also used to structure the emerging interpretations and to guide the development of the recommendations to help maximise service provision.

The Health Belief Model

The Health Belief Model (HBM) was chosen as an explanatory framework to organise the data theoretically, to highlight the core beliefs of young people that may influence

the likelihood of engaging in pharmacy chlamydia testing. The HBM is used in a wide variety of health-related behaviour studies to predict an individual's preventative health behaviour and response to treatment (Rosenstock *et al.* 1988). In relation to this study, the core beliefs of the model include an individual's perception of the following: the susceptibility to/severity of chlamydia, the benefits/barriers to accessing pharmacy chlamydia testing, the trigger or cue to prompt execution, and, more recently added to the model, the capability or self-efficacy to test (Bandura 1977; Rosenstock *et al.* 1988). **Figure 8**, which is adapted from a figure by Skinner *et al.* (2015, p.79), illustrates the core beliefs, or constructs of the model. The HBM was considered a suitable model for the study due to its well-defined constructs that would facilitate the analysis. Of note, the HBM assumes that demographic and structural factors may also affect an individual's beliefs, influencing health behaviour, but it is unclear how they are incorporated within the model (Skinner *et al.* 2015).

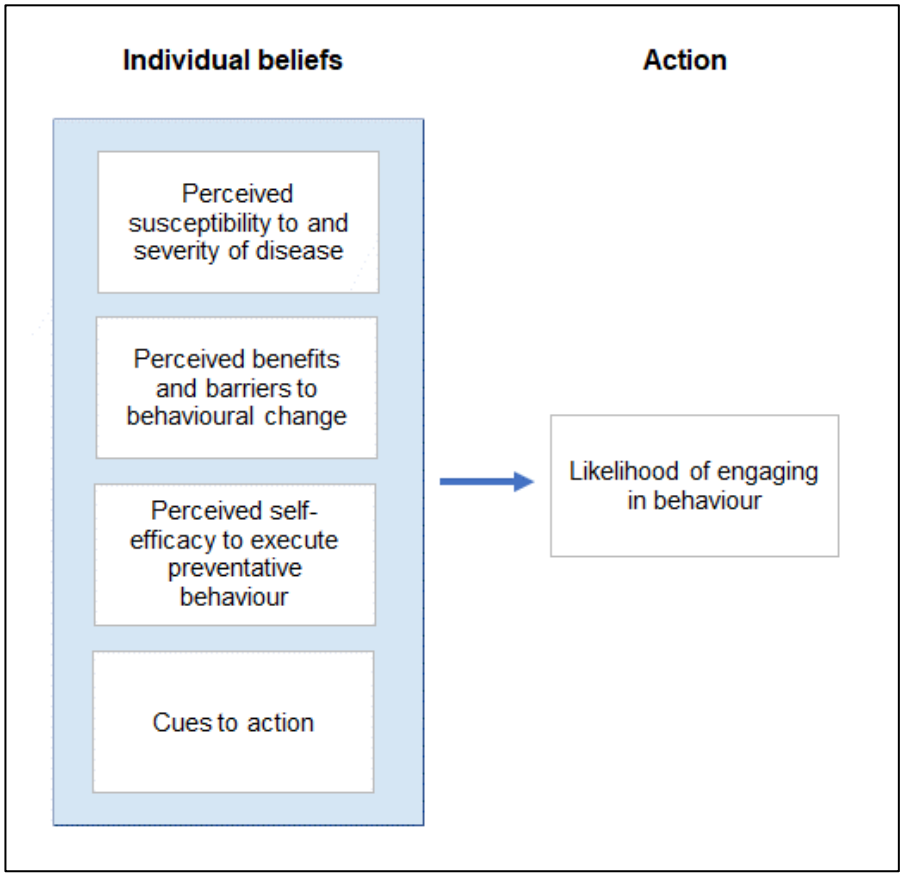


Figure 8 An illustration of the constructs of the Health Belief Model that influence behavioural change.

The figure is adapted from Skinner *et al.* (2015, p.79). Permission to adapt image received from John Wiley and Sons Limited on 13/05/2021.

Sexual health studies have used positivist quantifiable approaches such as questionnaires to measure for associations between the HBM's constructs in predicting behaviour change. These include research on contraceptive practices (Lowe and Radius 1987), condom use (Winfield and Whaley 2002) and HIV testing (Mattson 1999). In contrast, the present study applied the model through a constructionist lens, to organise and interpret young people's accounts of chlamydia, its risks and pharmacy chlamydia testing. Similarly, Downing-Matibag and Geisinger (2009) used the HBM as an explanatory framework in their interviews with young people, to understand the combinational factors that may influence sexual risk-taking.

Another model that was considered in framing young people's perceptions was the Theory of Planned Behaviour. This suggests that attitudes, perceived social norms, and capability to perform the preventative behaviour collectively predict engagement with the behaviour (Ajzen 1991). However, within the context of chlamydia testing, it does not incorporate a young person's perceived susceptibility to and severity of chlamydia, both of which may have contextual and emotional influences on testing.

The Normalisation Process Theory model

The Normalisation Process Theory (NPT) model was chosen to organise the data on pharmacists' and contract managers' perceptions about the delivery pharmacy chlamydia testing. This is a relatively new model which focuses on "the social organization of the work (implementation), of making practices routine elements of everyday life (embedding), and of sustaining embedded practices in their social contexts (integration)" (May and Finch 2009, p.538). The NPT model comprises four constructs which represent the various work activities that individuals collectively do to implement and sustain a practice: coherence - the sense-making work to operationalise the practice; cognitive participation – the enrolment work to engage with the practice; collective action – the operational work to enact the practice; and reflexive monitoring – the appraisal work to evaluate the practice and make improvements (May and Finch 2009; McNaughton *et al.* 2020). The NPT model constructs, and their definitions are illustrated in **Figure 9**. The figure shows that the constructs are dynamic and interact with one another rather than follow a linear process to sustain a practice.

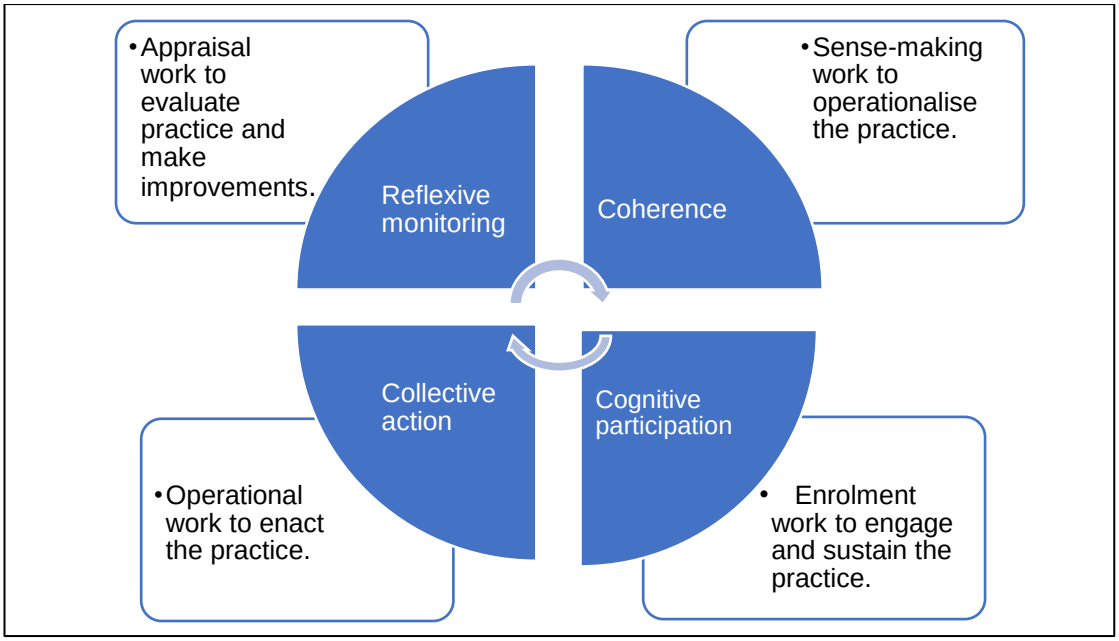


Figure 9 The Normalisation Process Theory model and its constructs.

Each construct is defined in the figure (May and Finch 2009; McNaughton *et al.* 2020).

The NPT model was applied in this study to understand how pharmacists and contract managers work individually and collaboratively to promote pharmacy chlamydia testing, and the perceived issues faced with implementation. It was also used to identify potential gaps in the work processes involved in delivering testing which, according to the model, would be required for successful integration of the practice (May and Finch 2009). Findings from application of the model would facilitate the development of clear recommendations to maximise delivery of pharmacy chlamydia testing. In a similar study by Ricketts and colleagues (2016), application of the NPT model effectively evaluated how GP practice staff (including practitioners, nurses and receptionists) used a chlamydia testing intervention at their practice and their views to its implementation in relation to each construct.

3.6: Choice of methods

Two major data collection methods in qualitative research were considered in the study, interviews and focus groups.

With in-depth interviews, the interviewer and respondent interact to explore the respondent's personal perspectives in detail about the topic of study (Mishler 1991). Often, interviews are a gateway to uncovering delicate or complex issues, such as sexual health matters. Where the interviewer would like to cover key topics in the

interview yet maintain flexibility, a semi-structured approach is often used to ask specific questions and probe the respondent for further information or insight (Legard *et al.* 2003). Comparatively, in focus groups respondents are brought together to collectively discuss their perspectives about the topic of study (Ritchie 2003). As respondents are given the opportunity to hear from others in the group, it can "deepen respondents' insights into their own circumstances, attitudes or behaviours" (Ritchie 2003, p.37). Here, the interviewer assumes a moderator role, taking a back seat to allow the conversations to develop yet checking that the key areas for inquiry are being covered. In line with the subject matter and participant groups of this study, the qualitative methods were examined for suitability in answering the research questions.

Young people

Focus groups can be useful for eliciting shared views, for instance about attending a pharmacy for chlamydia testing, but they may not be suitable if young people want to disclose potentially intimate information (Alderson and Morrow 2011). Therefore, it may be difficult to deeply explore the contextual elements that influence testing. Alderson and Morrow (2011, p.39) explain that interviews with young people facilitates a set-up of "mutual respect, trust and rapport in order to obtain personal and sometimes intimate" accounts. Furthermore, interviewing facilitates safeguarding and responsiveness to young people's concerns (O'Reilly and Dogra 2017a).

To increase feasibility of the study design, members of a young people's advisory group, YPAG-NE (available at https://sites.google.com/nihr.ac.uk/ypagne), and a youth organisation were asked to review suitability between the proposed methods and of the topic areas for exploration in the data collection. These groups were not used for recruitment. Consulting with the public on the study design has the potential to improve the relevance and quality of the study (Thompson *et al.* 2009). Additionally, the representativeness of the members in the consultation broadly reflected the general demographic make-up of the proposed sampling frame (Boote *et al.* 2010); there were approximately 25 members in total; they were of the same age range; and they represented both females and males. The members advised that a face-to-face interview with myself was suitable in case young people were shy to communicate in a group about sexual health. Acknowledging their feedback, I chose to conduct semi-structured interviews with young people.

Pharmacists and contract managers

Conducting focus groups with pharmacist providers was initially considered. This would offer them the opportunity to share their experiences on delivering chlamydia testing which they can reflect on after the discussion (Minard *et al.* 2016). However, the practicality of assembling a focus group consisting of a heterogenous sample of pharmacists with various levels of experience, and from pharmacies within areas of different socioeconomic profiles would be a challenge. Contrarily, conducting individual interviews with pharmacists was more feasible and would provide a deep exploration into the perceived barriers to pharmacy chlamydia testing. Other studies have effectively interviewed pharmacists on their perspectives about sexual health provision including chlamydia testing and treatment (Bissell and Anderson 2003; Baraitser *et al.* 2007; Dabrera *et al.* 2011; Wood *et al.* 2018).

It was evident that interviews would be the viable method for contract managers, who comprise a small workforce. As key informants in the study, they have specialist and specific knowledge about how chlamydia testing is assigned to healthcare settings including pharmacies (Wrede 2010). Interviewing them would allow me to understand this detailed work process.

3.7: Ethical Approval

This study received ethics approval by Newcastle University Faculty of Medical Sciences Ethics Committee in 2018, with approval reference number 1603/6935/2018 (see Appendix 1).

Focus groups with pharmacist providers was initially proposed in the original ethics application. After revising the study design, the proposal was amended to conduct interviews with all pharmacists. The amendment was sent to the Chair of the Committee who reviewed and approved the proposal.

3.8: Method

3.8.1: The study sites for the data collection

The data was collected in regions within North East England (NEE). The study participant groups were interviewed in North Tyneside and Teesside. A cohort of young

people were also interviewed in an area just outside the Teesside border. These sites were chosen based on their chlamydia testing activity and socioeconomic profiles. The sexual health providers for testing differed between the sites.

Chlamydia testing activity in North East England

Across NEE, STI and chlamydia screening is available in several specialist and non-specialist sexual health services (PHE 2019b), in GP surgeries (PHE 2019b), internet-based postal testing (Northumbria Healthcare NHS Foundation Trust 2021; Teesside Sexual Health Service 2021), pharmacies (North Tyneside HWB 2018; Stockton-on-Tees HWB 2018a), youth services and schools and colleges (Stockton-on-Tees HWB 2018b).

In 2018, chlamydia testing uptake among 15-24 year olds from pharmacies in NEE was less than 1% compared with other health- and non-healthcare settings (PHE 2020a). Furthermore, the overall chlamydia diagnosis rate for this age group across the settings was 1,815 per 100,000 residents, which was below the England national average, and PHE target rate of 2,300 per 100,000 (PHE 2019b). These figures highlighted that greater testing activity was necessary. Interviewing young people, pharmacists and contract managers in the region aims to establish why pharmacy chlamydia testing is low, and how it can be increased to contribute to overall testing activity.

Socioeconomic profiles

To ensure recruitment of participants from areas of varying socioeconomic profiles, the study was conducted in different regions within North Tyneside and Teesside. Two of the regions in Teesside included Middlesbrough and Hartlepool which, according to the Indices of Multiple Deprivation (IMD) 2015, were published to be among the ten most deprived LAs in England in 2015 (Department for Communities and Local Government 2015). For comparison, regions included in North Tyneside were relatively less deprived than those in Teesside.

According to the Office for National Statistics (2021b), in 2018 there were 325,500 young people aged 15-24 living in NEE. This represented approximately 20% of the total population aged 15-64 in the region. Out of the total population in North Tyneside LA, 15% (20,000) were young people. Across Teesside, there was a larger proportion of young people at 19% (66,900) (Office for National Statistics 2021b). Across the LAs: the proportion of those aged 15-19 and 20-24 was approximately the same; the

proportion of males and females aged 15-24 was approximately equal (Office for National Statistics 2021b); and the ethnicity of residents aged 15-24 that was recorded was predominantly white (Office for National Statistics 2021a).

Sexual Health Service provider

The Sexual Health Service provider and contract for chlamydia testing in pharmacies differs between North Tyneside and Teesside. In North Tyneside, the contract offers a dual test for both chlamydia (as part of the NCSP) and gonorrhoea, whilst that in Teesside provides a single testing kit for chlamydia (North Tyneside HWB 2018; Teesside Sexual Health Service 2018). Free treatment for chlamydia was not included in the testing service at the time of the data collection. Under both contracts, which are commissioned by the LAs, pharmacy staff require accreditation to offer chlamydia testing and sexual health services. This includes training by the Sexual Health Service provider on how to deliver the EHC, C-Card and chlamydia testing kit (North Tyneside HWB 2018; Stockton-on-Tees HWB 2018a).

At the time of the data collection, in North Tyneside 49 out of 52 pharmacies provided chlamydia testing. In Teesside, 99 out of 119 pharmacies provided testing (NHS 2018; North Tyneside HWB 2018).

3.8.2: Sampling of participants

Young people

Study variables

In relation to existing literature and low pharmacy chlamydia testing activity in NEE, exploring the perceptions of young people who are *non-users* of the pharmacy service was central to the research. This key group comprised young people who were tested at other settings and those who were not tested at all.

Although non-users were the primary criterion, the sample also included young people who experienced pharmacy chlamydia testing as a secondary criterion; their perceptions would bring complementary insights to the study.

Sample strategy

A purposive sampling technique was used to capture the sampling criteria. In this approach, participants are selected based on particular characteristics or features

within the sampled population. This enables an exploration into unique or different perspectives that are relevant to the topic of study (Mason 2002). With a number of variables in the sample, it became apparent that a quota sampling strategy would effectively specify the proportion of participants to include within each key group (Robinson 2013). This ensured that the selection criteria were included in relation to their significance in the study.

The proposed sampling frame is illustrated in **Table 7**. A sample size of up to 30 participants was suggested, to ensure that key groups were represented as well as facilitating a rich and manageable analysis to be conducted from the data (Robinson 2013). As the primary criterion, non-users of pharmacy chlamydia testing comprised the largest proportion of participants in the sample. This not only enabled a detailed exploration into why young people did not attend pharmacy chlamydia testing, but, where possible, was representative of the wider population of young people and current chlamydia testing activity in NEE (PHE 2019b). Of note, the same interview schedule was followed across the sampling frame (reported in Section 3.8.5: The interviews). This ensured that a depth of insights was gathered from the sub-samples, where data saturation could be reached (Guest *et al.* 2006).

I aimed for maximum diversity sampling with age, ranging from 16- to 24-year-olds, and recruitment site area demographic variables, and an equal balance between male and female participants recruited. It was recognised that young people's place of residence may be of a different area demographic than the location of the recruitment site.

Table 7 Table illustrating sampling variables for interviews with young people

	Prioritised selection criteria	**Young people aged 16-24** **n = 30**
Sample variables (across study sites)	Primary criterion	Up to 80% participants have not experienced pharmacy chlamydia testing service (with an equal balance between those tested at other settings to those never tested).
	Secondary criterion	Up to 20% participants have experience of pharmacy chlamydia testing.

Exclusion criteria

The exclusion criteria included young people who are deemed to lack the capacity to consent to taking part in the study. In addition, 15-year-olds were not included in the study. Under Newcastle University Ethics guidance, both participant and parental consent should be sought for participants under 16 years of age to take part in research (Newcastle University 2021). Therefore, in relation to the topic of study, it was identified that recruiting this age group would be difficult.

Pharmacists

Study variables

The key group in this sample was pharmacists who delivered chlamydia testing, as their perceptions were central to understanding the factors that influence chlamydia testing.

Another sample variable was pharmacist non-providers. Their inclusion in the sampling frame would offer insight into why they did not deliver testing, and signposting activities. This group was considered a secondary and less influential criterion in relation to the study objectives.

Sample strategy

A purposive sample strategy with quota sampling was used. The sampling frame is illustrated in **Table 8.** The proposed sample was between 25-30 participants which would sufficiently represent all the groups and allow an effective comparison between them. With pharmacist providers being the key variable, most participants recruited would be from this group. For external validity, the composition of providers and non-providers was also representative of current pharmacy chlamydia provision in the NEE, where most pharmacies offer testing (NHS 2018).

I aimed for maximum diversity sampling with pharmacists' years of experience with delivering testing, pharmacy size and area demographic variables, and an equal balance between male and female participants recruited.

Table 8 Table illustrating sampling variables for interviews with pharmacists.

	Prioritised selection criteria	**Pharmacists** **n = 25-30**
Sample variables (across study sites)	Primary criterion	Up to 80% pharmacists deliver chlamydia testing.
	Secondary criterion	Up to 20% pharmacists do not deliver chlamydia testing.

Contract managers

Sampling

The contract teams for sexual health provision are small. Therefore, it was proposed that one representative working for North Tyneside and one for Teesside would be individually interviewed, to understand the pharmacy contract in these regions and the perceived barriers to service implementation.

3.8.3: Study locations

Young people

Youth organisations were chosen to recruit and interview young people. These were identified as suitable locations for the following reasons: 1) Young people who attend the organisations' group sessions are from a diverse demographic background, 2) the youth groups are located in areas of varying levels of deprivation, and 3) the youth workers effectively serve as gatekeepers, facilitating recruitment of the participants and identifying suitable locations for the data collection (O'Reilly and Dogra 2017b). The organisations were initially identified for recruitment by accessing the County Council websites and online directories of the study sites, which provided information and website links to youth organisations in the region. Furthermore, the University engagement support team were contacted to request the details of potential youth organisations that may have been involved in engagement activities at the University.

Pharmacists and contract managers

Contact details of pharmacies that did, and did not, offer chlamydia testing were gathered from NHS England's online *'Find a Pharmacy'* search tool, which lists the services provided at each pharmacy in the study sites (NHS 2018). In addition, this information was requested from Local Pharmaceutical Committee (LPC) officers in the sites. LPCs represent the local pharmacy contractors and work with LAs and other

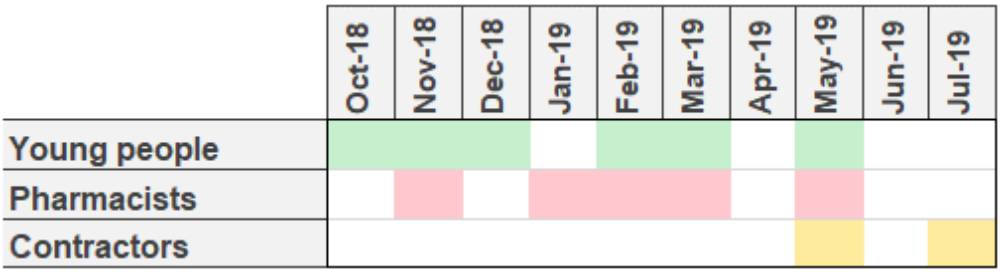
organisations to support healthcare provision and promote pharmacy services (Pharmaceutical Services Negotiating Committee 2021a).

Across the study sites, pharmacists were interviewed either at their pharmacies or over-the-telephone, during working hours, depending on their preference and availability. Contract managers were interviewed over-the-telephone. There are mixed reviews in the literature on the validity of telephone interviews when forming rapport and in-depth discussions (Chapple 1999; Carr and Worth 2001). I was mindful of this when conducting the interviews.

3.8.4: Recruitment of participants

The recruitment of participant groups for the interviews took place over nine months, from October 2018 to July 2019. **Table 9** illustrates the timeline for recruitment of each study participant group.

Table 9 A timeline of the recruitment of each study participant group



Young people

Eight youth organisations across the sites were approached and informed about the study aims, method of recruitment, interview process, and ethical approval to conduct the study. Four agreed to participate, whilst the others felt the study's aim and objectives did not align to their goals and activities. During the study period, I had an up-to-date enhanced Disclosure and Barring Service certificate (no. 001474688021).

Participant information sheets and consent forms (see Appendix 2) were given to the participating youth organisations to disseminate to the members prior to my visit to the organisations' club sessions. These forms had been reviewed for clarity by the youth advisory group YPAG-NE, prior to recruitment. The attendees were given sufficient time to read the forms, to ask the youth worker or researcher any questions they had about the study and to consider whether to participate or not. Prior to the first

interviews, I practised the proposed interview schedule several times. This helped to enhance the clarity of the questions, and to re-organise the order in which to ask some questions, allowing the interview to follow a more logical structure.

A suitable date and time to conduct the interviews was arranged with the organisations. Across the sites, these were at eight different weekly group sessions. All but one session was visited once; that one session was visited twice. Of note, the sessions were in proximity to pharmacies providing sexual health and chlamydia testing. They comprised approximately 45 young people in total. At the start of each session, I introduced myself to the members and summarised the study aims and interview process. Where there was the facility, I also gave a digital presentation outlining the study to the young people present at the sessions. These activities helped to establish a rapport between myself and young people, and reduced the risk of self-selection bias where possible, although this cannot be evaded in interview-research (Robinson 2013). Potential participants who were interested in taking part in the study were asked their age and history of chlamydia testing. To facilitate the recruitment of those who experienced pharmacy testing, they were also asked if they used a pharmacy sexual health service, where a chlamydia testing kit would also often be offered.

During the session, participants were interviewed in a quiet area of the site, free from potential distraction, to provide a discreet environment for the participant to comfortably express their views and experiences. Prior to starting the interview, I explained the points of the participant information sheet and consent form. Each participant was assessed for their capacity to consent to taking part through their understanding about the study and interview process and ability to communicate their decision about taking part. They were also reminded of their entitlement to withdraw from the study in the information sheet, consent form and verbally. Participants were explained that their personal details would be anonymised, and information made confidential. Nevertheless, it was also clarified that there was limitation to this confidentiality; if the participant disclosed information resulting in me being concerned for the participant's safety, I would have to report the information as a matter of safeguarding (HM Government 1989). Participants were asked if they had any questions and whether they agreed to being audio-recorded, using a digital audio recording device, prior to starting the interview.

Pharmacists

Prior to recruiting potential participants, I discussed the study aim, objectives, and method of data collection with committee members from LPCs at each study site, so that they had oversight of the study. A participant information sheet and consent form were posted to all pharmacies at the study sites (see Appendices 3 and 4). Tutors delivering local pharmacy training sessions also agreed to disseminate the information leaflets to pharmacists at the events.

The pharmacies were then contacted to ask if they would like to take part in the study. Those who agreed to take part clarified whether a face-to-face or telephone interview was more appropriate depending on their work schedule and preference. A suitable date and time were organised to conduct each interview. Similarly to preparation for the interviews with young people, I practised the proposed interview questions for pharmacist providers and non-providers prior to the data collection. Prompts to some questions were re-phrased to ensure that they suitably followed the main questions asked.

Face-to-face interviews were conducted in the pharmacy consultation room for discretion. In both the face-to-face and telephone interview methods, I summarised the information sheet, the points for consent, participants' entitlement to withdraw from the study and confidentiality and anonymity of personal information. Before starting the interview, the participant was asked whether they had any questions and whether they agreed to being audio-recorded.

Contract managers

To obtain the contact details of the sexual health contract managers, I firstly emailed the NEE field epidemiology team, whose email address was available on PHE's 2018 report on STI prevalence in the region (PHE 2019b). On describing the aim, objectives, and proposed data collection of the study to the team, they provided the email addresses of LA sexual health leads in the study sites, who then facilitated communication with the contract managers.

Prior to recruitment, I introduced myself and the study via email to the contract managers. They were asked if they would like to consider taking part in the study. On response, the participant information leaflet and consent form were emailed to them (see Appendix 5). A suitable date and time to conduct the telephone interviews was agreed. Before starting each interview, the same opening protocol was followed as that

with the pharmacists, summarising the study, points for consent, and entitlement to withdraw from the study.

All participants

The location of each participating pharmacy and youth group was mapped to the IMD 2015, which measures the relative deprivation for small areas in England (Department for Communities and Local Government 2015). Then, a deprivation quintile for each location was calculated, where 1 represents locations in the 20% *most* deprived neighbourhoods, through to 5, which represents locations in the 20% *least* deprived neighbourhoods.

3.8.5: The interviews

The structure of the interview schedules

The interview schedules for young people, pharmacist providers and non-providers, and contract managers are available in Appendices 6, 7, 8 and 9, respectively. Generally, each interview covered a set of topic areas which were explored mainly through asking open-ended questions. These topic areas were identified from the review of existing literature.

At the start of the interviews, a broad and relatively straightforward question was asked to establish rapport and facilitate participant engagement. The subsequent interview questions followed a sequence from asking general to more specific questions. Depending on participant response, the questions were followed by a series of prompts to further develop and reflect on the topic in question. At the same time, I was mindful not to implement too much guidance to allow the interview to flow and be flexible (Kelly 2010). Towards the end of the interview, I returned to asking a broad question on how pharmacy chlamydia testing could be improved, where participants could reflect on their previous responses and include additional insights. The interviews were scheduled to last between 20-30 minutes long, with those from pharmacist non-providers expected to be shorter.

The list of interview questions was approximately one page long. Gaskell (2000) suggests that this creates a comfortable structure to follow and prevents an extensive list of questions to be asked. The interview schedule effectively served as a prompt to quickly refer to during the interview, to maintain the flow of the dialogue and of eye contact with the participant.

During and straight after each interview, I wrote short fieldnotes. In the interviews, these identified key ideas or thoughts from the participant for further exploration during the discussion. After the interview, the overall response of the participant and the dynamics of the discussion was noted whilst it was fresh in my mind. Furthermore, I reflected on and noted my involvement in the interview. This minimalised researcher bias and facilitated further refinement of the interview technique (Mauthner and Doucet 2003).

Considerations when conducting interviews with young people

The interview schedule covered young people's perceptions on the following topic areas: sexual health and STIs, the provision of general and sexual health services in pharmacies and pharmacy chlamydia testing (see Appendix 6). These were recognised as areas for further investigation from the review of the literature. In addition, questions that explored young people's perceived risk of the severity of, and susceptibility to chlamydia, were broadly framed to the constructs of the HBM to highlight and interpret the contextual factors involved in testing. Investigating the views of young people about pharmacy delivery of sexual health as well as chlamydia would provide an insight into the feasibility of integrating these services.

Sexual health is a potentially sensitive topic for young people to discuss (O'Reilly and Dogra 2017). Therefore, several approaches were applied during each interview to encourage a natural conversation to develop: the schedule started with a broad, opening question before gradually moving on to exploring participants' thoughts and feelings about chlamydia testing; secondly, I ensured sufficient time was allowed after each question for the participant to reflect on and formulate their answer; thirdly, a task-based activity was included in the interview where participants read statements on cards written in first-person and expressed whether they agreed to them and why. This avoided direct questioning of participants' personal experiences, whilst providing them with the space to explore their perceptions relative to the statements (Rapport *et al.* 2005).

In the interviews, I indicated that I understood the participant's response through using extraneous phrases such as *"Okay"* and *"Aha."* Whilst it is recognised that such phrases may influence objectivity in interviews (Legard *et al.* 2003), in this situation they highlighted that I was attentive and grasped the information, which encouraged the participant to continue.

Generally, studies have shown that 16-24-year-olds have good knowledge about STIs and engage with discussions around health service use and sexual health (Jones and Haynes 2007; Office for National Statistics 2009; Mercer *et al.* 2013). Nevertheless, I was aware that the sexual experiences and perceived awareness of chlamydia may differ across the participant age groups. Therefore, where participants gave reticent responses, prompts were used to encourage further opinions where possible, whilst respecting the degree of participant involvement. Comparisons in the depth of responses across the interviews were analysed and reported in the Results and Discussion Chapters.

Considerations when conducting interviews with pharmacists and contract managers

From the review of existing research, the following topic areas were identified for further investigation and subsequently added to the interview schedule for pharmacist providers and contract managers: how chlamydia testing was delivered in pharmacies; the perceived purpose of pharmacy testing; engagement with service users; and evaluation of the service (see Appendices 7 and 9). The schedule for pharmacist non-providers covered why chlamydia testing was not offered and signposting activity (see Appendix 8). Some questions were broadly framed to the constructs of the NPT to identify whether testing was embedded in daily work processes.

Interviews with pharmacist providers included a vignette which explored their perception of offering testing to a young female attending for regular contraception. Where this process was not necessarily routine practice, it invited them to think about and discuss why they may, or may not, provide testing in this situation.

3.8.6: Debriefing

The participants were debriefed after the interview. The debrief points included thanking the participants for their contribution in the study, explaining that personal details would be anonymised, and information kept confidential, and asking if they had any further questions about the interview and study. They were also reminded that if they decided to withdraw, all data referring to them would be immediately destroyed. Young people who participated in the study received a £10 gift voucher thanking them for their time.

3.8.7: Transcribing of interviews

Almost all interviews were audio-recorded. Three telephone interviews with pharmacists were not recorded due to a background sound; here, the responses were written free hand to paper during the dialogue with participants' knowledge. Straight after the interview, I added further notes whilst the conversation was still fresh in my mind. Within one week of the data collection, I transcribed each recorded interview verbatim. Then, the transcript was checked for accuracy against the audio recording and anonymity, after which the recording was immediately destroyed. A selection of transcripts was also quality checked by members of the supervisory team. Although a lengthy process, transcribing led to "immersion in the raw data" and familiarisation, facilitating the first stage of the data analysis (Pope *et al.* 2000).

3.8.8: Checking for saturation of the data

Interviews were conducted until data saturation was reached in each sample of young people and pharmacists, whilst ensuring that a diverse range of rich insights were obtained. It was noted when no additional material was identified from the interviews and the data began to repeat (Kerr *et al.* 2010). At this point, four more interviews were conducted with each participant group of young people and pharmacists until satisfied that data saturation had indeed been reached.

3.9: Method of data analysis

Reflexive thematic analysis

Each transcript and the corresponding fieldnotes were entered onto a computer-assisted analysis software NVivo 11 Pro; QSR International Pty Ltd., 2015. Using this software, the data was analysed following Braun and Clarke's six-step process to thematic analysis (Braun and Clarke 2006). The first step of the process, familiarisation with the data, had begun during the data collection and transcribing of the interviews. All the transcripts were then re-read, and initial ideas noted.

With several data sets to analyse and compare, I chose to firstly code then analyse the data from each study participant group separately, to ensure immersion in the data. It should be noted, however, that the data from pharmacists and contract managers was analysed together, as the interview schedules covered similar topic areas around the implementation of pharmacy chlamydia testing. Firstly, open coding was applied; line-by-line labelling within each transcript was used to identify new and meaningful

features. Where relevant, the surrounding text was included in the coded extracts for clarity on the context. An *abductive* analytical approach was used to identify such insightful features. This approach considers that the researcher's in-depth knowledge of existing theories around the area of study facilitates the generation of surprising and unanticipated findings from the data (Timmermans and Tavory 2012). Tavory and Timmermans (2014, p.2) view abductive analysis as "one part empirical observations of a social world, the other part a set of theoretical propositions" which amplify one another. Nevertheless, such existing knowledge is viewed as a "*sensitizing*" notion that does not determine the scope of the findings, so as to encourage theoretical breadth to the analysis (Blumer 1954, p.7). Abductive analysis differs to inductive and deductive analyses: induction involves the researcher's separation of pre-existing theories when analysing and generating new theory, but Tavory and Timmermans (2012) argue that pre-existing knowledge is necessary to identity missing or surprising findings; and deduction uses a rule or existing theory to examine a case and the analysis seeks to support or refute that theory. However, findings may not neatly fit into predetermined theories (Giacomini 2010; Timmermans and Tavory 2012). In comparison, abduction is "a creative inferential process aimed at producing *new* hypotheses and theories" as a result of meaningful findings (Tavory and Timmermans 2014, p.5). This analytical approach was chosen on reflection of the relatively broad knowledge I had about chlamydia screening which not only facilitated a robust study design, but also the ability to generate new, significant findings that were not bound to existing theories.

Next, the codes were sorted into key units, or *categories,* then the codes within each category revisited to check that the data was similar. This facilitated the next step of the analysis, where the categories were compared with one another and organised to identify overarching themes to understand and interpret the perceived issues of pharmacy chlamydia testing. **Table 10** illustrates how extracts from interviews with a young person and with a pharmacist were coded with the corresponding category and theme.

A selection of transcripts was independently coded by members of the supervisory team, and the codes were regularly shared and discussed with those that I had generated. Furthermore, the team collectively reflected on the developing themes in relation to the codes, to ensure that the meaning of the data was accurately interpreted. These activities allowed me to keep an open-mind to the data, which subsequently reduced bias and maintained rigour of the analysis.

Table 10 Coded data extracts from interviews with a young person and a pharmacist provider, with the corresponding category and theme

Extract	Code	Category	Theme
"*If they [pharmacist] were to go through it [test] and give it to me, I'd rather it be done in, like, the meeting room, or back room. Somewhere away from everyone else"* Young male, aged 17.	Discussing chlamydia testing in separate room of pharmacy.	Privacy of pharmacy environment. Use of consultation rooms.	Privacy and confidentiality for young people.
"I think it's just literally people knowing that they can come to us to get the chlamydia testing kit and having awareness that it actually is a problem at the moment" Female pharmacist provider.	Raising awareness about prevalence of chlamydia and pharmacy testing.	Advertising chlamydia testing. Educating about chlamydia.	Information about chlamydia testing for young people.

Throughout each step of the analysis, I constantly moved back and forward between the coded extracts and the entire data set, following what Braun and Clarke defines as a *recursive* rather than linear process to the analysis (2006). Furthermore, the data was examined for comparisons across different demographic values, or *attributes,* through generating queries and comparison diagrams on NVivo.

After closely analysing and identifying themes within the study participant groups, the themes were compared between the groups to explore similarities and differences in views. A systematic, repeated analysis approach was applied as the groups were often asked different questions. In particular, I analysed what young people, and pharmacists and contract managers, perceived about a certain theme and what themes appeared in one participant group but not another. As a result of the analysis, it was identified that, at times, contract managers, pharmacists, and young people shared the same or similar codes, but the context surrounding the code differed. As an example, where the code *hesitant about pharmacy notifying partner(s) for chlamydia treatment* was shared, most young people perceived that the sexual partner would feel uncomfortable if notified by the pharmacist to attend for treatment. Conversely, most pharmacists perceived themselves to feel uncomfortable and that, strategically, this method would be difficult to achieve. Analysing the contextual differences, and indeed similarities, across the study participant groups led to a thorough interpretation of the findings.

Applying the theoretical models to the results

The themes generated from the data provided an in-depth understanding of the factors that influence pharmacy chlamydia testing. The HBM and NPT model were also applied to the results of the data to situate the analytic findings, to understand how young people may engage in pharmacy chlamydia testing and how pharmacists and contract managers can integrate testing further within pharmacy practice.

The results from analysis of the data were aligned to the constructs of the models. Results that could not be easily accommodated within the model constructs were noted, then further analysed to assess whether they comprised external factors that may influence testing. This process of alignment was shared and discussed with the supervisory team which Tavory and Timmermans (2012, p.179) report "stimulates the articulation and refinement of theoretical constructs."

It should be noted that each NPT construct is comprised of four components which represent the work processes involved within that construct (May and Finch 2009). These are defined in Appendix 10. For further theoretical support, I chose to assign the results from pharmacists and contract managers to the *components* of the model; this would facilitate greater interpretation of pharmacists' and contract managers' accounts on the work processes involved in pharmacy chlamydia testing, and potential gaps to these work processes.

When applying the HBM to the results of young people, common themes were analysed across the constructs to explore whether there may be plausible relationships between the core beliefs in engaging in pharmacy chlamydia testing. Whilst the associations were not validly measured due to the nature of the study, they highlighted the probable interlinking factors involved with chlamydia testing.

3.10: Reflexivity – Presentation of the self

Prior to, and during the interviews with participants, I continually reflected on my role as both a researcher and practising pharmacist and the potential impact of these dual identities in the data collection, and indeed interpretation. Reflexivity was crucial to turning my "lens back onto oneself to recognise and take responsibility for one's own situatedness within the research and the effect that it may have on the setting and people being studied" (Berger 2015, p.220).

I carefully considered how I would present myself to the participants. This was a challenging task, as assigning either a pharmacist-researcher or researcher-only role both posed potential advantages and obstacles to ensuring robustness of the data. If I presented my pharmacist background to young people, they may want to distort their image to appear as sensible and healthy individuals, as they would feel "accountable to the researchers as a representative of the healthcare system" (Rathbone and Jamie 2016, p.6). In addition, a pharmacist-researcher role might direct the interview as a type of clinical consultation with participants, particularly young people, akin to my practice as a pharmacist. This may contribute to participants modifying their perspectives (Jamie and Rathbone 2021). Contrarily, some young people may be more trusting of a clinical researcher, encouraging discussions around sensitive issues including sexual health (McNair *et al.* 2008).

Presenting more of an *insider* role when interviewing pharmacists and contract managers may be beneficial; I would share some understanding of the pharmacy environment and services delivered (McEvoy 2001), and could therefore provide a deep interpretation of clinicians' perceptions of chlamydia testing. Concurrently, it is vital that the researcher's experiences and feelings are set aside, to conduct the interview and interpret the data through a fresh lens (McNair *et al.* 2008; Hammersley and Atkinson 2019a).

Presenting as a researcher-only to the study participant groups may reduce the risk of influencing participants' accounts. However, Rathbone and Jamie (2016, p.6) argue that "*suppression*" of clinical identity can prevent the researcher from providing relevant information or advice to participants during interviews about, in this case, chlamydia and testing and treatment if asked.

Lastly, I considered whether to assign a pharmacist-researcher role to one participant group yet a researcher-only role to another, to facilitate a collective understanding of participants' experiences and perceptions. However, it was decided to maintain one identity throughout, to ensure that researcher involvement in the dialogue remained the same, facilitating interpretation and credibility of the study findings.

On weighing the pros and cons of the dual identities in relation to reflexivity, I chose to emphasise my role as a researcher and thus, was mainly an outsider to the study participant groups. As such, I was mindful both when preparing the interview schedule and collecting the data not to approach the interviews as consultations. The term

emphasise is used as some participants were intrigued to know why I chose to focus the study on maximising pharmacy chlamydia testing. To support the rationale for conducting the study, I stated my pharmacy background yet highlighted my role as a researcher, in exploring *how* to increase service provision. Of note here, a few participants asked me questions about chlamydia and treatment during the interviews, and I briefly responded. To which, the participants provided further insight, and the flow of the interview was maintained. On one occasion, a pharmacist participant suggested a method of promoting testing delivery and assumed that I understood the dispensing process involved. The dialogue to this is presented in **Table 11** together with a question asked by a young male participant regarding chlamydia. Acknowledging such exchanges at the end of each interview through writing fieldnotes was crucial and formed part of the frequent reflexive practice.

Table 11 Extracts from interviews with a young man and female pharmacist in assessing reflexivity

Extract from a young man, aged 19.	***Respondent*** *(…)..But, other than that I don't really know much… I know that it's [chlamydia], I do know that it's a very popular disease… err… disease. Would you class it as a disease?* ***Interviewer*** *Some do, some do yes.* ***Respondent*** *Well, I know it's very popular and it can spread quite a lot. Like, even when I was a child…(…)*
Extract from a female pharmacist	***Respondent*** *You know how you're dispensing, you've got, like, the stickers if they need a review maybe a sticker that could say, like, 'sexual health intervention' or something… and, maybe you could include a pack with them as well.*

3.11: Summary

This chapter outlined the research aim, objectives and questions, and the methodological approach applied to answer the questions. In respect of this, the qualitative data collection method used to understand the perceptions of young people, pharmacists and contract managers was reported. Finally, the approach used to abductively analyse the data to generate themes, and the application of theoretical models to amplify the interpretation of the factors that influence pharmacy chlamydia testing were described. The results from analysis of the data are reported in the following two chapters.

Chapter 4: Results from interviews with young people

4.1: Introduction

This chapter firstly outlines the demographic details of the young people interviewed in the study, then reports on the results of analysis drawn from the interviews. The results are presented under each construct of the HBM with the associated themes generated from the analysis. The chapter closes by summarising the main results from interviews with young people.

4.2: Demographic details of young people interviewed

A total of 26 young people were interviewed for this study. All the interviews were audio-recorded and lasted between 13-32 minutes. **Table 12** reports the demographics of these young people and also indicates the corresponding participant identification numbers applied in the reporting of the data from interviews. Participants within this sample who received a pharmacy sexual health service or supply are listed in **Table 13.**

The tables illustrate that 16 males and 10 females were interviewed with ages ranging from 16-23. From the total number of participants, 16 had never been tested for chlamydia, eight were tested in settings other than pharmacies, three obtained a pharmacy chlamydia testing kit and one declined the pharmacy kit. Most young people who were tested for chlamydia attended a sexual health clinic.

Table 13 illustrates that from the pharmacy, five young people received either a condom supply, pregnancy test, regular contraceptive pill or EHC. Two of these five participants were also offered a chlamydia test by the pharmacist.

Young people were recruited from areas of varying socioeconomic profiles. On calculating the deprivation quintile for each youth group location with reference to IMD (2015): 15 participants were from areas in the most deprived 20% in England (quintile 1); seven were from areas in the most deprived 20-40% in England (quintile 2); and, four from areas in the least deprived 20-40% (quintile 4). This demographic was not included in **Table 12** to reduce the number of indirect identifiers present, preserving participants' anonymity (Tucker *et al.* 2016).

Table 12 Demographic details of young people interviewed in the study

	Sex (Male = M, Female = F)	**Age**	**Tested for chlamydia?** (Yes = Y, No = N)	**Setting tested/kit obtained**
YP01	M	16	N	-
YP02	M	18	N	-
YP03	F	18	N	-
YP04	F	22	Y	Sexual health clinic
YP05	M	19	Y	Sexual health clinic
YP06	M	19	N	-
YP07	F	18	Y	Pharmacy
YP08	F	18	N	-
YP09	M	18	N	-
YP10	M	23	Y	College
YP11	F	17	N	-
YP12	M	21	Y	Sexual health clinic
YP13	M	18	Y	GP practice
YP14	F	19	Y	Sexual health clinic
YP15	F	18	N	-
YP16	F	18	N	-
YP17	M	21	Y	Sexual health clinic, pharmacy, college
YP18	M	22	N	-
YP19	M	19	N	-
YP20	M	19	Y	Sexual health clinic
YP21	F	20	N	-
YP22	M	16	N	-
YP23	M	17	Y	Sexual health clinic
YP24	M	16	N	-
YP25	M	17	N	-
YP26	F	22	N	Pharmacy

Table 13 Participants from the main sample of young people who received a pharmacy sexual health service or supply

	Pharmacy sexual health service/supply	Pharmacy chlamydia testing kit offered/requested?
YP07	Chlamydia testing kit	Requested
YP09	Condom supply	No
YP11	Pregnancy test	No
YP14	Emergency hormonal contraception	Offered but declined
YP17	Chlamydia testing kit	Obtained from pharmacy display
YP21	Regular contraceptive pill	No
YP26	Emergency hormonal contraception	Accepted but not completed

4.3: The themes generated from analysis of the interview data located within constructs of the Health Belief Model

The following eight themes were identified in the data: transmission of chlamydia; worry about chlamydia; accessibility of pharmacies; privacy and confidentiality for young people; requesting and completing the test; information about chlamydia testing for young people; personal relationships; and familiarity of the healthcare professional. Their location within constructs of the HBM are listed in **Table 14**. Analysis of the interview data revealed that young people had contradictory perceptions on the benefits and barriers to accessing a pharmacy for chlamydia testing, Therefore, **Table 14** presents these results under the combined construct *Perceived benefits and barriers to accessing pharmacy chlamydia testing* to highlight their opposing views. Where results of analysis were not easily located within the model constructs, these were assigned as *Other factors* that may influence the likelihood of engaging in chlamydia testing. The sub-sections that follow report on the themes generated from analysis of the data under each construct of the model.

Table 14 Location of the themes generated from analysis of the interview data from young people within constructs of the Health Belief Model

In the table, themes listed under the title *Other factors* were not easily located within the HBM model constructs but may influence testing for chlamydia in pharmacies.

Health belief model construct	**Associated theme**
Perceived susceptibility to chlamydia	Transmission of chlamydia
Perceived severity of chlamydia	Worry about chlamydia
Perceived benefits and barriers to accessing pharmacy chlamydia testing	Accessibility of pharmacies Privacy and confidentiality for young people
Self-efficacy to test for chlamydia	Requesting and completing the test
Cues to action	Information about chlamydia testing for young people
Other factors	Worry about chlamydia Personal relationships Familiarity of the healthcare professional

4.3.1: Perceived susceptibility to chlamydia

The HBM construct *Perceived susceptibility to chlamydia* encompassed the theme *Transmission of chlamydia* and its subthemes *Personal history, Risky sexual behaviour* and *Prevalence.*

Transmission of chlamydia

Personal history

Around a quarter of participants, including both those who were tested for chlamydia and also those who were not, reported previous experiences of being at risk of an STI. A few of these participants associated the risk with feeling worried or scared, as expressed in the following quote:

> *"Ahh, it's just because I got a scare off when I was with someone. Aha, I thought I had something and then I went and got it checked out I found out I didn't have it"* YP17, male, L64-66.

The above participant and a few other males reported going for chlamydia testing after

finding out that a sexual partner was positive for the infection. Some males also said that they tested *"for a laugh"* (YP20), or to make sure they did not have it, and a few received an incentive at their college for doing a chlamydia test on-site which they said they completed with their friends. Several older female participants said that they often tested for chlamydia or for multiple STIs as a full screen at the sexual health clinic. The apparent difference in health-seeking behaviour between males and females here will be discussed in Section 6.5.2.

Some participants who were not tested disclosed being at risk of chlamydia but not knowing or thinking they had it as described in the following quote:

> *"It's a concern I've had before where I've… erm… had sex with someone and, like, I didn't…not like I thought 'Oh I may have chlamydia, or I might have chlamydia,' I just thought that if I did I wouldn't know what the symptoms were. I wouldn't know if I actually had it"* YP09, male, L40-44.

One female participant reported that she needed to get tested for STIs because she *"used to sleep around a lot"* but when asked if she was then tested, she said no (YP11).

Risky sexual behaviour

Around a quarter of participants described the importance of using contraception during sexual intercourse to avoid the risk of an STI. In addition, a few females said that they thought that young people knew to test for an STI if they had intercourse as described here:

> *"I think when, like, most people have sexual intercourse now they know to go straight to the, like, one-to-one clinic. Like, most people know to get tested after. Especially, if they haven't, like, used protection"* YP14, female, L5-8.

The above participant reported that she frequently tested for STIs at the sexual health clinic. Another female participant explained that it was important to have a supply of condoms available in case a sexual partner did not have one, to reduce the risk of pregnancy and STI-transmission:

> *"If, like, a male, or anyone doesn't bring one [a condom] at least you've got some and you can still have, like, safe protection against pregnancy and not worry about catching anything"* YP15, female, L63-66.

When the above participant was asked her views about the EHC, she said it was a very

helpful service. Then, when asked if she would accept a chlamydia kit when offered with the EHC she replied that she would. She explained that the reason for this was because *"the pill"* did not protect against STIs. However, when other participants were asked if they would accept a chlamydia test during a supply of the EHC or condoms, around three-quarters said they were either unsure or would not want one. One participant who did not want one explained that, *"If I was just, like, going in for the [condom] supplies… so obviously, if I wasn't going in there for that type of reason [testing], then obviously I wouldn't accept it, like"* (YP20).

When participants were asked how they thought chlamydia was transmitted, most reported that this was through unprotected sexual intercourse. Here, many younger participants used the term *"protection"* and older participants said *"condom"* in their responses. Some explained that the risk of transmission was greater if having unprotected sexual intercourse with multiple sexual partners or with a partner with whom they were unfamiliar and hence whose STI status they were unsure about. This was described through a scenario by one male:

> *"Say, if you go on a night out or that kind of thing and… err… you're hooking up with someone then you don't really know exactly what you're getting yourself into. Maybe because you don't know this person. You don't know what they're actually like. Err… and I know there's concern around especially in my experience and experience of friends…erm… about when people have sex and they're not using condoms"* YP09, male, L12-19.

The above participant also reported that his female friends disclosed to him that they did not use condoms during sexual intercourse because their boyfriends felt they were uncomfortable. He added that, as a result, his female friends were worried about chlamydia transmission. Another participant felt that younger teenagers, whom he referred to as *"children,"* were at risk of chlamydia because he said they were not using precautions during sexual intercourse:

> *There's, like…children nowadays, just, it's a really young age isn't it and they're not taking any precautions with it. So, I feel like the message isn't sent out properly about how lethal they [STIs] could be"* YP12, male, L5-8.

In his response, the above participant described STIs as *"lethal."* He added that although STIs were a *"big problem,"* they were not perceived so by young people. The discourse of maturity here appeared important in the perception of the risk of chlamydia; this will be discussed further in Section 6.5.2.

All participants who were asked their views of the possibility of being tested for chlamydia and other STIs, such as gonorrhoea, at the same time replied that this would be helpful. They said that they thought that this method would further reduce the transmission of multiple STIs than testing for one STI, as described by the following participant:

> *"If someone's been tested [for chlamydia] they may think, 'Ah, yeah, I'm clean, I haven't got it'… and then they end up getting something else and then they carry on doing what they're doing… and just giving it to other people and so on"* YP24, male, L81-85.

Prevalence

Around a quarter of the sample reported that chlamydia was prevalent, or *"common,"* which they said was a worry for them and young people. Some of these participants within Teesside said that they thought that chlamydia was particularly prevalent in their area:

> *I just think it's a lot more common now. Do you know what I mean? So, everybody's worried about STIs. Like, I know chlamydia is common. So, that's worrying"* YP14, female, L14-17.

One participant felt that more education was required on to how to prevent chlamydia from spreading to reduce this worry. Another said that he wanted to know the prevalence rate per age. A few participants explained that whilst chlamydia was very common, it remained an embarrassing subject and so they said they would not talk about it with others.

4.3.2: Perceived severity of chlamydia

The HBM construct *Perceived severity of chlamydia* encompassed the theme *Worry about chlamydia* and its corresponding subthemes of: an unknown infection; an asymptomatic infection; an incurable infection; legal repercussions; health risks of chlamydia; and, no concerns. Another subtheme, *Consequence of others finding out* was not easily located to the construct which focuses on the perceived health risks rather than social risks of a condition (Rosenstock *et al.* 1988). Therefore, it was an external influential factor to the HBM.

Worry about chlamydia

Young people said that they were worried about chlamydia. The concerns followed a similar pattern that was shared across a number of participants and are reported under the subthemes listed above. The relationship of these subthemes with the main theme *Worry about chlamydia*, and with one another is illustrated in **Figure 10**. In the figure, the frequency with which an issue was mentioned is reflected in the size of the circle. The most frequently cited worries were about the health risks of chlamydia, and about others finding out that a young person had chlamydia, with the latter represented as the largest circle in the figure. Some participants reported on several worries within each interview. This is illustrated as overlap of circles within the figure. Where some young people said that they were not concerned about chlamydia, *No concerns* is illustrated as a separate subtheme. The subthemes are reported.

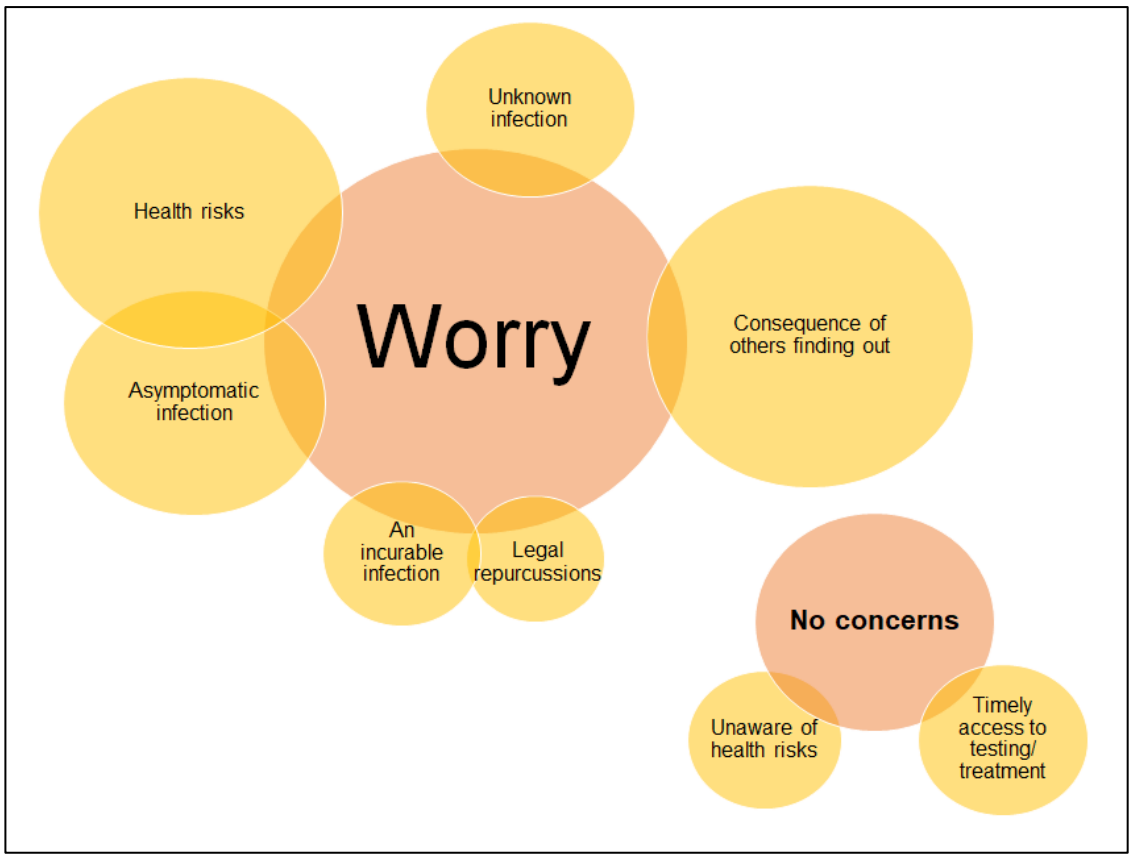


Figure 10 The association of the subthemes with the theme of *Worry about chlamydia*, and with one another

Worry about an unknown infection

Around a quarter of the sample said that they thought that young people did not know about chlamydia and its risks which they said caused worry about the infection. In addition, one of these participants said that young people did not test for chlamydia in

case they had it and would not know what to do. He also reported an added concern that he thought the infection was increasing, as described in the following quote:

> *"You know, everyone's having sex nowadays… and then, people don't really get checked or they lie about getting checked. So, it's kind of, like, that type of thought of being scared of getting it [STI]… and then obviously you know when they get it, they don't know what to do, because we don't really get taught a lot in school slash college about, you know, where to go, how to do it, and all that type of stuff"* YP13, male, L4-11.

Another participant described chlamydia as *"alien"* to him because he had little knowledge about it which he said led to a feeling of uncertainty (YP18). A few participants reported that with little or no information provided about chlamydia, young people then conversed about chlamydia amongst themselves through everyday talk which generated worry about the infection.

Consequence of others finding out that a young person had chlamydia

Some young people reported that they were worried in case of family disapproval or concern on finding out they had chlamydia. These participants said that they preferred discreet testing for chlamydia to reduce this risk.

Around three-quarters of the sample said that both they and other young people were worried if peers found out they had chlamydia, in case peers made negative comments, as described in the following quotes:

> *"If you have sex you might get called dirty by people if you catch something... and then you might get embarrassed… They might get embarrassed, and then people might, like, take the mick out of them. So, that might, like, degrade them and everything, like, you'll feel bad… and might get worried"* YP11, female, L5-10.

And,

> *"If I had it [chlamydia], I wouldn't want people to know because it would be embarrassing, really embarrassing. Especially if it was to get out, like, for young people, if they've got a big, I'd say a big following. Like… err… there is a bit of status around, I'd say and I think if it went around everyone would be like 'Ha, you're whatever, chlamydia this, chlamydia that…oh you're that guy that got chlamydia, aren't ya.' I just think it would be a bit sad if people were to spread it around"* YP06, male, L327-335.

The significance of the nuanced differences in concerns reported by the female and male participants above will be explored in the discussion of the findings in Section 6.5.2.

More than half of participants reported that they would feel embarrassed in case they were called a *"slut"* and *"slag",* or *"dirty"* and *"unclean"* by peers. Therefore, a few participants said they would not talk to their peers about chlamydia to avoid this risk. Some participants from a relatively socioeconomically deprived area of Teesside felt that the negative social risk of chlamydia was a particular concern among young people in their area.

However, just under a quarter of females said that they thought they would feel comfortable to talk to close friends about places to attend for chlamydia testing. These participants believed that the learning, particularly from someone with experience of testing, was helpful due to a general lack of education on the services available as reported here:

> *"If you tell your friends about places that do chlamydia testing they can-… it can be quite useful in case they haven't got any knowledge about chlamydia testing and… it's not educated enough about the places that do the testing"* YP08, female, L111-114.

Worry about an asymptomatic infection and the health risks of chlamydia

Many participants said that they were unsure what the symptoms of chlamydia were or its potential complications if left untreated. However, around a quarter of these participants said that its effects on the body was a worry. One participant who was never tested said that she thought that symptoms were like *"Having the flu but a bit severe. Like, long lasting"* (YP15). Some young people who were tested for chlamydia perceived that symptoms included that *"it hurts when you wee and that,"* (YP05), *"guys can get a rash"* (YP17) and that symptoms were *"least common in women"* (YP04).

Only three participants reported that chlamydia increased the risk of infertility. Furthermore, some participants said that chlamydia and STIs were a worry because they might have no symptoms, as described here:

> *"Yeah, there are worries because some [STIs] are not as noticeable as others. Are they? Like, some you'll be able to notice if you've got it but, like, some are quite discreet like chlamydia… and, like, you should really… I think you should really get checked out every time you sleep with someone. Especially when you don't use protection"* YP16, female, L16-21.

As a result of the potential asymptomatic nature of chlamydia, the above participant then reported that young people should be tested for STIs, particularly after unprotected sex.

Worry about having an incurable infection and potential legal repercussions

Some participants who were not tested for chlamydia said that young people were worried about whether STIs can be treated or not. A few of these participants highlighted the importance of notifying sexual partners if a person had an STI. One reported that if the partner was not notified, the outcome was *"a manslaughter charge if you don't make them aware. So, it's a very important deal that you need to tell them and obviously a lot of people are scared"* (YP06)[1]; for this participant, the legal implication of STIs was a worry.

No concerns about chlamydia

Around a quarter of the sample said that they had no concerns about chlamydia or its risks because they could easily and quickly attend a healthcare setting for testing and treatment before the infection would progress. One female participant explained that in case of any concern, she would read about chlamydia on the internet for reassurance. Some male participants reported that young people would laugh about chlamydia and thought the name was funny, and this seemed to be related to a belief about its lack of seriousness as an infection. One of these participants said that this was particularly the case in his area, as described in the following quote:

> *"I think it's [chlamydia] more… sort of… it's a funny… it's a funny word really to young people. Especially in [location name]. Erm… they see it more as a… as a joke. I don't think they understand the severity of… of… of an actual STI"* YP10, male, L5-8.

Another participant reported receiving information on sexual health, when younger, and at school but did not pay full attention to the subject because he said it was not until a

[1] Of note, this participant may be referring to a highly publicised court case in 2017, one year prior to the data collection. The case involved a man who was convicted for deliberately trying to infect his sexual partners with HIV - BBC News (2017) *Daryll Rowe guilty of infecting men with HIV* [press release], available: https://www.bbc.co.uk/news/uk-england-sussex-41928938 [accessed 11/03/2021.].

young person started attending social events and was sexually active that they were aware about chlamydia and its risks. He said:

> *"You need experience and I didn't need to be taught it. They're [young people] just getting taught it, you know what I mean…they're not going… like, probably, like, ten percent out of that class is probably going out and drinking, you know what I mean. The rest of them aren't…you know what I'm saying. Obviously, they shouldn't be b'cos they're still young. I'm just saying since they teach sex lessons so young they don't understand it until they start doing physical things"* YP05, male, L24-32.

4.3.3: Perceived benefits and barriers to accessing pharmacy chlamydia testing

The HBM construct *Perceived benefits and barriers to accessing testing* was aligned to the theme *Accessibility of pharmacies*, and the theme *Privacy and confidentiality for young people* with its corresponding subthemes *Pharmacy setting* and *Testing at home*.

Accessibility of pharmacies

When asked whether they knew if there was a pharmacy local to them, over three-quarters of participants responded that they lived within a walking distance of a pharmacy which some said was convenient for them. A few reported that it was conveniently located within a shopping centre, near to an underground station or next to a sexual health clinic. Most participants said that they occasionally used their local pharmacy to collect prescriptions or to buy over-the-counter medication. Some of these participants described the service they received as good and said that they felt that the pharmacy staff were helpful. When asked about the opening times, around a third of participants said that they knew their local pharmacy was open until late at night on weekdays and was open on the weekend, as described here:

> *"They [pharmacies] do, like, late erm…. I think it's a Wednesday they close later on. So, obviously if it's a younger person who could go after school maybes, or if you're at work and you're working late you can go. Or you could go before school or before work because they're open quite early. So, as I say it's back to the convenience thing, isn't it?"* YP04, female, LL87-92.

The above participant also said that they thought it was convenient that an appointment was not necessary to see the pharmacist. Another explained that his local pharmacy was open until late so he would attend at night after work. A few also said that it was

helpful that some pharmacies were open for twenty-four hours a day. However, around a quarter of participants also reported that their local pharmacy was open until 5pm which one felt may not be suitable if young people were to request a chlamydia testing kit in case it was busy as described in the following quote:

> *"If it [pharmacy] was, say to close at, I don't know, at nine, people might go there more often because they'd think 'Ah, there's not many people going to be there, I could probably go there and quickly get one, get tested' whatever, and then they might feel more at ease for going at them times rather than going for, like, in the middle of, like, dinner time where everyone's just coming out the doctors"* YP06, male, LL144-150.

A few younger participants also described pharmacies as crowded places which either they said did not make them private settings to access a healthcare service, or that there was a long waiting time to receive a prescription medicine.

Privacy and confidentiality for young people

Pharmacy setting

Around a quarter of participants reported that they were aware that pharmacies had consultation rooms to speak privately with the pharmacist. A few of these participants felt that knowledge that these rooms were available would make them feel comfortable when requesting a testing kit. Female participants who were counselled by the pharmacist on the EHC and regular contraceptive pill said that this took place in the consultation room which they said they felt made the service more discreet. In contrast, there were some participants who did not know about this room; most believed that pharmacies needed a private area so that support staff and customers would not hear their conversation with the pharmacist, as described here:

> *"If there was, like, a separate, like, room that you could just walk in. Like, it would say on the side, like, door, if it was free. Walk in and it would just be easier than over the counter (…) But, then if you tell that person at the till, there's always, like, two, three people there that can [sic]….there's two people at the back that are putting the medicines in the bags…or those three people know that I've got that problem….and then, the doctor, that's just one person"* YP24, male, L135-143.

A few participants reported that they would only ask for a kit over the counter if no one or very few people were in the pharmacy. Some who visited their GP for general and sexual health services and the clinic described these settings as private and

confidential where they were seen *"behind closed doors"* (YP05). Two participants who had not been tested said that they would access the GP surgery giving as their reason that the consultation would be discreet. This key difference in perception about pharmacy versus GP settings for sexual health services will be discussed in the research, in Section 6.5.2.

Some males said that they thought they may be seen and judged by their peers if they entered the pharmacy for a sexual health service and chlamydia testing. Then, when asked if they would discuss chlamydia testing with their friends, a few of these males replied that they would be too embarrassed to do so. The following quote describes one such participant's concern on being seen by his peers:

> *"If I go to a pharmacy, it's like 'What are you going in there for?' Someone might see me going in and question why, and that. Obviously, if you've got, like, chlamydia and that, you don't want to tell everyone really, do you? You might feel insecure about it"* YP22, male, L91-95.

In contrast, a few older male participants who were tested for chlamydia said they had no issues speaking to their friends about testing.

Around a quarter of older participants suggested how the testing service could be made more private for young people; one female suggested that young people could write a request for a testing kit on a form then pass it to the pharmacist as described here:

> *"You could do, like, a thing where you've got, like, a form and you, like, pick it up and you can write down and hand it over rather than, like, verbally say it so that people could hear you. So just write on the form or tick a box and say, like, yeah this is what I want"* YP04, female, L227-231.

Another male participant felt it was important for staff to mention the availability of the consultation room to a young person as an option if they preferred:

> *"I feel like there should be a procedure where no matter who comes in because of, you know, society's views and you know, I can't imagine there's many people doing it… going to get checked or, you know, then just a simple…'We have a private room,'…you know, 'We have a [sic]…would you like to have a conversation in there?' I feel like that would put every young person majorly at ease with that approach really"* YP10, male, L191-198.

Testing at home

There were mixed views on taking the testing kit home. Around a third of participants who had never been tested reported that they would obtain a pharmacy testing kit because they said it would be comfortable, easy and private to complete at home in their own time. One of these participants felt the kit could be easily concealed when taking it home:

> *"It's [the kit] confidential. It's something that… it's a little brown bag. You can put the little brown bag in your pocket. It's easy to conceal. Err, and when you go home you can do it on your own in private"* YP18, male, L138-141.

A few of those with experience of taking the pharmacy testing kit home reported that it was easy and hassle-free as they said that they could use the toilet in their own time without feeling rushed, as described here:

> *"Like, it's private at home to do [the test]. It's just you doing it… it's not like complicated. If you do it in the pharmacy it's, like, pressure… peer pressure. Like, you're waiting… needing to go to the toilet or something. When you go home, it's like more relaxed and that and you can do it whenever… there's no hassle. No, like, filling in forms and that"* YP17, male, L117-121.

Some older participants felt that living alone would make the process even more private for them. In contrast, a few younger participants were unsure about testing at home. Several of these participants were concerned in case a family member found the kit and made pejorative judgements on why they wanted to be tested. A few suggested that if it were available, they would complete the urine sample at the pharmacy to reduce this risk.

Around a quarter of the sample were concerned that they might complete the test incorrectly at home rather than testing at the healthcare setting. One participant said that, as long as it could be done confidentially, he would like the pharmacist to help with completing the details on the front of the sample form. A few female participants also felt that on taking the kit home they might have second thoughts and not go through with the testing, as opposed to being tested on-site. This is described in the following quote:

> *"I feel like if I took one [testing kit] home, I'd, I'd probably not go through with it. I'd probably just leave it there. If I went to the pharmacy and got it done, I'd just be like, 'I'm here now, I may as well get it done' "* YP15, female, L104-107.

A quarter of participants who were tested in settings other than pharmacies felt that on-site testing would be quicker and easier than taking the kit home. One of these participants said that he thought that *'the whole [pharmacy] process, it feels like a longer process considering, like, an STI is something serious to take"* (YP12).

4.3.4: Self-efficacy to test for chlamydia

The HBM construct *Self-efficacy to test for chlamydia* encompassed the theme *Requesting and completing the test* with its corresponding subthemes *Clinical expertise of the healthcare professional* and *Communicating with the healthcare professional.*

Requesting and completing the test

Clinical expertise of the healthcare professional

When asked their views about being counselled on the chlamydia testing kit by the pharmacist, most participants said that they thought it was important to speak with the pharmacist about sexual health issues and the testing kit. Three participants referred to pharmacists as doctors and on one occasion *"consultants"* (YP06). The following quote describes how one participant felt that pharmacist advice on how to use the testing kit would help young people to complete it correctly:

> *"Most people would get one [testing kit] and be like 'Okay, I don't know what to do now.' So, I think that actually being explained how to use it, yes. Erm… I can say as well b'cos, at my college (…) they bring like a fresher's fayre in which it always has a stand of free chlamydia testing, contraception and all that info… erm… most likely people will be given one [testing kit] and not explained how to use it because it's not, the people doing that stall is not [sic] health professionals, they're just teachers who've been given a job"* YP02, male, LL101-110.

The participant above said that he thought that pharmacists and HCPs were more suited to provide sexual health services than teachers who he felt might not advise on the testing kit. In contrast, a few participants believed that pharmacists were not specialised enough to provide chlamydia testing. One of these participants explained that he chose to attend a sexual health clinic for chlamydia testing because he said that he thought the staff there were more skilled than pharmacists:

> *"Like, I knew pharmacies did testing, I remember being told about it from school and my support worker, youth worker as well… she said about it. But, I just felt that the hospital knew more about it... they were more trained and that. Especially, the GUM [genitourinary medicine] clinic…"* YP23, male, L88-92.

Another participant reported that he would see the doctor if he felt something was wrong, but said he would see the pharmacist for "*very simple things*":

> *"It's [GP surgery] generally where you would go if you think something's wrong. Like, I've always been taught if you feel like something's, like, wrong, you'd go to the doctors for it"* YP06, male, L230-232.

When asked their thoughts about self-posting the urine sample to the laboratory for diagnosis, around a third of the sample said that they thought that pharmacists should do this on their behalf. These participants said that they were concerned that they might post it incorrectly or it might get lost in the post and, as a result, they reported that they might not receive the outcome as opposed to the pharmacist sending it to the laboratory. This is described by the following participant:

> *"Err… I mean… having to post it [urine sample] to, like, somewhere… I don't know…. it's just not done by a professional. It's just through the post… like, there's loads of-… when you post stuff it's not always guaranteed to, like, be sent to the other side. Like, things get lost or tampered with or stolen."* YP08, female, L83-87.

Communicating with the healthcare professional

All participants who attended a pharmacy for a sexual health service reported that the pharmacist and support staff communicated clearly to them and were supportive, as described by the following participant who received the EHC:

> *"Yeah, the staff… they're lovely over there [pharmacy], yeah. They, like, took us into a side room… like a consultation room… and explained how to take it and that. So, yeah, it was fine… because they went through it clearly and that"* YP14, female, L46-49.

The above participant said that when the pharmacist offered her a chlamydia testing kit with the EHC, she declined. She reported that she did not need one at the time and added that she tended to have a full STI screen at sexual health clinic.

Participants who obtained condom supplies, a pregnancy test and the regular contraceptive pill said that they did not recall the pharmacist or support staff asking if they would also like a chlamydia testing kit. Furthermore, most participants who received a testing kit either had little or no communication from staff on how to use it. However, one of these participants said that he followed the information leaflet attached to the kit and described the whole process as quick and easy because he *"just walked in and asked for the chlamydia test… and they just get one, and hand it to you. That's pretty much it"* (YP17). When asked if they would return to the pharmacy for the same sexual health service, over three-quarters of these participants agreed that they would because they said that they felt they were provided with the service they required and that the staff *"were friendly there, friendly and helpful"* (YP26).

All participants who were asked how they would feel about speaking to a pharmacist or support staff of the opposite sex answered that they had no issues with this, as shown in the following quotes by one female and one male:

> *"Personally, I wouldn't be bothered about it. I think again, it depends entirely on the person"* YP04, female, L125-126.

And,

> "*Well, it's like, getting like, treatment from a female nurse. Nah, don't really care. Don't mind. As long as they've [pharmacist] got proper knowledge of… erm… like, what it is and treatment and that then that's fine"* YP17, male, L88-91.

Some participants, including those with a history of being tested for chlamydia and those who were not, suggested ways that pharmacists could communicate better with young people. They reported that the pharmacist should be welcoming and provide information in a friendly manner to not *"make it feel like there's a massive elephant in the room"* (YP05). One of these participants said that he thought that pharmacists should offer young people options on how they would like to complete the test, focusing on testing in the pharmacy or at home, to make people more comfortable:

> *"So, I think once again it's about the conversation with that specific person wanting the service. I think they should have the option…'Would you like to do it [the test] now, or would you like to take it home?' Erm… because then, you know, you're eliminating any barriers to not doing the test: 'If you're not comfortable doing it at home then we can do it right now… if you're not comfortable doing it now, you can do it at home in your own time, then bring it back"* YP10, male, L225-232.

Another participant also reported that it was important that staff had experience with speaking to young people and that this would reduce young people's concerns about being judged:

> *"Perhaps, like, the people behind the counter also having the experience so you don't feel like they're going to judge you or, erm….and just them being welcoming and, like, making you feel comfortable. Like, obviously if they're people who have, like, experience and you'd feel more comfortable naturally"* YP16, female, L144-149.

A few participants felt that non-verbal communication from pharmacists was important. They described that some facial reactions from the pharmacist on discussing a sexual health matter may cause young people to feel judged, not listened to or not taken seriously, as described in the following quote:

> *"If a young person is going to sit in a room with them and say, 'Ah, I've done this and this,' and they're not gonna go 'Ahh' [eyes open wide] and, like, judge them. They're gonna be like, 'Alright, okay, no bother, well what did you do blah blah,' and just have that conversation with them"* YP18, male, L74-79.

Around a quarter of participants reported they would feel judged by the pharmacist and support staff if they attended a pharmacy to request a sexual health service, which a few of these participants said would lead to embarrassment and a *"knock of confidence*" (YP08). This was the reason why one female participant said she would not go to her local pharmacy:

> *"If that were to happen to me I'd feel really embarrassed of being judged and… that's why I just wouldn't go [laughs]. Like, condoms and the pill, I just don't go at all"* YP08, female, L51-54.

A few older participants said that they would feel confident about accessing chlamydia testing at pharmacies or other settings but thought that some young people might not see the pharmacist or another HCP in case "*the staff came across as judgemental…because that's the last thing a person would want going in there, like. It can be difficult for them to go in and ask for that as it is"* (YP12).

The concern of judgement shared between several participants suggests this is a key barrier to accessing a pharmacy for testing; it will be explored in the discussion, in Sections 6.4.1 and 6.5.2.

4.3.5: Cues to action

The HBM construct *Cues to action* encompassed the theme *Information about chlamydia testing for young people.*

Information about chlamydia testing for young people

Most participants said that they knew about the pharmacy EHC and C-Card services, and some about pharmacy chlamydia testing. Around a third of these participants reported receiving information about the pharmacy services from pharmacy staff, a friend, at school, or from seeing advertisements in the pharmacy. A few participants in North Tyneside said that they thought the C-Card service was only available to school-aged children.

Around one-quarter of the sample recalled given very little information at school from teachers and health advisors about STIs and settings to attend for sexual health advice as described by one female below:

> *"Like, I've been through school, college, and I've got an apprenticeship and through them I've not really been really educated on them [STIs]"* YP08, female, L21-22.

The above participant then reported that she thought that representatives *"even going out to schools and showing them how to do the testing and stuff"* would increase testing in pharmacies and other settings (YP08).

Many participants said that they thought that young people were unaware about pharmacy chlamydia testing. From these participants, one felt that providing information about sexual health services and testing from pharmacies local to his school would raise awareness that they were available; and some said that they thought it would be helpful for pharmacists and other HCPs to attend educational settings to promote and explain the chlamydia testing service and offer advice, as described in the following quotes:

> *"Like, send a member of staff out, or two to go to, like, a college and, like, have a meeting during, like, assembly-time and put the point across that they've now got chlamydia testing there and treatment… and so, like, teenagers and young people know that they've got all the things they need for, like, chlamydia and that they can get tested there"* YP15, female, L147-153.

And,

> *"Go to schools and colleges, so that… so that… erm… people are aware about the symptoms and how and where to test. That's really, really important"* YP10, male, L279-281.

A few male participants who were unaware of pharmacy chlamydia testing, explained that the sexual health clinic was the main setting they would attend when they thought about STIs. One of these males said he was not sure how pharmacies could promote the service so that young people would consider going there too:

> *"Erm, just… when you think sex you think, err, STIs, you might go straight to a clinic. You wouldn't-… and I'm not quite sure what the pharmacy could put in place for them to make people aware that pharmacy is also a place where you can go for chlamydia screening tests and that"* YP09, male, L198-203.

Another male participant suggested that pharmacy staff could promote the service outside the pharmacy as part of a large-scale campaign. He believed this would reduce stigma about the testing process. Around a third of participants said that pharmacy testing could be promoted on social media platforms. They added that this would effectively reach more young people who frequently access the platforms, as described here:

> *"It's [chlamydia] a touchy subject, so you couldn't just, like, put it out to the full public. But, you want to be aiming, like, specific groups which it's most applicable to… Like, I'd say social media because they're aimed at younger people and it's the younger, like, new generation coming up that's using all the social media and stuff like that"* YP12, male, L135-141.

A few participants said that they thought that pharmacies should place posters on their windows to show they provide testing. Some of these participants explained that they frequently walked past pharmacies and would take notice of the posters. One participant said that posters stating that a pharmacy is a young people-friendly zone would also be helpful to welcome people in, as described in the following quote:

> *"You know, so they're [young people] aware that if they go in there, then they know they're not going to be judged or they're not going to be looked at or spoken to in a way where they're not really going to enjoy-… and it's going to set them back. Erm… I just feel like that would massively help"* YP10, male, L307-311.

4.3.6: Other factors

Three themes/subthemes generated from analysis of the interview data could not easily be located within the defined constructs of the HBM but were found to potentially influence testing. These were the themes *Familiarity of the healthcare professional*, *Personal relationships* and the subtheme *Consequence of others finding out*. In the first two themes, young people reported on their experiences of chlamydia testing in settings other than pharmacy, and their perceptions of peer support and potential addition of treatment and PN with pharmacy testing. As such, these topic areas were external to the constructs of the model which focussed on engagement with pharmacy chlamydia testing. Results from the subtheme *Consequence of others finding out* were reported earlier in sub-section 4.3.2.

Familiarity of the healthcare professional

Over half of participants who were tested for chlamydia reported that they attended a sexual health clinic, sometimes on more than one occasion. Very few said they attended a GP surgery, pharmacy, or service provided in a college. They said that they chose clinics and surgeries because they knew the HCPs and were aware of how the chlamydia service worked. They reported that this made them feel comfortable because it's the *"same place [clinic], as I've been before so I know what to expect"* (YP20). A few participants who had not been tested reported that they would access a GP surgery or the youth club for testing because they said that they knew the staff and *"get along with them"* (YP11).

When participants were asked their views in response to a statement about accessing the pharmacy for chlamydia treatment if positive for the infection, many favoured this option. Some females said that they would feel comfortable returning to speak to the same pharmacist who previously provided the testing kit. They felt that this was helpful because *"you don't have to go to two separate places and then two people, like…two places know about it, sort of thing. It's just one"* (YP16). Other females and many males said that they thought that returning to the same pharmacy for treatment would be quicker and easier than travelling to another setting and re-explaining why they were there, as described in the following quotes:

> *"If they [the pharmacy] can treat it and it's not a big hassle compared to going to this person or that person… 'Ah no, you have to go to the hospital.' It sort of… erm… instils that confidence in you that these resources are easily accessible I feel"* YP09, male, L180-183.

And,

> *"Speed and convenience. The fact that it's....okay. It's the fact that I've been there, 'Okay, thank you' and go back and get it. Done. Instead of going all about, and over the river. You just know it's in the same place. If it's local and it's convenient too...once you've found out if you have it, you can get it sorted, and get it treated"* YP02, male, L237-241.

Personal relationships

Chaperone for support

Some female participants said that they thought that it would be helpful to have a family member, friend or partner attend the pharmacy with them as a supportive chaperone. Those who had done so in the past said that it made them feel less awkward than attending alone. One participant said that bringing a chaperone would help her feel less nervous from "*having to be one-on-one with someone [pharmacist] and just having to explain, to express what your problems are"* (YP08). Another felt that it was important to bring a chaperone that she trusted and who was understanding.

In contrast, around half of young male participants who were asked if they would attend the pharmacy alone or with someone, replied that they would attend alone. A few of these participants said that they did not think it was appropriate to have a friend for support in case their friend told others in their network they were attending for testing.

One male participant who attended a sexual health clinic with his partner explained it was not for support, but to ensure they were both tested quickly:

> *"I went with my previous partner… erm… not for support or anything like that. Just because, you know, it's… it's quicker. You know what I mean? If you go there with someone who you think you've passed it on to it's quicker if yous' are both there (…) Might as well get the questions done both and get it over and done with"* YP05, male, L277-282.

Pharmacy-led partner notification for treatment

Most participants disagreed when presented with the statement that, with their consent, if they were positive for chlamydia the pharmacy would notify their sexual partner(s) to attend for treatment. These participants reported that it was their responsibility to notify their sexual partner if they had the infection rather than the pharmacist notify them on their behalf. This was described through a scenario by one participant:

> *"I'd prefer [to tell partner] it myself because, because, this is, like, let's say if you're the pharmacy and you ring up, like, this lass, and went 'Ah, we're sorry to inform you that [participant name] might have an STI from you'…she could go, like, fuming, or something….and say, like, 'Ahhhh' and ring me, like, and say 'Did you tell them?' and all that. So, that's why, like, it's best to just tell her myself"* YP01, male, L159-165.

Around a quarter of the sample said that they thought that the sexual partner would feel embarrassed and annoyed if the pharmacy notified them. As a result, a few of these participants said that they or a young person might lose their partner's trust.

A few participants also felt that pharmacy-led notification might increase the risk of more people in their network finding out about their diagnosis. One female explained that, on testing positive for chlamydia, the HCP did not keep her name confidential when contacting her previous sexual partner for treatment, when she had asked them to. As a result, she said she received negative comments on social media and phone calls from her previous partner. She added that she would not consent to partner notification from a healthcare setting in future. One male participant also described how his friends were mocked on social media when their sexual partners found out that they had chlamydia.

In contrast, only three participants said that they thought that sexual partners may take the treatment process more seriously if notified by the pharmacist. One female had a positive experience of partner notification at the clinic because she said that it avoided an uncomfortable conversation between her, and her partner as described here:

> *"It's not coming from me, do you know what I mean [laughs]. It would make me feel more comfortable than me telling them. Yeah, I've done that before… I filled in, like, a card, put some details on there and then it was sent to that person via text message… rather than, like, me sending it. It would have been uncomfortable for me, like, me telling them myself"* YP14, female, L137-143.

4.4: Summary

This chapter focussed on the accounts of young people about their perceptions of chlamydia, and pharmacy delivery of sexual health and chlamydia testing. The themes generated from analysis of the interviews appear to reflect that there are several contextual factors that may influence chlamydia testing.

In addition, the chapter reported on young people's suggestions to promote the testing service, with the aim of engaging with more people. Differences in views across demographic variables were identified during the analysis, mainly between males and females, which were reported here.

The findings from the results reported in this chapter and the comparison in views identified between young people, pharmacists and contract managers will be presented in Chapter 6: Discussion.

Chapter 5: Results from interviews with pharmacists and contract managers

5.1: Introduction

This chapter starts by outlining the demographic details of pharmacists interviewed in the study, then reports on the themes generated from analysis of interviews with pharmacists and contract managers under each construct of the NPT model. It closes by summarising the results from the interviews.

5.2: Demographic details of pharmacists interviewed

In this study, 22 pharmacists and two contract managers were interviewed in total. Interviews with pharmacist providers and contract managers lasted between 15-37 minutes, and with pharmacist non-providers between eight and 16 minutes. Out of all pharmacists, 10 were interviewed face-to-face and 12 over-the-telephone. The contract managers were assigned participant identification numbers CO01 and CO02.

Error! Reference source not found. lists the demographic details of the pharmacists interviewed and indicates the corresponding participant identification numbers applied in the reporting of the data from interviews. It shows that 11 participants were males and 11 were females. 16 participants were providers of chlamydia testing and six were non-providers. It should be noted that, during the interviews, four out of the six non-providers reported on their experience of previously delivering testing. Their views offered additional insight into their involvement with the service and why they did not continue providing it. Therefore, this sub-group (participants CP02, CP12, CP19 and CP20) is highlighted in the table as *past-provider* and referred to as such in the reporting of the results. Most pharmacist providers had between two- and five-years' experience in delivering chlamydia testing.

The participants were recruited from pharmacies located in areas of different socioeconomic profiles: 11 participants were from areas in the most deprived 20% in England (quintile 1); three were from areas in the most deprived 20-40% (quintile 2); three were from areas in between the most and least deprived at 40-60% (quintile 3); two were from an area in the least deprived 20-40% (quintile 4); and one from an area in the least deprived 20% (quintile 5). Therefore, pharmacies in areas of highest deprivation were most represented in the sample. Two participants were not assigned to an area demographic as they were relief pharmacists working across multiple

pharmacies. Area demographic was not included in the table to preserve participants' anonymity.

Table 15 Demographic details of pharmacists interviewed in the study

	Sex (M = male, F = female)	**Chlamydia testing provider?** (Yes = Y, N = No)	**No. of years' experience delivering testing** (<2 years, 2-5 years, 6-10 years, >10 years)
CP01	M	Y	2-5 years
CP02	F	N (past-provider)	-
CP03	M	Y	> 10 years
CP04	F	Y	2-5 years
CP05	F	Y	2-5 years
CP06	M	Y	2-5 years
CP07	M	Y	> 10 years
CP08	M	Y	6-10 years
CP09	F	Y	6-10 years
CP10	M	Y	> 10 years
CP11	F	Y	2-5 years
CP12	M	N (past-provider)	-
CP13	M	Y	2-5 years
CP14	M	N	-
CP15	M	Y	< 2 years
CP16	F	Y	2-5 years
CP17	F	Y	< 2 years
CP18	M	Y	< 2 years
CP19	F	N (past-provider)	-
CP20	F	N (past-provider)	-
CP21	F	Y	2-5 years
CP22	F	N	-

5.3: The themes generated from analysis of the interview data located within constructs of the Normalisation Process Theory model

Nine themes were identified in the data: accessibility of pharmacies; privacy and confidentiality for young people; information about chlamydia testing for young people; the opportunity to offer testing to young people; testing activity; attributes of a pharmacist; collaborative work with other disciplines; evaluation and feedback on testing delivery; and treatment for chlamydia. Their location within the constructs of the NPT model is listed in **Table 16**. The table also shows that one theme, *Treatment for chlamydia,* was loosely associated with the construct *Collective action* as it was a potential area for operationalisation within the pharmacy chlamydia testing service. The definition for each construct of the model is summarised in Appendix 10.

Table 16 Location of the themes generated from analysis of the interview data from pharmacists and contract managers within constructs of the Normalisation Process Theory model

Coherence - Accessibility of pharmacies. - The opportunity to offer testing to young people.	**Cognitive participation** - Testing activity. - Information about chlamydia testing for young people
Collective action - Privacy and confidentiality for young people. - Attributes of a pharmacist. - Collaborative work with other disciplines. ***Potential area for operationalisation*** - Treatment for chlamydia.	**Reflexive monitoring** - Evaluation and feedback on testing delivery.

5.3.1: Coherence

The NPT model construct *coherence* encompassed the theme *Accessibility of pharmacies* and the theme *The opportunity to offer testing to young people* with its subtheme *Consultations on chlamydia testing with young people.*

Accessibility of pharmacies

More than half of pharmacist providers and both contract managers reported that pharmacies were geographically accessible for young people and the public. They said that this was because pharmacies were centrally located and close to young people's homes, as described in the following quotes:

> *"We get, we get a lot of… erm… footfall. So, people just passing by and going in. So, it's easily accessible. Quite a busy pharmacy as well (…) It is a good parade of shops. So, it's a good central hub"* CP18, male provider, L130-135.

And,

> *"[Young people] can have barriers to travel. They don't always drive. If they're under seventeen they don't always have money for bus fares. Erm…so they don't always have the mobility that all the…all the young people have. So, having a pharmacy on the doorstep obviously gives them that choice and that access to screening"* CO01, contract manager, L104-109.

CO01 also reported that the close location of pharmacies to young people's homes facilitated access to chlamydia testing and offered them a choice of where to test. Some providers said that there were many pharmacies available for people to choose from, and that each pharmacy always had a pharmacist available to speak to. One of these providers reported that pharmacies were *"patient-facing"* which he felt helped pharmacists to build up a rapport with the patients. He added that *"You will quite often see that person behind the prescription, so you really do get to know them on an individual level"* (CP08).

A few providers said that they thought that the long opening hours and weekend opening of their pharmacies was convenient for young people, as described in the following quote:

> *"We get a lot of evening-, evening people come in obviously because they finish school or, you know, they've got time to come and get the morning-after pill rather than, you know, if you've been at school all day and got homework and things like that then. You know. So, I think that the bigger-, the longer hours make this [sic] for all these hundred-hour shops more convenient… and accessible"* CP10, male provider, L115-122.

Around a quarter of providers said that they felt that pharmacies were more accessible than GP surgeries, reasoning that pharmacies were open longer and that appointments were not necessary to speak with the pharmacist. A few providers also said that they thought that young people might attend the pharmacy for chlamydia testing if they were too shy to attend the GP surgery or sexual health clinic. The implication of this key finding of comparison between healthcare settings will be explored in the discussion, in Section 6.5.1.

In contrast, there was one past-provider who said that he thought that clients may prefer to book an appointment with a specific pharmacist on sexual health matters, to ensure that they were seen at a particular time:

> *"I think that if patients could make an appointment for a slot when they know they can be seen by who or at what time I think that would be-… that would be a good thing… in this case"* CP12, male past-provider, L145-148.

Some providers, past-providers and non-providers reported that only a few young people visited their pharmacy, as described in the following quote:

> *"Well, with this pharmacy unfortunately there's quite a, erm, low footfall... erm… we don't really have… erm… that sort of age demographic who normally come into this pharmacy. It's a lot older generation who come into the pharmacy. Erm, so since I've actually been in here, I've not really had an opportunity to have that conversation [on chlamydia testing], and also… erm… I've not had… erm… people come in and ask for it either*" CP13, male provider, L18-24.

The above provider said that, as a result of the low footfall of young people at his pharmacy, there was little opportunity to provide the chlamydia test. Both he and a few other providers added that it was mainly elderly customers who visited the pharmacy. These participants said that they thought that this demographic was representative of the local population, as described here:

> *"It's quite an elderly population you know. We don't have, you know, younger people in. I mean, you know, obviously the [emergency contraception] is targeted for the twenty-fours' and under, isn't it. Well…[area name] is so… Yes, so, I know it's surprisingly very, very low uptake here, very low, but I think it might be a population thing"* CP11, female provider, L23-29.

One past-provider described her previous experience of delivering the EHC at a location surrounded by accommodation and properties occupied by many university students. She said that she thought offering sexual health services in such areas would increase testing uptake:

> *"Well, I've worked in [location name] before where there's a high rate of university students and all day I was doing the emergency contraception pill…I probably did like thirty in one day which was the highest ever. It was a university area, like three in [location name].. (…) providing in those particular high areas, but…of course it has to be all age ranges, but in particular high density then I think it's more beneficial"* CP20, female past-provider, L56-65.

In addition to the above past-provider's view, one contract manager felt that registering pharmacies to offer chlamydia testing in locations *"where there's a massive footfall of young people"* would increase testing activity (CO01).

A few providers and past-providers reported that fewer young males visited their pharmacy than females. When males did attend, they said it was for condom supplies, for a pregnancy test on behalf of another person, or for a non-sexual health-related reason such as prescriptions. One female provider felt that the *"sexual health service does seem to be more female-orientated… and that does include the C-Card scheme as well"* (CP05).

The opportunity to offer testing to young people

All providers reported that they offered chlamydia testing to young people during a consultation on the EHC and some in Teesside said they offered it during a supply of condoms under the C-Card scheme as well. Some providers explained how they followed the online PharmOutcomes EHC consultation framework when offering testing. In their explanation they said that it included a section on whether chlamydia testing was discussed with the client and whether the client accepted or declined it, as described by both a provider in North Tyneside and in Teesside:

> *"If they come for that [emergency contraception]. If they receive a kit, then I add that detail on there [PharmOutcomes]. At the end of the questionnaire, they say whether you've supplied the kit or condoms or anything like that. So, whether you supplied, or offered, or they refused or whatever. So, we fill it in. So, it goes on the PharmOutcomes. It's easy enough to add that detail on, yeah"* CP01, male provider, L134-140.

And,

> *"There's a question on it [PharmOutcomes] when we go through it to ask whether… about chlamydia screening and we discuss with the patient about what are the symptoms and risks related and benefits of having it"* CP06, male provider, L8-12.

Almost a half of providers described that the kit was offered *"at the back of," "at the end of"* and *"as part of"* other sexual health consultations. As a result, one provider said that he thought that the kit seemed "*to be put on the back burner I think… It's tagged on the end of everything. Erm, it does get missed"* (CP18). This shared perception among several pharmacists may be key to exploring how to promote the service further; it will be discussed in Section 6.5.1.

When providers were asked how they felt about offering a chlamydia test to a young man, some male and female providers reported that offering it to a young woman was easier. A few of these providers added that the test could be offered to men with a condom supply, but that very few men requested condoms. Others said that they thought that males may feel offended if offered. Around a quarter reported that females usually attended for the EHC and were more likely to be offered a kit with it than males when they came for condoms, as described in the following quote:

> *"I must admit, erm, I haven't asked the young men and that probably is…..we tend to, you know, it's the young girls we ask. I think it's because of the [emergency contraception]. That tends to be where we're offering. So, err, (…) to a young man, err, just….do you know what… it's probably lack of awareness and sort of, you know, thinking 'God' you know. I mean it's obvious isn't it. But, the men, again we don't have a massive amount of young men coming in here really [laughs]. Really, really low walk ins, yeah…" C*P11, female provider, L46-54.

Some providers reported that although they offered the kit, they believed that schools, colleges, and sexual health clinics were more effective at delivering testing. Their reasons for this were that they thought that young people preferred sexual health clinics and that testing in schools and colleges reached many students. Nevertheless,

two of these providers reported that the purpose of pharmacy testing *was "to try and catch people who perhaps haven't had one already"* (CP09).

All non-providers and most past-providers reported that they charged clients for the EHC. In this situation, a few of these pharmacists explained that they often referred the young person to another pharmacy or to a sexual health clinic to receive the EHC for free. As a result, one non-provider said he rarely had the opportunity to discuss chlamydia testing with young people as described in the following quote:

> *"With the emergency contraceptive…because we don't currently offer the service for free and we tend to just refer those who are eligible for free treatment, we don't really have that conversation on the testing kit at the moment"* CP14, male non-provider, L71-75.

When providers were asked if they would offer a chlamydia testing kit alongside services other than the EHC and C-Card, most said that they would feel uncomfortable to do so. Their reason for this was because they thought that the young person may feel judged when offered. Around a quarter of these providers also said that they thought they would be hesitant to offer the testing kit with a prescription for regular hormonal contraception for the same reason, as described here:

> *"I think I would feel a little-… I don't know. Maybe a little hesitant to offer it [testing kit] if someone didn't actually ask for it because it kind of sounds a little presumptuous that she might need it, you know, just as part of handing out another prescription"* CP04, female provider, L24-28.

And,

> *"Some customers might feel offended if I offered them that service [chlamydia testing] without them asking… because, that could have, like, a, you know, ideas or thoughts in their head on why I'm asking them this question… Especially if they went and asked someone else, 'Oh, did the pharmacist ask you for chlamydia testing?' and if they said 'No' then they'll wonder 'Why did they ask me?'"* CP03, male provider, L26-32.

A few providers and past-providers said that, compared with other consultation services, offering chlamydia testing was not a priority. They said that this was because they were pushed for time to offer the test and that there was a tight budget to provide many services within the pharmacy. One provider felt that *'If… erm… a kind of a financial reward was better, then maybe there would be more uptake with it [chlamydia testing]'* (CP07). Another suggested incorporating testing *'into quality payments and*

then I think pharmacies and maybe managers would be more inclined to, you know, erm essentially make them more visible and offer it rather than it just being as an afterthought' (CP08). Both contract managers said that pharmacies received a payment for each chlamydia kit dispensed. However, one contract manager added that the cost of the chlamydia testing kit could be made clearer on the pharmacy contract.

Over half of providers reported that they offered chlamydia testing to the *"target group"* under the age of 25. However, a few of these providers and one past-provider added that they felt that the target group should cover a wider range of ages. They said that they thought that this would increase promotion of the service, as described here:

> *"To be honest I think it's a little bit limited whenever I have come in contact with it [chlamydia testing]. It tends to be for a very small age range which isn't always appropriate.. (…).. actually we're looking at a number of people who are coming in for the morning-after pill that tend to be thirties, early forties… and I kind of think 'Well, is that not also an area where we should be concentrating on as well or just leave it open for everybody for a confidential means?'"* CP02, female past-provider, L39-46.

A few providers reported that it would be more beneficial for young people if pharmacies offered a test for chlamydia and other STIs in one sample. One provider in North Tyneside who offered a dual testing kit for chlamydia and gonorrhoea reported that it was very helpful for young people.

Both contract managers said that all pharmacies in their regions were offered the opportunity to deliver chlamydia testing. One of these contract managers added that *"the easy part is the ease with which pharmacies are keen to be sub-contracted"* (CO01).

Consultations on chlamydia testing with young people

Over half of providers and both contract managers reported that the pharmacy chlamydia testing service was important to help identify chlamydia and reduce the risk of its transmission, and to reinforce the importance of safe sex to young people. Some providers felt that sexual health consultations were a good opportunity to include information about chlamydia and its risks. One provider explained that he always offered and discussed testing alongside the EHC service giving as his reason the view that unprotected sex carried a risk of STIs as well as pregnancy. Another said that out of all STIs, chlamydia was on the "*top of the list"* for testing (CP10).

A few past-providers and all non-providers reported that, during EHC consultations with clients, they included information about the risk of chlamydia as well as settings that offered chlamydia testing:

> *"To be honest I say, 'You know, you do need to do a chlamydia test as there may be a risk there and if you do need to go, you can go on to the [sexual health provider] website…[sexual health provider] website.' And I do refer patients because there is one in [pharmacy name] in [location name]. They do the chlamydia testing"* CP20, female past-provider, L71-76.

One provider believed that even if a young person's test result was negative, doing the test would encourage them to think more about STIs and their associated risks. If someone was positive however, he said that he thought that the test would help to treat the infection:

> *"I think it's [test] basically to try and get people the treatment they need… erm… rather than obviously if it's left untreated it can be a problem. So, it's kind of a known preventative. So, yeah. Helping defend the community"* CP18, male provider, L87-90.

Some providers added that young people could attend the pharmacy to *"pick up"* a testing kit if they preferred without pharmacist information on how to use it and STI prevention.

5.3.2: Cognitive participation

The NPT model construct *Cognitive participation* encompassed the theme *Testing activity* and its corresponding subthemes *Perceptions of why young people decline/do not request a testing kit* and *Perceptions of the testing activity in pharmacies*, and the theme *Information about chlamydia testing for young people*.

Testing activity

Perceptions of why young people decline a testing kit

Many providers reported that young people often declined to take a testing kit during EHC consultations as described in the following quote:

> *"A lot of them are, well, 'Oh, I don't want one [testing kit],' you know, and it surprises me. A lot of them say that when they come in for [emergency contraception]. You think they would take up the offer. I mean it's just, you know, literally picking one up. It's fine, isn't it. So, I don't know why, why they're not taking it up, the kids I'm asking"* CP11, female provider, L64-70.

The above provider reported being *"surprised"* when young people declined the test. Another felt it was *"a little bit disappointing when you do offer to people and you feel as if they would, they would benefit and they don't want it, they don't want to know*" (CP10). A few providers felt that when a young person declined the kit, it made the service challenging to offer. However, one provider reported that if the kit was declined, she would say to a client that they could come back to the pharmacy at any time to collect one.

Around a quarter of providers reported that young people's reasons for declining a testing kit was because they were previously tested, they were with the same partner or they were worried about the test result. Furthermore, a few providers and one contract manager said that they thought that young people possibly declined because young people felt that the EHC was more of a priority:

> *"Well, it's accessible to go to your local pharmacy for the emergency contraceptive pill if you feel you may be at risk of getting pregnant…..err, but, I do think the chlamydia testing should be seen as very important too. There's that urgency to do something if you think you may be pregnant…even in the twenty-first century, it's always going to be a priority….err, and I'm not sure why that is. Checking if you have an STI is also important I feel"* CO02, contract manager, L88-95.

Perceptions of why young people do not request a testing kit

Over half of providers reported that young people could request a testing kit from their pharmacy. However, some of these providers said that young people rarely asked for one. One such provider said that she thought it was because *"there's no symptoms [for chlamydia] so perhaps they [young people] would not maybe think they need a test"* (CP09).

A few past-providers and non-providers reported that young people have requested a kit at their pharmacy, to which they said they signposted them to the nearest pharmacy or sexual health clinic that provided testing, as described in the following quote:

> *"I think I've been approached over the last three months, twice….and I signposted them to the local clinic just up the road from us, [sexual health clinic]. I think they run an evening clinic which is helpful…err, we have also signposted I think one of them to, I think, [pharmacy name] who do offer it [chlamydia test] as a PGD"* CP14, male non-provider, L52-57.

Around a quarter of providers and past-providers said that they thought that young people felt "*shy*," "*uncomfortable*," and *"embarrassed"* to ask pharmacy staff for a testing kit. One contract manager said that the pharmacy testing service would help to reduce the prevalence of chlamydia if young people were confident to request the kit:

> *"If young people are confident and…confident to use the service, yes, definitely… because young people would be going to the pharmacy because they've perceived they have been at risk, yep. So, they're actively seeking out a test for a perceived risk and then that could lead to a positive diagnosis and then a rapid treatment"* CO01, contract manager, L128-133.

Perceptions of the testing activity in pharmacies

Over a third of providers reported that there was a low or very low uptake of chlamydia testing among young people at their pharmacies. In the following quote, one past-provider said that the low testing activity was because very few young people attended the pharmacy to request the kit:

> *"The reason why we didn't continue the service is because we didn't get a lot of people coming in, you see. So, you have to think about costs of implication of training against what benefit is going to happen against [sic] the community. So for us, we have to take our staff out of the pharmacy to get the training done. Then you have to look at the number of patients who did come in for that, which isn't much at all"* CP20, female past-provider, L32-38.

Some past- and all non-providers reported that currently, very few young people attended their pharmacies for sexual health supplies including the EHC and C-Card.

Information about chlamydia testing for young people

Around a quarter of providers reported that the chlamydia testing service was advertised on cards and leaflets in their pharmacy. Two providers from Teesside said that their pharmacies were also listed under testing sites on the sexual health provider website.

Both contract managers said that pharmacies offering testing were listed on their websites. The contract manager for North Tyneside added that this information was also available on an online mobile application.

Some providers reported that their pharmacies were healthy living pharmacies (HLP). HLPs are accredited to deliver and sustain a wide range of public health promotion services and activities to meet the needs of the local population (DHSC 2019). The providers explained that as part of the HLP scheme, they delivered specific promotional activities on sexual health and chlamydia testing during particular months of the year. A few said that this included having displays inside the pharmacy. One of these providers suggested that delivering a target number of chlamydia tests under the HLP scheme may promote testing activity among young people:

> *"So, maybe we do a campaign on one month on that one [chlamydia testing] specifically. So, we can specifically promote and whatever campaign we do we have to record at least twenty interventions for that, you know, on PharmOutcomes for audit purposes. So, maybe you do like that way twenty interventions. Maybe you target as many young people through that, as possible"* CP06, male provider, L173-180.

One provider reported that the support staff at her pharmacy attended a local college to sign young people up to the C-Card and that they brought chlamydia testing kits with them. She also described how, when pharmacy chlamydia testing first became available at the pharmacy, she and staff designed posters advertising the service and placed them in pubs to raise awareness:

> *"So, we put posters in the ladies toilets…erm…you know, just behind the door so that when they were in there they could see that [pharmacy name] pharmacy offered not only the emergency contraception but also the chlamydia testing kits as well… Just to try and create a buzz around it"* CP05, female provider, L16-21.

When the above provider was then asked whether the poster advertisements had any effect on uptake of testing at her pharmacy, she reported that she noticed young people attended the pharmacy to request the kit. The contract manager for Teesside also said that all participating pharmacies were provided with posters to place on their windows to advertise the chlamydia service. Another provider said that she placed chlamydia testing kits and condom packs within the same bag prior to consultations. She added that this was then easier to give to clients than in separate bags.

Some providers, past-providers and non-providers said that they thought that awareness about the pharmacy testing service was perceived to be low among young people. They suggested that the service could be advertised more at schools and colleges, at social venues that young people attend, and at GP surgeries and sexual health clinics. Two said that they thought that providing a brand name for the testing kit would help young people for the following reasons:

> *"I think it's a good because [emergency contraception] has got people noticing [emergency contraception], and it's a lot easier to ask for that where, kind of, chlamydia testing hasn't got a nickname as such. You know what I mean [laughs]"* CP09, female provider, L155-159.

Furthermore, around a quarter of providers felt that schools and colleges could provide more teaching about sexual health and STIs, and chlamydia and its prevalence. As a result, one provider believed that *"a bit more background knowledge for them [young people] would help"* when discussing the chlamydia testing kit with them (CP18). In contrast, the contract manager for Teesside explained that an external charity visited schools and colleges providing sexual health advice, and information on nearby pharmacies offering chlamydia testing. She added that the sexual health training delivered to organisations included information on pharmacy EHC, C-Card and chlamydia testing services available.

Two male providers said that they thought that a national campaign promoting the pharmacy chlamydia test may help to raise awareness about the service among young people, as described in the following quote:

> *"Obviously, chlamydia that is a national issue and STDs I guess is. So, I think especially with the rates and things with the younger generations. I think maybe some sort of national, erm, campaign, you know, 'Go to your local pharmacy to collect a testing kit'"* CP08, male provider, L235-239.

In addition, a few providers said that they felt that chlamydia testing could be further advertised within the pharmacy, including placing a poster in the consultation room to prompt people to think about chlamydia testing when speaking privately with the pharmacist.

5.3.3: Collective action

The following themes were aligned to the NPT model construct *Collective action*:

- *Privacy and confidentiality for young people* with its corresponding subthemes *Pharmacy setting* and *Taking the kit away for testing*.
- *Attributes of a pharmacist* with its corresponding subthemes *Clinical knowledge, Expertise and training of pharmacists and support staff,* and *Communicating with young people.*
- *Collaborative work with other disciplines*.

As reported earlier in the chapter, the theme *Treatment for chlamydia* was loosely associated with this construct as it encompassed a potential area for operationalisation within the pharmacy testing service.

Privacy and confidentiality for young people

Pharmacy setting

On answering questions about the patient scenario in the interviews (see Appendix 7), all providers reported that they would counsel the patient on chlamydia testing in the pharmacy consultation room. Three added that "*You wouldn't want to talk in front of everybody"* (CP01) and that speaking in the consultation room would help young people *"feel that everything was…everything was confidential"* (CP07).

A few past-providers said that, from their experience of providing sexual health services and chlamydia testing to young people, they thought that young people were worried about being seen by their peers accessing the pharmacy and being asked why they were there, as described here:

> *"Most times I think they [young people] don't like [sic]… you know… they tend to go to small-… from my experience in the field… I think they feel more secure to do it [emergency contraception] in a small pharmacy so that they don't see anybody… don't bump into somebody who shouldn't know what they're doing, or something like that, yeah"* CP19, female past-provider, L14-19.

The above past-provider said that she thought young people preferred to visit a small pharmacy to reduce the risk of being seen by their peers. In contrast, one contract manager and one provider said that the location of pharmacies within large stores was discreet and provided anonymity for young people who *"could be there for anything. They could be popping into [pharmacy name] to get some after-shave, some make-up, a testing kit"* (CO01).

Around a quarter of providers reported that young people could access the pharmacy for a chlamydia testing kit without having to provide the pharmacist with personal details about themselves. A few of these providers added that, in contrast to the pharmacy, the GP surgery might request confidential information, as described here:

> *"Many people feel embarrassed to go to a doctor because the doctor may not be as confidential because they have to go through all the details… But, the pharmacy they just come, take it, and go without giving me much information about themselves"* CP03, male provider, L59-63.

For further confidentiality, two providers reported that on the urine sample form young people can indicate whether they would like the result of the chlamydia test to be sent to their GP surgery or not.

Taking the testing kit away for sampling

Some providers described the chlamydia testing kit as a *"brown envelope"* and a *"brown paper bag"* that was taken away by the client for sampling. One provider felt that the packaging was "*compact and, you know, it's low key. There's no labelling on anything so you can just hand them over"* (CP18). However, there were two providers who said that they thought the kit looked unpleasant as described in the following quote:

> *"Erm, if we're being honest, I do find the packaging's quite, erm, I don't think it's the nicest personally… Erm, it's in a, like, horrible brownish paper bag. I don't think it's very discreet. Especially if, you know, a girl walks in and she doesn't have a handbag or anything. Of course, it's just so obvious what it is…erm… I find"* CP08, male provider, L179-184.

A few providers reported on their views to a young person taking the testing kit home. Some of these providers felt that young people would find sampling for chlamydia at home private. However, one provider said that she thought that young people were worried that their families might find the testing kit if it was brought home:

> *"I think for some people there was a confidentiality. I think they worry that their parents are going to open an envelope or something. But, you know, you get told it'll go to their mobiles. However they want it, you know, to go. I think that might be the only worry that kids might worry that their parents are going to find out if they take that envelope home with them, you know."* CP11, female provider, L124-130.

The provider from the above quote added that she notified clients that they would receive the result of the test confidentially on their mobile phones. Pharmacists appear to have contradictory perceptions to home-sampling of the testing kit. The implication of this will be discussed further in Section 6.3.

Out of all providers interviewed, only one reported that he offered young people the option to use the pharmacy toilet for a urine sample if they preferred. He felt it was *"more compliant because everything's done for them"* (CP10). One contract manager believed that, in addition to pharmacies, the test could also be delivered more effectively in other venues that had access to toilet facilities. Another contract manager said that although *"pharmacies don't tend to have toilets… they [young people] would take it [the kit] home and do the urine sample there"* (CO02).

Attributes of a pharmacist

Clinical knowledge, expertise and training of pharmacists and support staff

More than half of providers said that they thought that pharmacists were in a good position to advise on testing and treatment and assess when it was necessary to refer a patient to the GP. Two providers reported that, during a consultation with a young person on the chlamydia testing kit, they would include information on the symptoms of chlamydia and how it is transmitted.

Many providers described the protocol that they followed to check that a young person had the capacity to consent to discussing sexual health matters. Around a third of these providers referred to the protocol as Fraser guidelines. This process was explained by one provider as follows:

> *"We have, like, a, like, these guidelines for the younger ones. I could go through it to make sure, like… First, I'd advise her about the health risks and unprotected sexual intercourse and make sure she understands this information. I would also encourage her to include her family if possible in whatever decision she has taken, but, I'd definitely advise her on the chlamydia testing kit as recommended, if she'd like to take one"* CP03, male provider, L45-52.

Both contract managers said that they provided pharmacy teams with guidelines on how to assess a patient's capacity to consent to sexual health advice and treatment and one added that they also discussed safeguarding measures with the teams during annual update events.

Most providers and past-providers reported that they received training on how to deliver chlamydia testing, either by attending a sexual health learning session or by completing an on-line learning module. However, there were mixed views from pharmacists who attended the learning sessions on the usefulness of the training provided about the testing. Some reported that the sessions were helpful because the trainers *"had, like, testing kits there where they showed us, like, erm… how… like, how it's usually done and just how to explain it"* (CP17). Others said that they thought that the training on chlamydia testing was brief. These pharmacists added that, during the sessions, more information was provided on how to deliver the EHC and C-Card services, as described in the following quote:

> *"I think it [chlamydia testing] was kind of like just tagged on the end of the emergency contraception. So it's like, 'Oh and by the way, while they're in there for the… erm… morning-after pill you can also offer the chlamydia testing kit.' It didn't really go through it, you know, like, kind of the questions you'd be asking for that…that part"* CP18, male provider, L45-50.

The above provider and some others reported that they wanted more training on how to effectively communicate with young people on chlamydia testing.

A few providers in North Tyneside said that they did not receive training on chlamydia testing. From these providers: some said that they were advised to offer the kit with the EHC to young people; and two reported that their reason for not attending training was either due to not being aware of the sessions or because they had only recently started working at the pharmacy.

One past-provider explained that the refresher sexual health training sessions were difficult for her and support staff to attend due to staff shortages, sicknesses, and holiday leaves. She felt that *"If somebody comes out to us to train our staff, rather than our staff go over there [training session] that would be much more suitable"* (CP20). Two providers with over five years' experience delivering testing described how, regardless of training, the confidence and expertise to offer testing grew with experience.

When providers and past-providers were asked whether their support staff received training to deliver chlamydia testing, some explained that staff had attended training to provide chlamydia testing alongside the C-Card. However, others said that they were not sure if staff had been trained. One contract manager reported that, due to frequent

changes of staff within pharmacy teams, it was a challenge to provide continuing sexual health training to support staff:

> *"The pharmacist obviously is…erm…tends to stay put. So, delivering the EHC is an easier thing to deliver in pharmacies where the…the pharmacy staff tend to be-…there's more just a lot of changes with the staff. So, there's (…) constantly more training needs to keep updating staff as they're coming into roles within the pharmacy. So, that's something that's quite difficult to keep on top if that makes sense… because it tends to be the pharmacy staff who do the C-Card and the chlamydia screening and the pharmacist who does the EHC, the contraceptive and much more detailed… erm… interventions"* CO01, contract manager, L199-209.

Around a quarter of providers reported that they worked with support staff to offer chlamydia testing to young people. One explained that "*if there's an opportunity to hand out the kit, then yes. Either I provide it or other staff do"* (CP01). In contrast, some providers said that either they mainly or only offered the kit rather than support staff; a few of these providers explained that the reason was because it was often given alongside the EHC, a service that only pharmacists can deliver; others said that support staff would refer the client to the pharmacist for the testing service. This finding may have implications on testing delivery, which will be discussed further in Sections 6.4.2 and 6.5.1.

One past-provider said she was unsure why her pharmacy did not currently offer the testing kit (CP02). However, she explained that both she and staff were trained to do so, so she said she would not mind providing it. Another past-provider reported that previously, support staff did not offer the testing kit because he thought they felt uncomfortable to do so, as described here:

> *"It [testing kit] certainly wasn't offered to people…and I think that's just because the staff didn't feel comfortable in offering a chlamydia test to people (…) But, they would just-….they'd just rather have them there then people can help themselves. But, they certainly wouldn't offer one"* CP12, male past-provider, L63-68.

Communicating with a young person

Over three-quarters of providers and past-providers said they mainly communicated with young people about chlamydia testing during a consultation on the EHC or C-Card. Some providers believed that the approach used to communicate to a person

about chlamydia testing and sexual health was important so that the young person felt comfortable, as described in the following quotes:

> *"So, at the same time, although they are young you have to respect their identity… and you have to, you know… erm… approach them with caution. You've got to read them first and then approach them. It's a little bit tricky, but you learn with experience. So, it's fine… it's not a problem"* CP01, male provider, L71-76.

And,

> *"I remember when they [participant's children] were that age how naive children are and how you can talk to them, you know, without upsetting them or worrying them and I think that has a lot to do with it, how your technique"* CP10, male provider, L77-80.

In the second quote above, the provider described how he perceived that his personal experience with his children helped him to speak with other young people in a professional capacity. One female provider said that she felt comfortable to discuss chlamydia testing with young people after a representative visited her pharmacy and delivered training to her and support staff on communicating with customers about sexual health:

> *"Somebody from [sexual health provider] actually came to support us and taught us how to speak to people and approach them regarding sexual health. So, we did a lot of roleplay with them. Then, when we felt more comfortable, he would point out, sort of, certain customers and say 'Right, I think you should speak to that customer about sexual health.' So, he sort of put us on the spot and pushed us in the right direction…in the right way to have those conversations"* CP05, female provider, L109-116.

A few providers reported that, during a sexual health consultation, they would say to the young person that it was routine to ask if the person would like a chlamydia testing kit. The providers explained that their reason for saying this was to prevent the young person feeling judged on being asked.

One past-provider said that although many young people attended his pharmacy for the EHC and condom supplies, he found it a challenge to speak to them about sexual health as they often wanted a quick supply of the EHC/condoms:

> *"I feel as though my experience of that [C-Card] is more of a-…more of a transaction around supply. Erm…it's…it's very challenging to-…to get into a dialogue around-…around those things and that's also my experience with the emergency hormonal contraception actually that-…that people see it as a supply of medicine and they want to get in and get out very quickly and not really talk about it"* CP12, male past-provider, L16-23.

The above participant then suggested that providing a chlamydia testing kit with every supply of EHC may facilitate service delivery.

When providers were asked their views on possibly notifying sexual partner(s) of a person positive for chlamydia to attend the pharmacy for treatment, around a quarter felt that they would feel uncomfortable notifying the partner(s). One provider said that he felt he would be "*the bearer of bad news"* in this situation (CP10). A few of these providers also believed it was easier if the patient had this discussion with their partner(s). One contract manager added that it *"would just be a mammoth talk for pharmacists to have with the person"* (CO02).

Collaborative work with other disciplines

Around a quarter of providers from both Teesside and North Tyneside reported working collaboratively with sexual health clinics, schools, and colleges to provide sexual health services. These providers said that they received referrals from other settings for the EHC, C-Card and the testing kit. A few added that they would ask sexual health clinics for advice if they had any issues. Some providers described their experience with the clinics as *"very good."* The following quotes describe the reported collaborative activities:

> *"Well, if I had issues, you know, offering it [testing] when doing the emergency contraception consultation, we normally have got links with the [clinic name]. So, they are really good with offering advice on these things. So, we are always in contact with them"* CP03, male provider. L88-92.

And,

> *"It's [testing] mainly [offered] just via the nurses through school. They'll let C-Card clients know that we do the kits. Erm… but it's mainly these clients that come to the pharmacy to request them"* CP05, female provider, L8-10.

Similarly, one contract manager reported that sexual health clinics worked with pharmacies to ensure people received the EHC in a timely manner:

> *"Also, if people call the [sexual health] centres asking about emergency contraception, we do direct them to pharmacies who offer it. Erm…we do check if the pharmacist is in of course before we let them know. So, that we make sure a supply would be available for them when they visit the pharmacy"* CO02, contract manager, L121-126.

One provider reported that there was no collaboration between his pharmacy and other disciplines, but said that he wanted to know how he could work with them to promote testing:

> *"I don't know how it gets signposted by the, by the local authority who are told 'This is who have got a test where you can pick one up from.' Erm…but, I'm not sure how that end works..(…)..I don't know what kind of signposting they're doing or what information people are getting from the GP. So, it would be interesting to find out how we are all supposed to be, like, working together"* CP13, male provider, L25-27 and L163-166.

Both contract managers said that they held formal meetings with both pharmacy teams and local commissioners to provide information and to discuss feedback on the chlamydia service.

Treatment for chlamydia

Providing free treatment for chlamydia

When providers were asked their views to possibly providing free treatment for chlamydia in case a young person was positive for chlamydia, two-thirds replied that they were happy to do so. Many believed they had the clinical expertise to provide treatment, and some said that they thought that pharmacy delivery of both chlamydia testing with treatment would be more convenient for young people than testing alone, as described here:

> *"That [free treatment], probably, would be a good idea actually because it…it kind of completes the circle then because they [young people] could start from here and then come back to the pharmacy to… erm… to actually get the treatment rather than doing the test and then having to get the treatment from the GP. So, yeah, that would be quite… quite a good idea, I think. Yeah… yeah, I'd be happy to provide that"* CP04, female provider, L124-130.

The above provider explained that adding free treatment *"completes the circle"* of the service. A few others also described that treatment would "*be more as a full service"* (CP12) and would "*add to the service"* (CP13). This highlights the potential of a more

integrated service that will be explored in the discussion of the findings, in Sections 6.4.2 and 6.7.

A few providers said that they offered chlamydia treatment over the counter for a charge in the past. One provider from North Tyneside said uptake was poor yet another from Teesside said it was very popular at his pharmacy. Around a quarter of providers also reported that they previously registered to provide free treatment but that the service was then withdrawn. They said they were still keen to offer it as they felt it would increase chlamydia testing and treatment. One contract manager explained that the reason why treatment was not included with the pharmacy testing service was because young people who were positive for chlamydia were then advised to attend the sexual health clinic for a full STI screen in case they had other STIs too:

> *"If they [young people] come in...erm…and have a positive chlamydia…they may also have another positive STI which they would not be getting treatment for. So, ideally they take their chlamydia testing kit, get it tested. Erm…if it's positive they are obviously contacted by the…the lab with a text. Then, obviously…so, obviously it's texting them and they're encouraged to drop into a sexual health clinic for a full screen and that's something pharmacies can't do. So, that's the only concern, that if they have a positive chlamydia test then they may also be positive for gonorrhoea as well, and other STIs"* CO01, contract manager, L297-307.

Notifying the sexual partner(s) of someone positive for chlamydia for treatment

Almost half of providers and the contract managers said that they thought that pharmacy-led PN would be a challenging service to provide. Barriers to communicating with the sexual partner(s) of a client were reported earlier in this sub-section under the theme *Attributes of a pharmacist.* In addition, a few providers felt that pharmacy-led PN would be time consuming and required further thought concerning patient consent. One provider also explained that the pharmacy would require the patient's test result to notify their partner(s) which he felt would be difficult to receive:

> *"It's going to be only possible if we were aware from the sexual health clinic if they require treatment. But, because we don't keep many records or confidential information… so, who got the kit? Somebody may be coming here and telling their name as something else. You do not know who it is. You just look at the age and reasonably [sic]… So, even if we get the feedback, we would not be able to track them down. So, I think it's going to be a very complicated area."* CP01, male provider, L166-173.

In contrast, there were a few providers who believed that with training and standard operating procedures in place, pharmacy-led PN was feasible. In this situation, one such provider said that he thought it would be helpful to have a *"training provider where you would go and have face-to-face training. Have some practice, sort of, consultation skills, I think yeah that could easily be overcome"* (CP08).

5.3.4: Reflexive monitoring

The construct *Reflexive monitoring* encompassed the theme *Evaluation and feedback on testing delivery.*

Evaluation and feedback on testing delivery

Both contract managers said that they were trying to investigate why chlamydia testing activity was low in some contracted pharmacies, as described in the following quote:

> *"I work with the local pharmaceutical committee and commissioners and we are…we are working to see where pharmacies are delivering a low activity and why that is. So, we would have pharmacies signed up to deliver the screening, but currently not delivering any…any activity. We're trying to find out why that is…what the barriers are and how we can support them further"* CO01, contract manager, L46-52.

One contract manager reported that PharmOutcomes was *"a very useful system for getting messages out to pharmacies as well"* from the sexual health service provider and to review the number of tests delivered with the commissioners (CO01).

Some past-providers explained that due to a previous low uptake of testing, when evaluating the service they decided not to continue offering the test.

All providers reported that if they had any issues with the chlamydia testing service, they had no issues discussing these with the contract managers. Similarly, the contract managers said they had no issues communicating issues with sexual health providers and pharmacy teams. However, one provider added that he *"wouldn't know who to go to if I did find there was an issue"* (CP08) and, when asked if he would like this information, he replied that he would.

5.4: Summary

This chapter reported on the perceptions and experiences of pharmacists and contract managers about current implementation of chlamydia testing provision and barriers faced with sustaining delivery. Pharmacists also reported on their interaction with young people when offering testing, identified training needs to facilitate such interactions, and suggested a number of approaches to advertise and promote the service.

The findings from the results reported in this chapter will be explored in the discussion in Chapter 6.

Chapter 6: Discussion

6.1: Introduction

The previous chapters of this thesis reported on the results drawn from analysis of the interview data from young people, pharmacists, and contract managers. This chapter begins by re-outlining the reflexive practice employed throughout the stages of the study, and its impact on the research. It then discusses the comparison in views identified between the different study participant groups in relation to existing literature. Then, findings from the application of the theoretical models to the results are reported.

The synthesis and evaluation of the key findings of the study are then described, and recommendations to maximise delivery of the pharmacy chlamydia testing service proposed. The study's contribution to the sexual health needs of local populations, areas for improvement and further work for investigation are then reviewed and discussed. The chapter concludes by summarising the key messages of the study.

6.2: Reflexivity

Reflexivity was essential throughout the study. I continually self-monitored on any potential impact my pharmacist experience and knowledge may have when collecting and analysing the data and interpreting the findings to minimise my involvement in these stages and view the research through a fresh lens. During the data collection, my skill on conversing with clients on potentially sensitive matters including sexual health helped to build trust and rapport with the participants, facilitating the generation of in-depth responses. Nevertheless, at the start of each interview, I emphasised my role as a researcher so as to present myself as an outsider, reducing any possible influence on participants' accounts. Furthermore, writing fieldnotes shortly after each interview on the dynamics of the dialogue, interpretation and what I thought about the participant's responses facilitated the reflexive practice. Mauthner and Doucet (2003) point out that this method allows the researcher to assess *how* and *where* some of their views might affect the meaning of the participant's words in the dialogue and when reporting on the results of analysis from the interview.

During analysis and interpretation of the data, revisiting the fieldnotes, regularly discussing the codes generated with the supervisory team and disseminating the findings to the participant groups for further validation that their views were accurately captured helped to ensure that the findings stayed close to the data (Berger 2015;

Jamie and Rathbone 2021). Of note, where pharmacist participants reported on work processes such as dispensing and consultations on sexual health, my knowledge of such processes facilitated an in-depth interpretation of their accounts. The acknowledgement of such understanding was documented in the fieldnotes and frequently discussed with the supervisory team, to ensure that my pre-existing views were also set aside so as to not influence the findings. Such reflexive practice is important to accurately capture and interpret participants' accounts (Mauthner and Doucet 2003; Berger 2015; Rathbone and Jamie 2016).

6.3: The comparison in views between young people, pharmacists, and contract managers

The results from each study participant group were compared to identify where perspectives were shared and where they differed, to understand how to align delivery of chlamydia testing to young people's needs. Section 3.9 describes the method used to compare the results.

From the analysis, the following themes were found to be common across the study participant groups: accessibility of pharmacies, privacy and confidentiality for young people, and information about chlamydia testing for young people. These are represented as blue circles in **Figure 11**, which is a thematic map illustrating the themes generated from the groups. In the figure, themes that were discrete to young people are shown as orange circles, and those discrete to pharmacists and contract managers as pink circles. It should be noted that some associations were identified between the themes where there were differences in contexts in which a particular issue was experienced or perceived. In **Figure 11**, these associations are represented as lines connecting the themes.

In the sub-sections that follow, the comparison in views between young people, pharmacists and contract managers is reported and the findings are related to existing literature.

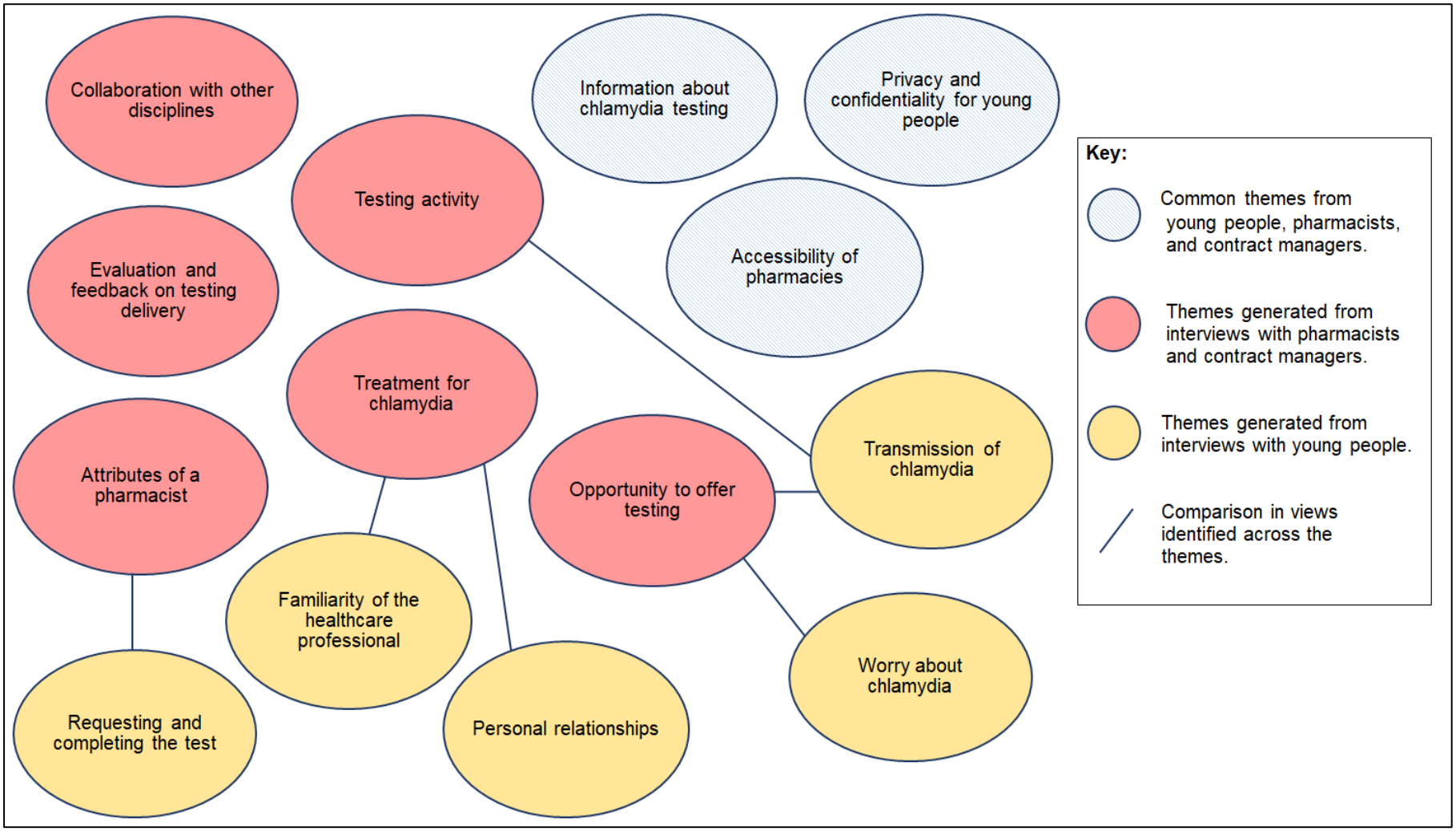


Figure 11 Thematic map illustrating the comparisons in views identified within and across the themes generated from all study participant groups.

Accessibility of pharmacies

All study participant groups reported that pharmacies were open long hours and on weekends and were near to young people's homes. They perceived that this made pharmacies good places for the provision of sexual health services. This finding is consistent with the views of clients of pharmacy chlamydia testing in Baraitser *et al.* (2007) and Parker *et al.'s* (2015) studies, young women's perceptions of the service in Taylor *et al.'s* (2007) study, and pharmacists' and contractors' views of pharmacy provision of youth-friendly services in AlSaleh *et al.'s* (2016) study. Furthermore, the present study aligns with the finding by Todd *et al.* (2014) of a positive pharmacy care law; young people in areas of relatively high deprivation reported that their local pharmacy was within walking distance of their home, where healthcare needs may be greater than in less deprived areas.

Despite the geographical accessibility and long opening times of pharmacies, some pharmacists reported that only a few young people visited. Comparatively, when young people were asked what general services their local pharmacies provided, most recalled the prescription service and provision of over-the-counter pain relief medication. Some added that they only visited the pharmacy on occasion to use these services. The low perceived awareness of pharmacies' extended services among young people was similarly reported by general pharmacy users in other studies (Eades *et al.* 2011; Lindsey *et al.* 2016).

Privacy and confidentiality for young people

Previous survey and interview studies showed that young people had privacy concerns if they were to obtain a chlamydia test from a pharmacy (Taylor *et al.* 2007; Balfe *et al.* 2010; Brugha *et al.* 2011) and from non-healthcare settings including further education and workplace (Lorimer *et al.* 2009). The present study contributes to existing research by highlighting that young people who have not accessed a pharmacy sexual health service were worried in case they were overheard by staff and customers or seen by their peers accessing the pharmacy. Furthermore, the perceived lack of awareness among some of these participants about the provision of pharmacy consultation rooms to discuss private matters is consistent with reports from users of general pharmacy services in previous research (Twigg *et al.* 2013; Lindsey *et al.* 2016). Of note, in the present study, whilst very few pharmacists reported that they perceived young people to have such concerns, all pharmacist providers said that they counselled on the chlamydia test in the consultation room.

In the present study, there appears to be mixed feelings to a young person taking the testing kit away for self-sampling both within and between the study participant groups; some providers, young people, particularly those who have never tested, and a contract manager said that they thought that home-sampling made the testing process private or convenient for clients. However, there were contrary views from providers about the appearance of the kit and whether it looked discreet. Furthermore, one provider, and young people aged 16-19 said that taking the kit home risked a family member finding it. Whilst this privacy concern was similarly reported by young people in studies on views to home-sampling for chlamydia, most found the method to be acceptable (van Bergen *et al.* 2004; Lorimer and McDaid 2013). These findings are significant in two respects; whilst pharmacists appeared to follow guidance on the delivery of the testing kit, their contrary views about the process after delivery, once the young person takes the kit away, may imply a lack of awareness among the group of the evidence behind home-sampling. Furthermore, offering young people options on where they would like to complete the kit, where suitable, may accommodate young people's different needs and preferences.

Pharmacists from the present study and previous research perceived pharmacy chlamydia testing to be more confidential than testing at the GP surgery, where the latter entailed collection of client's personal details (Baraitser *et al.* 2007). Although young people in previous research perceived that they may been seen by peers accessing the GP surgery for chlamydia testing (McDonagh *et al.* 2020), those in the present study viewed surgeries as confidential, as they could be discreetly counselled by the doctor. This key difference in perception and implication is discussed in Section 6.5.

Information about chlamydia testing

A previous cross-sectional study found that widely advertising pharmacy chlamydia testing on television, social media and posters in pharmacies raised awareness among young people, which contributed to a high rate of participation of this age group in the study (Deeks *et al.* 2014; Parker *et al.* 2015). Furthermore, a mixed methods research by Nadarzynski *et al.* (2019) identified that targeted social media advertisement increased the uptake of chlamydia testing in young people. Such multi-media advertising was also suggested by pharmacists and young people in the present study, who perceived that there was a low awareness of the pharmacy chlamydia testing service among youth. In addition, pharmacist providers and young people felt that schools should deliver more education about sexual health and STIs to stress the

importance of testing and safe sex. Perceived lack of awareness about chlamydia testing and the need for further education on STI prevention was also reported by young people in McDonagh *et al.'s* study (2020) which investigated testing in GP surgeries.

Contrary to pharmacists' and young people's suggestions in the present study, contract managers reported that print material, including posters, a website and a mobile application were available advertising the service. Furthermore, education on STIs and about places that provided testing was delivered in schools by an external charity. These findings raise important questions into pharmacists' awareness and active participation in such promotional activities, and young people's engagement with the information and advertisements available to them. Recent national developments in pharmacy service provision and sex and relationship education in schools, which are discussed shortly in this chapter, may raise awareness, and increase engagement of such promotional activities.

A surprising finding of the present study was young men and male pharmacist providers' suggestion of advertising pharmacy chlamydia testing in a national campaign. Whilst young men perceived this would reduce the stigma associated with being tested and raise awareness, providers said it would increase delivery of the service in pharmacies. Interestingly, these views appear to support findings from a study by Gobin *et al.* (2013) where the delivery of a national campaign '*Chlamydia: Worth talking about'* in England in 2010 only appeared to increase testing coverage in young men than women during the campaign period. Although the paper did not explore the likely reason for this (Gobin *et al.* 2013), one hypothesis may be that widespread promotion may have encouraged discussions about chlamydia and testing among men.

Other similarities in views identified across the themes

Attributes of a healthcare professional/pharmacist

Most pharmacist providers and young people perceived that pharmacists had the appropriate knowledge and skill to advise on STIs and chlamydia testing. Young men believed that it was important for the pharmacist to explain how to use the kit in case they completed or posted it incorrectly. However, previous studies have shown conflicting views regarding pharmacists' ability to counsel on such matters; those reporting on clients' and pharmacists' experiences found that pharmacists were perceived as appropriate and helpful professionals who were confident to discuss STIs

(Baraitser *et al.* 2007; Thomas *et al.* 2010; Gudka *et al.* 2013; Parker *et al.* 2015). In contrast, pharmacists in earlier studies felt that they required training to discuss STIs and counsel on testing before it was implemented in their pharmacies (Taylor *et al.* 2007; Kapadia *et al.* 2012). Of significance, most pharmacist providers in the present study reported that they were trained to offer the kit, which may have contributed to their perception of being knowledgeable to counsel on STIs.

Notwithstanding the recognition of pharmacist knowledge, young people had concerns of being judged by the pharmacist and by staff on requesting the kit or a sexual health service. Furthermore, providers reported that they were cautious when offering the kit, as to not cause offence to the young person. To overcome such preconceptions, young people suggested that pharmacists should be friendly and welcoming, and, similarly to findings from other research, pharmacists thought that further training was necessary on how to approach and engage with young people (Thomas *et al.* 2010; Dabrera *et al.* 2011; Alsaleh *et al.* 2016). The likely influence of this key finding on chlamydia testing activity is explored further in Section 6.4.

Pharmacy provision of free chlamydia treatment

Many pharmacist providers and young people in the present study favoured the possibility of the provision of free pharmacy treatment for chlamydia as part of the testing service. Similar support for pharmacy treatment was reported by target users in previous studies (Baraitser *et al.* 2007; Taylor *et al.* 2007).

It is worth noting that pharmacist providers and young people in the present study had different perceptions on *why* treatment would be beneficial; providers believed it would offer a more structured and complete service which would be easier to deliver than testing alone, and that they had the clinical expertise to counsel on treatment; and, young people felt that returning to the pharmacy would both make them feel more comfortable to speak with the same pharmacist and would facilitate a quick access to treatment rather than attending a different setting. Here, pharmacists' views are similar to those reported by pharmacists delivering a test and treat service in Baraitser *et al.'s* study (2007). Furthermore, findings from young people's perceptions contribute to those in Lindsey *et al.'s* (2016) study, where general pharmacy users perceived that the relationship they developed with the pharmacist made them more likely to return for certain healthcare advice, compared to other healthcare providers.

Whilst a contract manager in the present study reported that young people positive for chlamydia were advised to attend a sexual health clinic for a full STI screen and treatment, the views of pharmacists and young people to treatment imply that, where suitable, a more comprehensive chlamydia testing service may help to promote testing.

Pharmacy-led partner notification

Most pharmacist providers and young people were either hesitant about or did not support the option of pharmacy-led PN. Many young people perceived that the sexual partner(s) may feel uncomfortable during the conversation, whereas some providers felt it would be a challenging discussion for them to initiate with the partner(s). Both groups said that it was easier if the young person spoke with the partner(s) themselves, which aligns with findings from a survey study by Apoola *et al.* (2006) on patient views of HCP-led notification. In addition, research by Taylor *et al.* (2007) found that neither pharmacists nor young women were comfortable with the option of pharmacy-led PN in case of breach of patient confidentiality. Further to providers' and young people's views, contract managers believed that sexual health clinics were best suited to deliver provider-led PN where they had structured systems and protocols in place for the process. These findings highlight the extent of, and indeed limit to, sexual health services that pharmacists can potentially provide. Nevertheless, the positive view of young people to user-led notification in the present study can be facilitated by pharmacies through accelerated partner therapy, a method that was shown to be acceptable in pharmacies in previous studies (Cameron *et al.* 2010; Estcourt *et al.* 2015; Willetts *et al.* 2018).

Views to the pharmacist-consultation on chlamydia testing

Both young males and females had no preference concerning the gender of the pharmacist to whom they spoke about sexual health and chlamydia testing. This finding is contrary to views reported by young women (Brugha *et al.* 2011) surveyed about attending screening in health- and non-healthcare settings and young men (Shoveller *et al.* 2010) about sexual health clinics in previous studies, who considered that the gender of the HCP was important. In one of the two studies, men associated STI testing with a genital examination which was a potentially sexualised encounter; as a result, their preference of gender of HCP was based on their sexual orientation (Shoveller *et al.* 2010). In comparison, it can be assumed that the sex of the pharmacist or support staff may not be a barrier to requesting a chlamydia testing kit.

Of note, in the present study, most pharmacist providers perceived that they were also comfortable counselling clients of either sex on chlamydia testing. However, they reported speaking mainly with young women about the test during a supply of the EHC. As a result, both they, pharmacists, and indeed other HCPs of doctors and nurses, in previous studies, felt that this excluded young men from being tested (Baraitser *et al.* 2007; Dabrera *et al.* 2011; Lorimer *et al.* 2014).

Earlier research found that only half of clients offered a chlamydia test during an EHC consultation accepted it (Brabin *et al.* 2009; Gudka *et al.* 2013). Similarly, pharmacists in the present study reported that young people often declined a testing kit during a sexual health consultation, as they were previously tested or were with the same partner. In comparison, young men and women said they were either unsure or would not want a test if offered one during an EHC or C-Card supply as this was not the focus of their visit. When investigating participants' perceptions of a young person's *request* for the testing kit, all groups in this study recognised that it may be difficult for the young person who may feel "*uncomfortable," "embarrassed" and "awkward"* to do so. This key finding is discussed further in Section 6.5.

Summary of the findings from comparing the views of different study participant groups

Summary of the findings in relation to existing literature

Findings from the present study on participants' perceptions of the geographical accessibility of pharmacies, of the lack of privacy in the pharmacy environment, and of the possibility of free treatment provision align with those from previous research (Baraitser *et al.* 2007; Taylor *et al.* 2007; Balfe *et al.* 2010; Brugha *et al.* 2011; Parker *et al.* 2015; Alsaleh *et al.* 2016).

In contrast to earlier findings, however, the present study showed that young people had no preference to speaking with a pharmacist of the same or opposite sex (Shoveller *et al.* 2010; Brugha *et al.* 2011). Furthermore, contradictory perspectives to home-sampling for chlamydia in the present study appears to be a prevalent finding across the literature (van Bergen *et al.* 2004; Lorimer and McDaid 2013).

Finally, this study offers *additional* evidence and insights from participants to findings from previous research in pharmacy on a number of matters: the perceived awareness of pharmacy chlamydia testing and the availability of consultation rooms; advertising pharmacy testing among young people; judgement concerns around the delivery of

testing; and disapproval of pharmacy-led partner notification (Apoola *et al.* 2006; Baraitser *et al.* 2007; Taylor *et al.* 2007; Thomas *et al.* 2010; Dabrera *et al.* 2011; Nadarzynski *et al.* 2019; McDonagh *et al.* 2020). Furthermore, there is some similarity between findings from the present study and existing research on testing for young people in *other* comparable settings. This includes privacy concerns with internet-based testing (Lorimer and McDaid 2013) and with non-healthcare settings (Lorimer *et al.* 2009), a low perceived awareness that GP surgeries offered testing (McDonagh *et al.* 2020), and little opportunity to test young men in surgeries (Lorimer *et al.* 2014). This implies that suggested approaches to promote pharmacy testing, as to be discussed shortly, can be reviewed against current delivery of testing at other venues offering a level 1 service in STI management.

Summary of the comparison in views

The comparison of the data between pharmacists, young people and contract managers identified that, generally, views were shared between the different groups. However, quite often, there were nuances in how the groups perceived a certain matter, for instance, regarding the offer or request of a testing kit, in relation to social contexts.

On closer analysis, it appears that pharmacists and contract managers mainly reported on information giving and health promotion activities, interests, and concerns whilst young people described the personal implications of chlamydia and chlamydia testing. The following sections explore these perceptions in-depth to help identify how to close the *gap* in service delivery and maximise promotion of pharmacy chlamydia testing.

6.4: Application of the theoretical models to the findings in the study

6.4.1: Application of the Health Belief Model to explore young people's engagement in pharmacy chlamydia testing

Data from the interviews with young people were located and explored within the constructs of the HBM, with the aim of facilitating understanding of the factors that may influence accessing a pharmacy for chlamydia testing.

Table 17 summarises the results of the analysis reported from young people within the constructs of the HBM: perceived severity of chlamydia; perceived susceptibility to chlamydia; perceived benefits and barriers to accessing pharmacy chlamydia testing; self-efficacy to test; and cues to action. The table illustrates that the decision to attend a pharmacy for chlamydia testing is multifactorial. Of note, where findings in the table begin with *'Young people,' (*for instance, '*Young people are judged by peers who find out they have chlamydia')* participants often reported what they believed *other* young people thought rather than speaking specifically about themselves. The significance of the findings under the model constructs is reported in the section.

Table 17 Summary of results from young people located within the constructs of the Health Belief Model

Construct	Results
Perceived severity of chlamydia	- Symptoms and long-term health risks of chlamydia are a worry. - Young people are worried about whether chlamydia can be treated or not. - Young people do not take chlamydia seriously.
Perceived susceptibility to chlamydia	- Unprotected sexual intercourse and having multiple sexual partners increase the risk of transmission. - Chlamydia is a prevalent sexually transmitted infection. - No thoughts on self-susceptibility to chlamydia. - Self-reported transmission risk but not tested.
Perceived benefit/barrier to accessing pharmacy chlamydia testing	- Pharmacies are geographically accessible and open long hours. - Being seen by peers when accessing the pharmacy for a testing kit. - Customers might hear the request for a kit. - Family members might see the testing kit at home. - The pharmacy counter is not private to request a kit. - Testing for chlamydia is not completed on-site. - It is comfortable to complete the urine sample at home.
Self-efficacy to test for chlamydia	- Pharmacist advice on sexual health and chlamydia testing is helpful to ensure the kit is completed correctly - Worry in case the urine sample is not completed or posted correctly. - Shy and embarrassed to request the testing kit in case of judgement from pharmacy staff.
Cues to action	- There is low awareness about pharmacy chlamydia testing among young people. - There is little education about chlamydia and STIs. - Pharmacy chlamydia testing is not widely advertised.
Other factors	- Young people are judged by peers who find out they have chlamydia. - Preference to attend the pharmacy with a chaperone for support. - Including pharmacy treatment for chlamydia is more convenient than attending a different setting. - Hesitance of/reluctance to pharmacy-led partner notification.

Findings from the application of the Health Belief Model to the results

Table 17 shows that young people shared several perceived barriers to accessing pharmacy testing. These were primarily associated with privacy concerns about the pharmacy environment, as reported by most participants who had not used a pharmacy sexual health service. It is likely that promoting pharmacy chlamydia testing as a discreet and confidential service may subsequently reduce such perceived barriers and result in greater engagement in the service.

Under the heading *Other factors* in **Table 17,** a number of participants perceived that young people were worried about the negative social consequences from a positive chlamydia diagnosis. This may be associated with participants' self-perceived judgement concerns on accessing a pharmacy for a testing kit, under the construct self-efficacy. Referring to the original HBM, a core belief of the model is an individual's perception of the severity of the *health risks* of an illness (Rosenstock *et al.* 1988). Within the context of chlamydia testing, this study highlights that the negative *social risks* associated with chlamydia, notably the perceived risk of social stigmatisation may also be linked to testing activity. This finding aligns with previous qualitative research which showed that the negative social risks of chlamydia deterred young people from testing (Richardson *et al.* 2010; McDonagh *et al.* 2020).

Other factors that did not easily align with the model constructs, but may facilitate engagement with testing, were the preference of having a chaperone for support when obtaining the testing kit and pharmacy provision of chlamydia treatment. Here, young women appeared to find comfort with social support, and young people with the opportunity to obtain rapid treatment where the long-term health risks of chlamydia were a concern. Hesitation or reluctance to pharmacy-led PN was found to impede testing, due to concerns of confidentiality and sensitivity of the matter.

The original HBM suggests that the perceived susceptibility to an illness can predict the likelihood of preventative health behaviour (Rosenstock *et al.* 1988). Another key finding of this study was that there was not always an association between awareness of STI-transmission risk and personal experience of being at risk with being tested for chlamydia. A lack of connection between the perceived susceptibility to an STI and preventative behaviour was similarly identified from interviews with university students in a study by Downing-Matibag *et al.* (2009). This implies that perceived susceptibility may not influence engagement with chlamydia testing, perhaps due to a perception

gap between young people's perceived and actual risk of chlamydia transmission. The implication of this finding is discussed further in Section 6.5.

In addition to self-perceived judgement concerns, other results located under the construct of self-efficacy in **Table 17** indicate that a young person's perceived awareness of chlamydia and of the pharmacy testing process may influence their view of their *competence* to be tested (Bandura 1977; Rosenstock *et al.* 1988). This finding suggests that pharmacy testing should be developed to facilitate a person's request for, and completion of, a chlamydia test kit. Furthermore, greater advertising of the pharmacy service, and testing method, may collectively influence self-efficacy and the decision-making process to be tested, under cues to action (Rosenstock *et al.* 1988). It may be particularly beneficial for young people who have not been tested for chlamydia, as this sub-group in the present study favoured the method of completing the testing kit at home.

The above findings highlight that there may be associations between the model constructs. Due to the nature of the study, these associations were not validly measured to predict the likelihood of engagement in the service. Nevertheless, the findings imply that a combination of variables may influence a young person's decision to be tested. The plausible connections are illustrated in **Figure 12**, which is a version of the HBM adapted to reflect the findings in the research. From the results of the analysis, the figure shows that demographic variables such as age, sex, geographical location, and testing history may also influence engagement in testing. The implications of the differences in views from participants across the demographic groups is discussed further in Section 6.5.

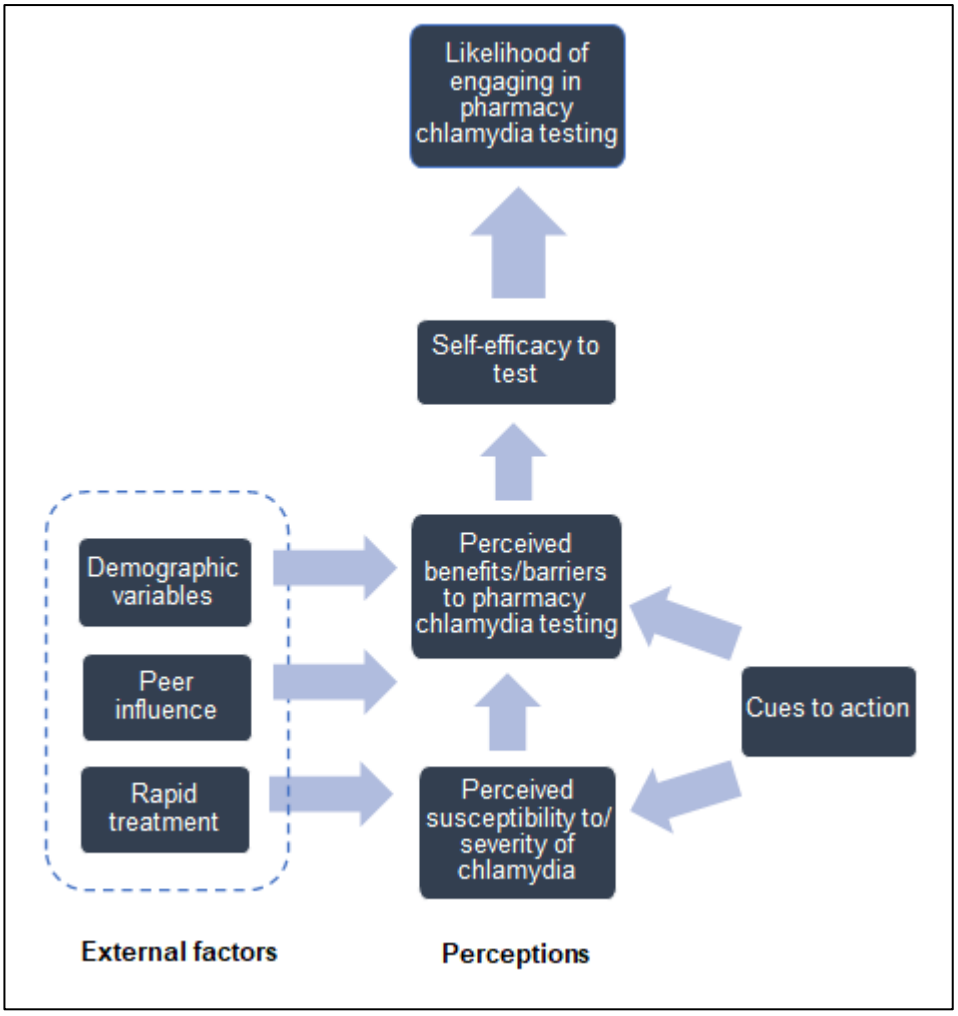


Figure 12 An adaptation of the Health Belief Model illustrating the potential associations between variables in predicting a young person's engagement in pharmacy chlamydia testing

6.4.2: Application of the Normalisation Process Theory Model to explore pharmacists' and contract managers' engagement in pharmacy chlamydia testing

Data from the interviews with pharmacists and contract managers were located and explored within the constructs of the NPT model, to outline how the pharmacy chlamydia testing service is implemented under the defined work processes of the model.

Table 18 illustrates a summary of the findings from pharmacists and contract managers under the construct of coherence, **Table 19** under the construct of cognitive participation, **Table 20** under the construct of collective action and **Table 21** under the construct of reflexive monitoring. A brief definition of each construct within the context of chlamydia testing is included in the tables.

The tables clarify whether reported perceptions were from pharmacists or contract managers, as the model was applied to the results from both study participant groups, to understand the individual and collective work processes involved. As previously reported, in **Table 20** contract managers' and pharmacists' perceptions of possibly implementing free treatment for chlamydia and pharmacy-led PN were loosely associated with the construct of collective action, as these were potential areas of work for the organisational and provider divisions.

Table 18 Summary of results from pharmacists and contract managers within the construct of coherence of the Normalisation Process Theory model

NPT construct of coherence *The sense-making work that individuals do to promote delivery of chlamydia testing (May and Finch 2009).*
Findings within the construct
– Providers reported that chlamydia testing was as an '*add-on'* to the EHC/C-Card. – Providers said that the aim of the pharmacy service was to test those not yet tested. – Contract managers and providers said that the pharmacy testing service was important and beneficial for young people to detect chlamydia. – Providers did not feel comfortable offering testing with services other than the EHC/C-Card. – Providers used PharmOutcomes as a framework to counsel on chlamydia testing. – Contract managers and providers reported that pharmacies were geographically accessible. – Past-providers felt the service was not beneficial to young people or to them due to previous low uptake of testing, particularly among young men. – Providers and past-providers reported that uptake of testing was low as the local demographic was an older population. – Providers and a contract manager felt that detail of the payment made to pharmacies for delivering testing could be clearer to encourage pharmacist engagement with the service.

Table 19 Summary of results from pharmacists and contract managers within the construct of cognitive participation of the Normalisation Process Theory model

NPT construct of cognitive participation *The enrolment work to engage individuals and their teams to deliver chlamydia testing (May and Finch 2009).*
Findings within the construct
– Providers and past-providers felt that greater advertisement of pharmacy chlamydia testing was needed to promote the service, yet contract managers reported several promotional materials/activities that were available. – Contract managers worked with LPCs to establish how to support participating pharmacies, including those where testing activity was low. – Providers said that as young people often declined a testing kit during an EHC consultation, they were unsure how to promote and sustain delivery. – Providers from healthy living pharmacies reported that they periodically advertised sexual health services including chlamydia testing to promote and sustain practice.

Table 20 Summary of results from pharmacists and contract managers within the construct of collective action of the Normalisation Process Theory model

NPT construct of collective action *The operational work that individuals and teams do to enact the delivery of chlamydia testing (May and Finch 2009).*
Findings within the construct
– Providers routinely offered the testing kit to young people during delivery of the EHC/C-Card service, although uptake remained low. – Some providers mainly offered the testing kit rather than their support staff. Some were unaware whether staff were trained on the kit. – Providers counselled patients in the pharmacy consultation room for privacy. – Providers counselled clients on how to use the kit prior to clients taking it away. – Contract managers felt that participating pharmacies could operationalise the service further. – Providers assessed if a young person could consent to sexual health advice/treatment. – Providers said that further training was necessary on communicating with young people. – Providers and contract managers said that pharmacists had the clinical skills to deliver testing. – One contract manager said that sexual health clinics referred patients to pharmacies for some sexual health services. – Providers reported working with sexual health clinics for advice on sexual health matters.
Potential areas for implementation: – Providers and managers felt that pharmacy-led PN would be challenging to deliver. – Providers said that free treatment for chlamydia may increase testing in pharmacies. – If positive for chlamydia, contract managers reported that young people are notified to visit a sexual health clinic for a full STI screen and treatment.

Table 21 Summary of results from pharmacists and contract managers within the construct of reflexive monitoring of the Normalisation Process Theory model

NPT construct of reflexive monitoring *The appraisal work to evaluate delivery of chlamydia testing (May and Finch 2009).*
Findings within the construct
– One contract manager reported that local commissioners collected data on testing activity via PharmOutcomes. – Contract managers attended review meetings with LPCs and with commissioners to evaluate testing activity. – Past-providers said that after evaluating testing activity with their staff, they decided not to continue providing the kit. – Providers said did not have any issues with communicating feedback about the service to contract managers, and vice versa.

Findings from the application of the Normalisation Process Theory Model to the results

Under the NPT model, most reports from pharmacists were mapped to the construct of collective action. This suggests that pharmacists followed several work processes to enact delivery of chlamydia testing, including knowledge work, and interactional work with young people and with other disciplines. Contract managers' duties were mainly assigned to components involved in appraising the testing service and delivering training and feedback sessions to pharmacy teams.

A key finding from the model was that pharmacists perceived that chlamydia testing was an *'add-on'* to other sexual health services, mainly the EHC, under the construct of coherence, and that it was routinely offered as such, under the construct of collective action. This implies that there may be a dynamic relationship between these constructs in the implementation of testing provision. However, pharmacists perceived that the kit was not readily accepted by young people making it difficult to sustain delivery, under the construct cognitive participation. Attempting to modify this method of offering testing, to facilitate testing activity, may be challenging; it appears to be embedded within a routine practice that pharmacists find comfortable, to avoid jeopardising positive client relationships. This finding contributes to previous research on pharmacists' views to chlamydia testing, which highlighted that client satisfaction was key in a client-led environment (Thomas *et al.* 2010; Dabrera *et al.* 2011).

In addition to pharmacists' perception that acceptance, and indeed request, of the testing kit was low among young people, findings from the NPT model identified other perceived barriers to engaging in pharmacy chlamydia testing delivery *across* the constructs. Most were associated with the quality and availability of training provided on chlamydia testing, advertisement of the service, and the rationale for offering testing within regions of a low demographic of young people. Overcoming providers' and past-providers' perceived barriers to work processes of the NPT model may facilitate implementation of pharmacy testing delivery that is sustained. This will be discussed in Section 6.5.1.

Application of the NPT model also identified possible gaps in work processes that may impede *embedding* of testing delivery within existing practice. These are as follows:

Cognitive participation

Providers from HLPs reported that, as part of the scheme, they periodically held promotional activities in the pharmacy to raise awareness about chlamydia and the testing service. This work process may help to develop and sustain delivery of the practice. However, it was unclear how developments were driven forward by providers from other pharmacies. It should be noted that, since the data collection, the NHS Long Term Plan was published by NHS England in 2019 which agreed that all pharmacies would be accredited HLPs by April 2020 (NHS England 2019). This would be developed under the CPCF's five-year strategy supporting the Long Term Plan (DHSC 2019). As such, it is likely that promotional activities on chlamydia testing may increase and include pharmacies which previously did not deliver the service. Furthermore, the availability of pharmacy health champions under the HLP scheme, who work to drive public health interventions forward, may play a key role in supporting the workforce to deliver testing (DHSC 2019). This influential role was positively recognised as essential by pharmacy staff from previous studies on chlamydia testing (Emmerton *et al.* 2011; Deeks *et al.* 2014; Debattista *et al.* 2016).

Collective action

The NPT model is concerned with the work that individuals and groups do to embed an intervention (May and Finch 2009). Previous research found that pharmacists and support staff did not consistently work together to offer testing (Dabrera *et al.* 2011). Similar to the literature, in the present study, it appears that greater collaborative work is necessary between pharmacists and support staff to collectively deliver the service. Where pharmacists reported that staff referred clients to them for the kit, staff should also be encouraged to confidently offer the service and feel that they can make a valid contribution to it.

In this study, pharmacist providers identified a training need to effectively communicate with young people on chlamydia and testing. Ultimately, it would help to improve and develop interactions to address young people's perceived risk of chlamydia during sexual health consultations. Furthermore, pharmacists reported some collaborative activity with other disciplines to deliver testing. However, there could be further interactional work with such disciplines to promote pharmacy testing.

Reflexive monitoring

The findings in **Table 21** suggest that most appraisal work is conducted at an organisational level between commissioners, contract managers and LPCs to evaluate

delivery of pharmacy testing. However, if testing is to align to other services offered in pharmacies, further reflection by pharmacists and their teams should be encouraged, both individually, in informal groups, and in formal collaboratives with managers or contract managers.

The above potential gaps in work processes focus on group-orientated, rather than individual, practices. This implies that greater *collective* involvement within pharmacy and between pharmacy and other health- and non-healthcare settings may be necessary to integrate testing delivery. This key finding is explored further in the next section.

6.4.3: An association between the theoretical models in understanding the perceptions of pharmacy chlamydia testing

From the analysis of the theoretical models, the HBM highlighted several cultural and psychological factors that may influence a young person's engagement in pharmacy testing; comparatively, such factors appeared to be amplified and supported by findings from pharmacists and contract managers in the operational processes within the NPT model. For instance, such an association was evident between young people's pharmacy privacy concerns, under the construct *perceived barriers*, and pharmacists' recognition of the use of consultation rooms for discretion, under *collective action*. The connected activity identified between the models facilitated the development of robust and comprehensive recommendations to maximise service provision. These are proposed in Section 6.7.

6.5: Synthesis of the key findings

Results from analysis of the data comparison between young people, pharmacists and contract managers identified views that were shared, as well as views that were exclusive to each participant group. These comparisons, which are likely a result of differences in participants' social positions, are essential to understanding pharmacy chlamydia testing processes as a whole. Then, application of the theoretical models to the results from each study participant group offered deeper insight into participants' perceptions to help investigate the emerging issues. These analyses led to the synthesis and evaluation of the following key findings: the interactions between pharmacists and young people, and between pharmacists and other healthcare providers, to deliver testing; and the social and emotional factors involved in a young

person's decision to engage in pharmacy chlamydia testing. The implication of these key findings on the development and delivery of pharmacy chlamydia testing is discussed.

6.5.1: Professional relationships

The professional relationship between the pharmacist and young person during the delivery of chlamydia testing

The main opportunities for the delivery of pharmacy chlamydia testing are a young person's request for the testing kit and the pharmacist's offer of the kit during a sexual health consultation. However, the present study identified perceived barriers to these delivery methods, largely due to judgement concerns associated with stigmatisation. This section focusses on how and why an effective interaction between pharmacists and young people is necessary to overcome such concerns.

A widely-known, earlier definition of pharmaceutical care, by Hepler and Strand, is "The responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life" (Hepler and Strand 1990, p.539). There have been several modifications to the term since, encompassing the role of pharmacists across different practice settings in improving patient outcomes (Franklin and Van Mil 2005; Blackburn *et al.* 2012; Allemann *et al.* 2014). Whilst each term may focus on pharmaceutical care within the context of medicines provision, arguably pharmacists' health promotion activities, such as chlamydia testing, can be viewed as a concept of such care, particularly with outcomes including disease prevention (van Mil and Fernandez-Llimos 2013; Anderson 2019).

One component remains central to effective pharmaceutical care; the development of a trusting, responsible and mutually beneficial pharmacist-patient relationship (Hepler and Strand 1990; Hepler 2004); pharmacists' clinical knowledge alone would not sufficiently optimise delivery of a service. In the present study, pharmacists and young people recognised the need for such a relationship in the delivery of testing. To facilitate this, young people felt that the pharmacist and staff should be kind and welcoming in their approach. Comparing their perceptions to that of Austin *et al.'s* (2006) study, who developed a typology of idealised types of professional relationships between pharmacists and their patients, it appears that young people favoured an emotional-interactive form of communication. Here, the pharmacist provides moral support without judgement. This is in contrast to an opportunistic-expedient manner,

where there is little interaction between the pharmacist and client and the testing kit is provided as a transactional service (Austin *et al.* 2006). Whilst Austin *et al.* (2006) assessed only the perspective of the pharmacist and not the client in the development of their typology, the above terms appear to align with target users' preference of interaction with the pharmacist in the present study. Furthermore, in other research by Worley *et al.* (2007), clients surveyed, including young people, liked to be greeted with a friendly *'hello'* by the pharmacy team on entering the pharmacy. The authors believed this would improve interpersonal communication between clients and pharmacists which, in this case, may alleviate young people's perceptions of stigmatisation by staff on requesting a testing kit. This finding supports the DOH's *'You're welcome'* criteria for delivering youth-friendly services (DOH 2011), in which pharmacy staff should be welcoming and introduce themselves to young people.

Another key finding from the present study was the operational work processes pharmacists followed, as highlighted by the NPT model, to routinely offer chlamydia testing during an EHC consultation. It appears they felt assured in using protocols and the EHC algorithm on PharmOutcomes on when to ask a young woman the question *"Would you like a chlamydia testing kit?"* Employing such processes may be associated with the following three outcomes: pharmacists may feel that it enables them to de-stigmatise the testing process for the client who may be feeling *'uncomfortable'* and *'shy*'; secondly, contrary to previous studies, offering the kit routinely rather than through speculation dependent on a client's relationship status supports the use of protocols specifying to direct testing to *all* clients requesting the EHC (Brabin *et al.* 2009; Gudka *et al.* 2014); and, thirdly, following such protocols may suggest why pharmacists were hesitant to offer testing during a supply of the regular oral contraceptive pill or during a non-sexual health service, as it was not considered standard practice. This suggests that further consideration, at both provider- and organisational- level, is necessary to explore how to suitably offer chlamydia testing with other services and increase opportunity. Of significance to this finding is a recent inquiry into the reclassification of the regular progesterone (desogestel) contraceptive pill from a prescription-only medicine (POM) to a Pharmacy (P) medicine for purchase (MHRA 2021). Pharmacies were recognised as ideal providers for the pill, improving access to contraception (All Party Parliamentary Group 2020). If the reclassification is approved, it will provide further opportunity for pharmacists to discuss sexual health and potentially incorporate chlamydia testing within their consultation.

As discussed earlier, young people's non-acceptance of the testing kit during sexual health consultations was a perceived barrier to pharmacists' implementation of delivering testing in the study. Of note here, it is also important to consider pharmacists' current construction, or *'pharmacy gaze,'* of patients' *bodies,* in the sociological sense of the term, within the context of sexual health (Jamie 2014). Pharmacists' recognition of a further training need to effectively communicate with young people about such matters may highlight that a shift in the nature of body work in pharmacy may be necessary to accommodate for this service. Allen (2008) reported that providing partial information on sexual health may be perceived by young people as instructive rather than empowering, thereby limiting their sexual health choices. In view of this, additional guidance may be necessary to support pharmacists to approach and engage in discussions about sexual health and STIs and address young people's perceived risk of chlamydia. As suggested by some pharmacists in the present study, implementing role-play-based activities may be an effective learning strategy to help them engage with young people. Certainly, HCPs in a previous study investigating the use of role play to teach sexual history taking including in young people and assess a patient's risk of STIs found it to be a positive and useful experience (Skelton and Matthews 2001). Therefore, the need for further guidance in the present study is an important reflective point, particularly for pharmacists who decided not to continue offering testing due to previous low uptake. On reflection of the NPT model, this may increase their sense-making work of the service, and subsequent recognition of its benefits and importance to local populations.

The professional relationship between the pharmacist and support staff to deliver chlamydia testing

Application of the NPT model in the present study identified that greater collective work between pharmacists and support staff is necessary to promote chlamydia testing delivery. It may be that staff do not feel well-equipped to offer testing and provide safe sex advice, as shown in previous survey studies (Watson *et al.* 2006; Deeks *et al.* 2014). Furthermore, in the present study, pharmacists' perception that they were the first point of contact to deliver testing contradicts findings by Eades *et al.* (2011) and Kapadia *et al.* (2012) that support staff were often the first contact for clients prior to seeing the pharmacist, where they could offer public health services and initial assistance.

It may be necessary for pharmacists to delegate chlamydia testing to support staff, particularly if a young person is waiting to be seen or with distribution of the C-Card

(Lea *et al.* 2016). Furthermore, pharmacists should encourage their staff to reflect on their knowledge and skill, to identify learning needs, and support them in meeting those needs, as set out in guidance by the Pharmacy regulatory body in Britain, the General Pharmaceutical Council, on ensuring effective pharmacy teams (General Pharmaceutical Council 2018). Under the HLP scheme, training is delivered to both pharmacists and support staff to promote public health services, including sexual health; this may not only facilitate learning but also promotes a *shared* understanding of the aims, objectives and operational work of chlamydia testing (Donovan and Paudyal 2016). As more pharmacies become accredited HLPs with health champions under the CPCF (DHSC 2019), there is greater opportunity to promote a collective engagement in testing provision.

The professional relationship between the pharmacist and other disciplines to deliver chlamydia testing

Pharmacists in the present study and previous research perceived that, compared to the GP surgery, pharmacy delivery of public health and chlamydia testing was more convenient due to longer opening times and provision of a walk-in service (Baraitser *et al.* 2007; Saramunee *et al.* 2014; Hindi *et al.* 2018). It appears that by pointing out the perceived benefits of pharmacy-based chlamydia testing, pharmacists may be demonstrating how they provide an effective, alternative facility for clients. This may also explain why pharmacists in the present study favoured the potential addition of chlamydia treatment to the service, in strengthening such a facility. Both pharmacists in this study and in previous research believed such continuity of care was important to enhance patient care (Edmunds and Calnan 2001).

Findings from the NPT model in this study identified that further collaborative activity may be necessary between pharmacists and other disciplines to integrate pharmacy chlamydia testing delivery. In comparison, pharmacists, GPs and stakeholders in previous research recognised the need for such joint working in promoting pharmacy public health (Saramunee *et al.* 2014). Chlamydia testing activity among young people is considerably higher in GP surgeries and specialist and non-specialist sexual health services than in pharmacies (Mitchell *et al.* 2020). Whilst testing in these venues includes the management of complex, symptomatic infections, referring asymptomatic, uncomplicated cases between these settings and pharmacies, as well as advertising pharmacy testing across disciplines, can be maximised. Such referrals may help to endorse the expanding role of pharmacists as providers of sexual health, and supports level 2 sexual health providers to focus on managing symptomatic cases (PHE 2019c).

Of course, *how* disciplines can effectively implement a collaborative engagement in the service should be considered. Of significance here is the recent establishment of primary care networks (PCNs) under the NHS Long Term Plan; these comprise of primary care settings including GPs, pharmacies, and other community teams, that work together to effectively provide a wide range of services to local populations (NHS England 2019). The interactional work of PCNs may encourage a shared support of pharmacy sexual health and chlamydia testing, further promoting testing delivery.

6.5.2: Young people's perception of the risk of chlamydia and their self-efficacy to attend a pharmacy for chlamydia testing

Young people's perceptions of the risks of chlamydia

A key finding from the present study was that, among young people, the negative social implications of chlamydia were perceived to be greater than the health risks of the infection. Such social risks included stigmatisation of the STI, which was similarly reported by young people in previous studies (Balfe and Brugha 2010; Richardson *et al.* 2010; McDonagh *et al.* 2020). In particular, females in the present study described chlamydia as degrading whilst males saw it as embarrassing. Application of the HBM in the study identified that concerns about stigma appeared to obstruct uptake of testing for chlamydia; this implies that young people's requirement of a private and non-judgemental pharmacy testing service may help to mitigate the negative social risks.

Previous research has shown that young people are aware of the health risks of STIs but continue to engage in risky sex (Jones and Haynes 2007; Greaves *et al.* 2009; Richardson *et al.* 2010). Comparably, the present study found that young people, including those who have never been tested, disclosed a personal experience of being at risk of contracting chlamydia, but were not aware of this risk. This suggests that they may hold the belief that they are unaffected by chlamydia regardless of their behaviour and, therefore, do not associate themselves with those they see at risk. Such perceived invincibility of young people is described as a Personal Fable belief (Elkind 1967). Another hypothesis is that risk-taking among young people is a transitional behaviour in exploring autonomy (Irwin and Millstein 1986). It is important that chlamydia testing be seen as a healthy, and even possibly necessary action towards developing autonomy. This message can be communicated within the pharmacy setting through positive support from pharmacists and by advertising the ease with which the chlamydia testing kit can be completed.

It is also interesting to point out that older participants of young people in the present study felt that STIs should be taken seriously, and that STI testing was important, but that they felt that younger adolescents, or *"children,"* were not protecting themselves from STIs. This finding contributes to research by Hendry *et al.* (2017) who showed that, with sexual experience, young *'adults'* were more likely than young people to adopt an increased responsibility for their sexual health. Taken together, these findings suggest that one rationalisation for taking care of a young person's sexual health is being able to describe it is *'adult'* which may be socially status enhancing. This may be vital to promotion since it implies that the route and message to convey in chlamydia testing campaigning and discussions around sexual health should be shaped around the varied sexual experiences of young people.

Another important finding of the present study was young people's concern about whether and how chlamydia could be treated to reduce the long-term health risks. This is in contrast to previous research by Newby *et al.* (2012) which reported that health consequences, including infertility, were not an immediate concern for young people. This apparent lack of correlation may be attributed to the fact that participants in their research were attendees of a sexual health clinic where the likelihood of the awareness or use of treatment may have been greater. Nevertheless, the perceived concern in the present study implies that there may be a gap in information available or delivered to young people about how STIs and chlamydia can be treated. Findings from the HBM showed that, if not addressed, this concern may likely hinder the decision to be tested, in case of a positive result. Of further significance was young people's preference of a pharmacy test and treat service in the present study, as reported by clients in previous research (Baraitser *et al.* 2007); it may suggest that treatment advice and provision from the pharmacist may help to alleviate young people's worries of the long-term risks of chlamydia if not treated, consequently increasing engagement with testing. In addition, obtaining pharmacy medicines appeared to be an accustomed and convenient service to young people in the present study, implying that pharmacy provision of chlamydia treatment may also be viewed as such. Supporting this provision, PHE (2019c) reports that the rapid treatment from pharmacies would prevent onward transmission of chlamydia and reduce subsequent healthcare costs in managing the long-term complications including PID and subfertility.

On another note, heightening the perception of the health-risks of chlamydia using *'scare tactics'* for instance, may motivate testing in some young people. Whilst this

approach is generally discouraged (Richardson *et al.* 2010; Nadarzynski *et al.* 2019), it may signify the seriousness of the infection if not tested.

Chlamydia testing at community pharmacies versus testing at other settings

Previous research investigated the settings that young people preferred to access for chlamydia testing (Balfe *et al.* 2010; Brugha *et al.* 2011; Saunders *et al.* 2012; Eaton *et al.* 2019). The present study contributes to the existing research by offering an insight into young people's reasons for their chosen setting for testing.

Some young people in the present study attended and favoured venues other than the pharmacy, including sexual health clinics and GP surgeries. This was because they were familiar with the staff, the environment which was private to them, and the testing process. Such familiarity appears to be convenient and reassuring for young people. Certainly, one study found that young people preferred to be seen by HCPs who were familiar to them, and with whom they were able to build a trusting relationship (Robinson 2010). Such a relationship reinforces the importance of pharmaceutical care. Furthermore, as discussed earlier, advertising pharmacy chlamydia testing across other disciplines may further advocate the role of pharmacists as sexual health providers; this may raise awareness about, and request of, the testing kit, subsequently increasing familiarity with the pharmacist and pharmacy setting.

Of particular significance in the present study was young people's privacy concerns about pharmacy chlamydia testing. They preferred sexual health services to be behind closed doors, which they associated with sexual health clinics and GP surgeries. It appears that they might not consider pharmacies as private compared with these settings because pharmacies are public places with an apparent lack of private area to discuss testing. Unfamiliarity of pharmacy consultation rooms was also reported by the public in previous research (Saramunee *et al.* 2014; Lindsey *et al.* 2016). The availability of these rooms should be promoted to highlight that pharmacies also offer a discreet testing service. In addition, further methods to facilitate a young person's request to speak privately with the pharmacist in the consultation room should be considered, to reduce judgement and privacy concerns; the use of a form to be given to pharmacy staff to ask to speak in private, or the pharmacist's offer of the option to speak in the consultation room if the client wishes, were suggested by young people in the present study.

Another suggestion would be the provision of an online click and pharmacy collect testing service; personal details submitted with the order may also help to effectively audit testing activity in pharmacies, as similarly implemented for online-based postal testing kits (PHE 2015). It is important to note, however, that this may lead to missed opportunity to provide sexual health information where young people in the present study favoured the pharmacist's advice. This aligns with youth's preference of the physical presence of a HCP for guidance on how to self-sample for chlamydia in a recent paper (McDonagh *et al.* 2020). Of note here, a recent PHE (2020b) report which analysed the impact of the coronavirus national outbreak in the UK on STI testing activity, found a drop in chlamydia testing in both specialist and non-specialist sexual health services between January and June 2020 but a rise in internet postal testing. Certainly, current internet-based postal testing services in NEE (Northumbria Healthcare NHS Foundation Trust 2021; Teesside Sexual Health Service 2021) could be integrated with pharmacy, to provide young people with the option of collecting the kit from local pharmacies and asking for advice, if they preferred. A similar pharmacy method was shown to be feasible among clients, when delivered as part of an online sexual health service, in a recent study by Aicken *et al.* (2018).

Why is pharmacy chlamydia testing activity lower in males than females? Findings on gender differences in perceptions of the testing service

A previous large-scale study found that young men reported that they would access a pharmacy for a self-sampling testing kit (Saunders *et al.* 2012). However, in NEE and nationally, uptake of testing in pharmacies continues to be considerably lower among young males than females from 2015-2019 (PHE 2020a). The results of the present study provide an insight into the psychosocial factors underlying this gender differential.

One significant finding of this study was that young men often expressed concern in case they were seen by their peers entering the pharmacy to request the testing kit. This perceived concern appears to be associated with their reluctance to discuss chlamydia testing with their peers, unlike females in the study who valued the exchange of knowledge on settings which offered testing. This implies that young men's concealing or, in other terms, *passing* of testing from their friends is important to maintain a positive reputation, and to reduce the risk of being viewed as *'dirty'* and *'unclean'* (Goffman 1963; Shoveller *et al.* 2010; Balfe *et al.* 2011). Furthermore, young men's perception of being judged and consequently stigmatised by pharmacy staff suggests that they may not want to portray themselves negatively to people outside their network either. In view of the psychosocial factors involved, further measures are

necessary to support young men to engage in pharmacy chlamydia testing. For instance, the primary source of information for young people regarding sexuality is often from their peer group (Kinsman *et al.* 1998; Byron 2017). Therefore, encouraging positive peer discussions around sexual health and STIs may support approval for testing, particularly among young men where sexual identity is important. Starting in September 2020, mandatory delivery of relationships and sex education in secondary schools as part of the national curriculum may offer a platform for such discussions (Department for Education 2019).

Another suggestion to promote pharmacy testing among men is to offer an incentive with the test; some young men in the present study were tested for chlamydia with their friends *"for a laugh"* after receiving an incentive at their college. This supports results from a quantitative study (2015) which showed that uptake of incentivised chlamydia testing from pharmacies was greater among men than women. Both findings imply that this advertising may encourage a collective activity among men to be tested, facilitating peer group support, whilst maintaining a positive reputation.

A further key finding from the present study was the difference in young men and women's decision on when to be tested for chlamydia. Some young men were tested after finding out that a sexual partner was positive for the infection, or to make sure they did not have it, whilst women were tested more frequently as part of a general health check. These gendered differences on when to be tested match with findings from other studies (Shoveller *et al.* 2010; Newby *et al.* 2012). It appears that young men may see their sexual partners as the reservoir of infection which may negatively impact on their health. As a result, men may avoid the burden of responsibility for risk or safety within sexual relationships (Darroch *et al.* 2003). In relation to pharmacy chlamydia testing, young men may decline a testing kit when offered as they may not perceive themselves to be at risk of chlamydia. Here, pharmacist advice on when to test or re-test for chlamydia, in-line with PHE's recommendations, may help young people, particularly men to rationalise their risk of the infection (PHE 2013). This would support findings from a recent survey study by Currie *et al.* (2019) which showed that most young people attending a genitourinary medicine clinic were in fact unaware of PHE's recommendations.

Previous research found that women perceived the risk of pregnancy from unprotected sexual intercourse as an immediate concern (Newby *et al.* 2012). The accessibility and widespread location of pharmacies has effectively facilitated a timely supply of the EHC

to young women over many years and quite often free-of-charge (Glasier *et al.* 2020). During the supply, topic areas about safe sex and STI testing can also be appropriately discussed. However, pharmacists in the present study found that such conversations could not easily be incorporated during a condom supply to young men, who only occasionally accessed the pharmacy. This implies that pharmacy chlamydia testing should be promoted and advertised as an integrated, comprehensive service that aligns to other sexual health provisions; it would not only support pharmacists to feel it more suitable to advise on STIs to men and women, but it may also raise awareness of and increase requests for the testing kit and other sexual health services available. Certainly, an integrated pharmacy sexual health approach used in a recent study found that it promoted uptake of both STI testing, the C-Card and the EHC, particularly among young people (Gauly *et al.* 2020).

6.5.3: Area demographic differences in the study findings

Previous research and a recent PHE report found that the prevalence of chlamydia was greater in areas of high deprivation in England (Yin *et al.* 2013; Woodhall *et al.* 2015; Mitchell *et al.* 2020). By exploring the views and experiences of young people and pharmacists from areas of varying socioeconomic profiles, the present study suggests how to maximise pharmacy testing particularly in prevalent areas. One key finding from the study was that young people from a relatively socioeconomically deprived area perceived that the social stigmatisation of chlamydia was a particular concern among youth in their area. This implies that different socioeconomic contexts may be linked to STI and chlamydia testing behaviour. Similar perceived concerns about the social risks of chlamydia were also highlighted in Booth *et al.'s* research (2015) when young people in a deprived area were surveyed on their beliefs about testing, which suggests that a focused effort may be necessary in such areas to de-stigmatise chlamydia and testing among the local population.

In addition, the present study found that, among young people across the study sites, there were variations in the level of perceived awareness about the prevalence and symptoms of chlamydia and of pharmacy testing. This variation is likely to be related to differences in the promotional activity delivered across areas advertising testing, and in the exchange of sexual health information from peers, or schools and colleges. On another note, young people may not be actively engaging in such activities, suggesting that current routes used to convey information about STIs and testing may need to be adapted and targeted at addressing young people's sexual behaviours.

Another key finding from the present study was pharmacists' perceptions of the local age demographic. Some felt it was difficult to deliver testing to young people in an area which they perceived mainly consisted of an ageing population. This implies that it may be necessary for organisational teams to review the STI-risk and demographic details of the local population surrounding each pharmacy, to assess the feasibility of a pharmacy chlamydia testing service. Of course, such findings should be reported to participating pharmacies to ensure they are aware that the service would meet the demands of the local population, likely increasing cognitive participation as a result.

Currently in North Tyneside, each pharmacy STI testing kit samples for both chlamydia and gonorrhoea, as a dual test. In the present study, pharmacists and young people across the study sites perceived that testing for more than one STI was more beneficial for clients than testing for chlamydia alone. Whilst preliminary, this finding provides qualitative evidence to support the implementation of an integrated pharmacy sexual health service that tests for chlamydia and other STIs. Certainly, considerations into the associated costs and execution of a dual STI-testing service across regions would be necessary. PHE's recently updated guidance on the detection of gonorrhoea (2021a) reported that testing for chlamydia and gonorrhoea was more cost-effective on laboratories than single STI-testing. However, it should be noted that gonorrhoea testing is safer to implement in areas of local outbreaks rather than in areas of low prevalence, to reduce the likelihood of a false positive test result and misdiagnosis (Field *et al.* 2014; PHE 2021a). Therefore, the needs of the local population to test for both STIs should also be carefully assessed.

6.6: Summary of the findings in relation to the research questions

On reflection of the research questions proposed at the start of the study, each has successfully been answered as a result of a robust study design, collection and analysis of the data, and interpretation of the findings.

The first research question asked what the perceptions of young men and women were about receiving a chlamydia test. This study found that young people perceived pharmacies as geographically accessible locations for testing with skilled and knowledgeable professionals available to speak to without the need for an appointment. Those who had used a pharmacy sexual health service and testing were happy with the service, and those who have never been tested favoured how the test

could be taken home to be completed in their own time. However, sociocultural factors including peer influences, health-seeking behaviours and social stigmatisation of chlamydia impacted on engagement in the service, which needed to be a private, friendly, and welcoming environment to mitigate the associated negative social risks of chlamydia.

The second question asked what the perceptions of pharmacist providers were about the testing service. Findings from the study were that pharmacists perceived testing to be beneficial for the local population in reducing the risk of chlamydia and STIs. However, they faced issues with its implementation; young people did not accept the testing kit when offered, and requests for the kit were low. Pharmacists identified a further training need on how to effectively engage with young people about sexual health and chlamydia testing to comfortably promote the service.

The third research question asked why pharmacist non-providers did not offer testing and their views if they were to deliver it. This study showed that the testing service was difficult to sustain as a result of low testing activity in young people. Therefore, pharmacists decided not to continue offering it. Issues were also faced with allocating time for staff to attend the sexual health training. With support, pharmacists had no reservations to delivering testing in future.

The fourth question asked what the perceptions of contract managers were about the testing service. This study found that contract managers perceived that the locations of pharmacies were accessible, particularly in areas of a high demographic of young people. The provision of testing in pharmacies effectively offered young people further choice on where to access testing. However, they questioned and worked to actively investigate why testing activity was not streamlined across pharmacies.

The fifth research question asked what the views from young people, pharmacists and contract managers and their analysis suggest about how pharmacy chlamydia testing can be developed. Comparing the views of the different stakeholders identified that perceptions about pharmacy chlamydia testing were generally shared. Nuances were present, however, about the benefits to chlamydia treatment and to pharmacy delivery of testing versus testing at other settings. The application of the NPT model in this study served as a theoretical support in identifying potential areas for implementation to strengthen and embed pharmacy chlamydia testing within routine practice. This included the need for stronger collaborative efforts between pharmacists and other

disciplines to promote testing, greater appraisal work at both individual and pharmacy level to constantly evaluate and improve the service and further training for pharmacy teams on inter-communication with young people.

Application of the HBM identified that young people's perceived risk of chlamydia should be addressed through positive peer discussions and during pharmacy delivery of integrated sexual health services. Furthermore, advertising that actively engages young people to test for chlamydia and promotes pharmacy testing as an integrated sexual health package may increase young people's self-efficacy to test for chlamydia and may present pharmacists as advocates in sexual health provision whom young people can speak to or request services from. Lastly, if suitable, the support for a chlamydia test and treat pharmacy service appeared to increase the likelihood that a young person would engage in the pharmacy service than testing alone, where it was both comforting and convenient for them. The findings support PHE's (2019c) recent report on the pharmacy delivery of sexual and reproductive health, by highlighting the need for further integration of chlamydia testing, for offering chlamydia treatment where suitable, and for addressing young people's perceived risk of chlamydia.

6.7 Recommendations

The findings from the study led to the development of recommendations with the aim of maximising pharmacy chlamydia testing. These are summarised in **Table 22**, and apply to contract managers and commissioners, training providers, LPCs and pharmacy teams.

Table 22 List of recommendations for promoting pharmacy chlamydia testing

Activity	Recommendation
Training	- To tailor training to cover intercommunication with young people on potentially sensitive sexual health matters. - Pharmacy staff to be encouraged to access training. - To offer online training, where feasible, as an alternative or supplementary learning service to facilitate access.
Assessing the needs of local populations	- Pharmacies to be supported to work towards achieving greater testing activity in more prevalent areas.
Dissemination of aims/cost of test	- To provide easily accessible information on the aims of testing, and on the payment to pharmacies for delivering the test.
Delivery of chlamydia testing	- To encourage pharmacy teams to consistently follow a young people-friendly ethos. - To facilitate a young person's request for the testing kit or to speak privately. Suggestions include: o Client presenting a form/card at the counter indicating that they require the service. o Offering a click and collect testing service. - To include clear information about chlamydia and to feel confident to address young people's perceived risk of the STI. - To offer help with completing the detail section of the sample form and posting the form after the sample is taken. - To review integrating chlamydia testing with other sexual health services/supplies e.g., the regular contraceptive pill. - To encourage support staff to offer the chlamydia test. - To consider a test and treat service for timely treatment.
Advertising pharmacy chlamydia testing	- Pharmacies to actively request promotional material on testing. - To re-brand the testing kit, where possible, to raise awareness. Young people can be involved in the design. - To advertise testing as an integrated sexual health service and the ease with which it can be obtained and completed.
Evaluation of testing delivery	- To encourage pharmacy teams to feedback issues/successes of the testing service with pharmacy leads and contract managers. - To conduct periodical client satisfaction surveys. - To work more closely with other health- and non-healthcare settings to appraise and maximise pharmacy chlamydia testing.

Further points for consideration

As part of the most-recent CPCF five-year agreement, since 2019 a range of new services have been and continue to be introduced in pharmacies (DHSC 2019). With a fixed yearly budget, pharmacies have found it a challenge to adapt to the changes in service provision and to manage with the additional expenditures incurred (Wickware 2020). On reflection, promoting chlamydia testing alongside other sexual health services may encourage uptake of multiple services in one pharmacy visit, where suitable, improving pharmacy productivity. This can be further facilitated through the involvement of pharmacy support staff in testing delivery.

Another point for consideration is that, under the *'You're Welcome'* criteria for promoting youth-friendly services (DOH 2011), young people should be supported to make informed choices on their treatment. Therefore, pharmacies should also be flexible with how they deliver testing according to individual needs. For instance, the option of collecting a chlamydia testing kit from the pharmacy display should also be available, if the young person prefers. Whilst pharmacist advice would be valuable, offering such flexibility may help to increase uptake of the test.

6.8: Wider implications of the research

In the present study, the qualitative evidence and recommendations supporting the implementation of an integrated pharmacy testing service was directed to stakeholders in NEE in view of current local practice. Given this, transferability of the findings to other regions supporting PHE's proposal must be carefully considered; a thick description of the methods, results and findings, as noted from Chapter 3 onward, has facilitated the assessment for connections to be made between this study and other contexts (Leung 2015; Korstjens and Moser 2018). It can be assumed, however, that from the heterogenous samples obtained in the study, inferences can be made to other regions in England, where pharmacy chlamydia testing activity is low. Indeed, as previously discussed, similarities in findings were also identified between the present study and previous research on testing in other comparable settings. Therefore, it can conceivably be hypothesised that recommendations proposed in the present study may support service promotion in those settings where suitable.

Organisational, provider, and public involvement is fundamental to the development of effective sexual health services (PHE and DHSC 2018). As such, the recommendations from this study proposed (1) how to further implement delivery of

pharmacy chlamydia testing and (2) how to encourage testing among young people, to maximise the service. Key areas identified for development included equipping pharmacists and support staff with the skills to engage with young people on potentially sensitive topics, including chlamydia testing, supporting young people to request the testing kit, and delivering targeted advertising of pharmacy chlamydia testing. Applying these recommendations to other contexts can help to support the implementation of an integrated sexual health model, defined by PHE and DHSC as follows:

> *Non-judgmental and confidential services through open access, where the majority of sexual health and contraceptive needs can be met at one site, often by one health professional, in services with extended opening hours and locations which are accessible by public transport* (PHE and DHSC 2018, p.4).

Reflecting on this definition, PHE recognised that the convenient location of pharmacies and various sexual health services they delivered made them ideal providers under this model (PHE 2019c). In keeping with PHE's aim, pharmacies would provide primary prevention activities including behaviour change and reduce the stigma associated with STIs.

As evident in the NHS long Term Plan, Pharmacy in England is expanding; pharmacists are delivering a wider range of public health services including sexual health (DHSC 2019; PHE 2019c). Of significance, the findings from this study have highlighted that, in order to effectively take on this expanding role, pharmacists should feel well-equipped and supported to address sexual health matters, particularly STIs and safe sex. Furthermore, advertising and promoting pharmacists as advocates in sexual health would encourage young people and local populations to access the services.

Reflecting on the sexual health needs of young people, the present study has shown that such needs may be influenced by an interplay of individual, social, familial, and environmental factors. This implies that the impact of social determinants of health, as reported in the Introduction of the thesis, must continue to be addressed when implementing new strategies or appraising current ones in sexual health promotion for young people, both within pharmacy and other health- and non-healthcare settings.

Lastly, many young people in the present study stressed the need for pharmacy and healthcare settings to be young people-friendly and non-judgemental. DOH's *'You're*

Welcome' quality criteria supports healthcare providers to respond effectively and sensitively to young people's needs, particularly in sexual health (DOH 2011). Although dated in 2011, its principles remain current and should continue to be applied in pharmacies, and indeed other venues, to ensure that young people do not feel discouraged from being tested for chlamydia or receiving a sexual health service.

6.9: Limitations and future work

The research achieved its aim and objectives in investigating young people's, pharmacists, and contract managers' perceptions of pharmacy chlamydia testing. However, some limitations were encountered which should be noted.

This study aimed to achieve a diverse sample of young people. However, a limitation was that more males than females were interviewed, and that participants aged 16-19 were represented more than 20-23 which may have influenced the representativeness of the data. Nevertheless, during the preliminary analysis of the data, saturation had been reached when no new material was generated from within and across the sub-samples of young people. On analysing and reporting the findings, results that were specific to a particular sub-sample were highlighted for transparency.

Another limitation encountered was during the interviews with young people. I ensured that the environment was relaxed and that the interview followed a steady flow to allow the participants time to formulate their answers. However, a few younger participants did not offer detailed accounts to some open-ended questions when asked. Following which, prompts were used to attempt to engage with the participant. At times, these prompts facilitated the participant to expand on their answers. During the preliminary analysis, it was found that key categories were being repeated across the interviews, including those where in-depth responses were not always given.

A third limitation was that the telephone interviews with a few pharmacist providers appeared to be shorter in duration than the face-to-face interviews. On comparing the transcripts to assess whether the general depth of answers differed, this was not evident. It appeared that responses over the telephone were perhaps quicker than those face-to-face. Therefore, when conducting further telephone interviews I made sure to pause for longer after a prompt reply was given, to allow the participant time to consider whether they wanted to add further information.

Support staff are trained to deliver chlamydia testing. This study did not explore the perceptions of staff, however, due to differences in duties assigned within the workforce across pharmacies. Once the HLP scheme is established in all pharmacies, it is anticipated that staff will deliver more public health services including chlamydia testing. At which point, it would be valuable to conduct further work to gather their perceptions and experiences of the service.

Application of the NPT model in this study served as a theoretical support in organising the findings from pharmacists and contract managers. The model could effectively be re-applied in future work after implementation of the proposed recommendations, to evaluate whether service delivery has been maximised as a result.

In England in 2018, the impact of STIs were highest among young heterosexual men and women, black ethnic minorities and MSM (Mitchell *et al.* 2019). Although MSM are advised to attend specialist sexual health services where more comprehensive testing would be suitable based on chlamydia pathophysiology (BASHH 2019), investigating the views young people of different sexual orientation identities and ethnicities about pharmacy chlamydia testing would be useful, to understand how it can appeal to across these groups. In addition, for future comparison, recruiting pharmacists from pharmacies with varying rates of chlamydia testing activity would allow a greater analysis into the differences in work processes that may be employed to drive the service forward.

6.10: Concluding remarks

Prevalence of chlamydia in England continues to rise among young people. If not treated the STI can cause serious health consequences in both males and females. Therefore, to contribute to the detection of chlamydia, this study set out to understand the factors that may influence chlamydia testing activity in pharmacies to investigate how it can be maximised.

A review of existing literature found that greater exploration into the views of young people, pharmacists, and contract managers who assign the service to pharmacies was necessary to gather a multi-faceted understanding of the perceived barriers to the service.

Results of analysis from interviews with the different stakeholders found that young people reported on the personal implications of chlamydia and chlamydia testing, whilst pharmacists reported on issues with service implementation in relation to health promotion activities and information giving. The application of theoretical models in organising the emerging findings identified potential gaps in work processes that may be necessary to integrate testing into routine work. Furthermore, the models found that several contextual factors appear to influence young people's engagement in testing.

These findings led to development of robust and comprehensive recommendations that aim to close the gap in service delivery, promoting pharmacy chlamydia testing and contributing to an improvement in the sexual health of local populations.

Appendices

Appendix 1: Ethics approval letter to conduct the study

10 September 2018

Newcastle University

Faculty of Medical Sciences
Newcastle University
Medical School
Framlington Place
Newcastle upon Tyne
NE2 4HH

Lara Ahmaro
Institute of Health & Society

FACULTY OF MEDICAL SCIENCES: ETHICS COMMITTEE

Dear Lara

Title: A Qualitative Exploration of Young Peoples', Providers' and Commissioners' Perceptions of the Community Pharmacy Chlamydia Screening Service
Application No: 1603/6935/2018
Start date to end date: 01/07/2018 to 31/08/2020

On behalf of the Faculty of Medical Sciences Ethics Committee, I am writing to confirm that the ethical aspects of your proposal have been considered and your study has been given ethical approval.

The approval is limited to this project: **1603/6935/2018.** If you wish for a further approval to extend this project, please submit a re-application to the FMS Ethics Committee and this will be considered.

During the course of your research project you may find it necessary to revise your protocol. Substantial changes in methodology, or changes that impact on the interface between the researcher and the participants must be considered by the FMS Ethics Committee, prior to implementation.*

At the close of your research project, please report any adverse events that have occurred and the actions that were taken to the FMS Ethics Committee.*

Best wishes,

Yours sincerely

M. Holbrough

Marjorie Holbrough
On behalf of Faculty Ethics Committee

cc.
Professor Daniel Nettle, Chair of FMS Ethics Committee
Mrs Kay Howes, Research Manager

*Please refer to the latest guidance available on the internal Newcastle web-site.

Appendix 2: Young people's participant information sheet and consent form

Are you aged 16-24?

Would you like to take part in a study about young people's views of attending a high-street pharmacy for chlamydia testing?

Hello,

My name is Lara Ahmaro. I am a researcher at Newcastle University.

You have been given this information sheet because you are being invited to take part in a research study. This information sheet describes the study and explains what will be involved if you decide to take part.

What is the study about?

Chlamydia is the most common sexually transmitted infection in England. If it isn't treated, those infected may suffer long term problems making it difficult for men and women to try for a baby. Young people are most at risk of getting chlamydia.

Many high-street pharmacies in the North East offer a free postal chlamydia testing kit with advice on how to easily use it and post it off for testing to find out if you are infected or not. Whether you have been tested or not, I'd like to know what your thoughts are about collecting a chlamydia kit from this setting. Your views will certainly contribute to our understanding about why chlamydia testing in pharmacies is low compared with other settings.

How will I be involved in the study?

To hear your views about the pharmacy chlamydia service, I would like to invite you to take part in a short interview with myself which will take place at the youth centre at a time convenient for you.

You are of course under no pressure to participate but your views are extremely important to us and will contribute to greater understanding about the service and how to maximise delivery.

During the interview I'd like to ask you about your views of attending a high-street pharmacy for sexual health advice and treatment, what you know about the chlamydia testing kit, and your thoughts of its provision in pharmacies. If you are happy to take part, please read and complete the consent form which is attached to this information sheet. We will also discuss the form at the start of the interview. Your answers will be tape recorded but will remain confidential including personally identifiable details. If, during or after the interview, you change your mind about taking part and wish to withdraw from the study you will need to inform myself or another member of the research team within 28 days from the interview.

Once the interview has been typed and checked, the tape recording will be destroyed. No one, except myself and my supervisors, will be able to look at the transcript. All the data will be stored securely at Newcastle University.

How will my answers be used?

I will combine the answers from all the interviews to summarise young people's views about pharmacy chlamydia testing. The findings will be presented to Local Authority representatives

who commission the testing service in pharmacies, regional pharmacy committees, and youth group managers to promote chlamydia testing uptake in pharmacies. The findings will also be published in an academic journal and presented at both regional and national sexual health and public health conferences. Any extracts from what you say that are quoted in written work will be entirely anonymous.

I would be happy to send a report summarising the study findings to your youth centre if you wish.

Are there any benefits of taking part?

There will be no immediate benefits for you, but by taking in part in this study your views will help to improve delivery of the pharmacy chlamydia testing service in the hope that more young people get tested and prevent the infection from spreading. To thank you for taking the time to talk to me, I would like to give you a £10 voucher.

Are there any risks?

There are no risks to taking part. I would like to point out that whilst your information will be confidential, I have a duty of care to you, and there is a limit to this confidentiality if I recognise any potential risk of harm to you or someone else during your interview. In this instance, I will refer you to your youth worker to support and protect you.

If you decide you would like to take part

If you would like to take part in the study, please do let your youth worker know, and a suitable time to do the interview will be booked.

For more information

If you have any questions about this study or the interview process, please do get in touch with me. Alternatively, you can also contact Simon Forrest from the research team for any queries or complaints. Our contact details are:

Lara Ahmaro
Email: L.Ahmaro2@newcastle.ac.uk
Tel: [redacted]
Institute of Health and Society, Newcastle University, Baddiley-Clark Building, Newcastle upon Tyne, NE2 4AX

Simon Forrest
Email: Simon.Forrest@newcastle.ac.uk
Institute of Health and Society, Newcastle University, Baddiley-Clark Building, Newcastle upon Tyne, NE2 4AX

The other members of the research team are:

Laura Lindsey, School of Pharmacy, Newcastle University
Cate Whittlesea, School of Pharmacy, University College London

Newcastle University is the sponsor for this study based in the United Kingdom.

This study was approved by the Faculty of Medical Sciences Research Ethics Committee, part of Newcastle University's Research Ethics Committee. This committee contains members who are internal to the Faculty, as well as one external member. This study was reviewed by members of the committee, who must provide impartial advice and avoid significant conflicts of interests.

Ethics approval reference number: 1603/6935/2018. Version:1, 3/09/2018

A copy of this form and a signed consent form will be given to you.

Study: 'A qualitative exploration of young peoples,' providers' and commissioners' perceptions of the community pharmacy chlamydia screening service'

Name of researcher conducting study: Lara Ahmaro

Ethics approval reference number: 1603/6935/2018.
Version:1, 3/09/2018

Please complete this consent form after you have read the information sheet and the study and interview procedure have been explained to you. If you have any questions, please let me know before you decide to join in.

	Please initial to confirm consent
I confirm that I have read and understood the information sheet for the above study and the researcher has answered any queries to my satisfaction.	
I understand that my participation is voluntary and that I am free to withdraw from the interview at any time, up until it is analysed, without having to give a reason and without any consequences. If I exercise my right to withdraw and I don't want my data to be used, it will be destroyed.	
I understand that any information recorded in the interview will remain confidential and no information that identifies me will be made publicly available.	
I agree to be quoted directly.	
The use of the data in research and publications has been explained to me.	
I voluntarily agree to participate in the interview.	
I consent to being tape recorded during the interview.	

Please confirm whether you would like a summary of the findings once available: **YES/ NO**

Participant initials:
Participant signature:
Date:

Researcher signature:
Date:

Thank you for agreeing to take part in this study.

Your contribution is very much appreciated.

Appendix 3: Pharmacist providers' participant information sheet and consent form

Participant Information Sheet

An invitation to take part in an interview to help us understand about the delivery of chlamydia testing to young people in community pharmacies

Hello,

My name is Lara Ahmaro. I am a researcher at Newcastle University.

I would like to invite you to take part in a research study exploring young people's engagement with chlamydia screening through pharmacies in the NE of England. This information sheet describes the study and explains what will be involved if you decide to take part.

Reasons for the study

Chlamydia is the most common sexually transmitted infection in England. Young people aged 15-24 are at high risk of the infection. To reduce its health complications including infertility and its spread, Public Health England advises screening as much of the high-risk group as possible.

Although many community pharmacies offer free chlamydia screening for young people, the uptake of testing from this setting is relatively low in the North East compared with other healthcare settings. The reasons why are unclear. This study is your opportunity to contribute to our understanding of the provider factors that influence uptake of testing and you would be most welcome to give us your thoughts and share your experiences about delivering the service at your pharmacy.

How you will be involved in the study

To hear your views about the pharmacy chlamydia service, I would like to invite you to an interview.

You are of course under no pressure to participate but your views are extremely important to us and will contribute to greater understanding about the service and how to maximise delivery.

During the discussion I'd like to gather your views on the purpose of the pharmacy chlamydia testing service, any issues you may have encountered during its delivery, and possible suggestions to improve the service and increase uptake of testing. If you are happy to take part, please read and complete the consent form which is attached with this information sheet. We will also discuss this form at the start of the interview.

Your answers will be tape recorded but will remain confidential including personally identifiable details. If, during or after the interview, you change your mind about taking part and wish to withdraw from the study you will need to inform myself or another member of the research team within 28 days of the discussion.

Once the discussion has been typed and checked, the tape recording will be destroyed. No one, except myself and my supervisors, will be able to look at the transcript. All the data will be stored securely at Newcastle University.

How the discussion will be used

The findings of the interviews will be disseminated to Local Authority commissioners in the North East and Local Pharmaceutical Committees to promote delivery of the service with the aim of increasing chlamydia testing rates in community pharmacies. The findings will also be published in an academic journal and presented at both regional and national sexual health and public health conferences. Any extracts from what you say that are quoted in written work will be entirely anonymous.

I would be happy to send you a report summarising the study findings if you wish.

Benefits of taking part

There wouldn't be direct benefits of taking part in the study. However, your insights will help to make improvements in the pharmacy chlamydia screening service in the hope of increasing uptake of testing among young people.

Are there any risks?

No. There is no known risk if you decide to take part in this study.

If you decide you would like to take part

If any member of the pharmacy team would like to take part in the study, please do call or email me using my contact details below. I very much look forward to hearing from you.

For more information

If you have any questions about this study or the interview process, please do get in touch with me. Alternatively, you can also contact Simon Forrest from the research team for any queries or complaints. Our contact details are:

Lara Ahmaro
Email: L.Ahmaro2@newcastle.ac.uk
Tel: [redacted]
Institute of Health and Society, Newcastle University, Baddiley-Clark Building, Newcastle upon Tyne, NE2 4AX

Simon Forrest
Email: Simon.Forrest@newcastle.ac.uk
Institute of Health and Society, Newcastle University, Baddiley-Clark Building, Newcastle upon Tyne, NE2 4AX

The other members of the research team are:

Laura Lindsey, School of Pharmacy, Newcastle University
Cate Whittlesea, School of Pharmacy, University College London

Newcastle University is the sponsor for this study based in the United Kingdom.

This study was approved by the Faculty of Medical Sciences Research Ethics Committee, part of Newcastle University's Research Ethics Committee. This committee contains members who are internal to the Faculty, as well as one external member. This study was reviewed by members of the committee, who must provide impartial advice and avoid significant conflicts of interests.

Ethics approval reference number: 1603/6935/2018. Version: 2, 6/01/2019

A copy of this form and a signed consent form will be given to you.

Study: 'A qualitative exploration of young peoples,' providers' and commissioners' perceptions of the community pharmacy chlamydia screening service'

Name of researcher conducting study: Lara Ahmaro

Ethics approval reference number: 1603/6935/2018. Version: 2, 6/01/2019

Please complete this consent form after you have read the information sheet and the study and interview procedure have been explained to you. If you have any questions please let me know before you decide to join in.

	Please initial to confirm consent
I confirm that I have read and understood the information sheet for the above study and the researcher has answered any queries to my satisfaction.	
I understand that my participation is voluntary and that I am free to withdraw from the interview at any time, up until the discussion is typed, without having to give a reason and without any consequences. If I exercise my right to withdraw and I don't want my data to be used, it will be destroyed.	
I understand that any information recorded in the interview will remain confidential and no information that identifies me will be made publicly available.	
I agree to be quoted directly.	
The use of the data in research and publications has been explained to me.	
I voluntarily agree to be a participant for the interview.	
I consent to being audio recorded during the interview.	

Please confirm whether you would like a summary of the findings once available: **YES/ NO**

Participant initials:
Participant signature:
Date:

Researcher signature:
Date:

Thank you for agreeing to take part in this study.

Your contribution is very much appreciated.

Appendix 4: Pharmacist non-providers' participant information sheet and consent form

Participant Information Sheet

An invitation to take part in an interview to help us understand how to maximise delivery of chlamydia testing to young people in community pharmacies

Hello,

My name is Lara Ahmaro. I am a researcher at Newcastle University.

I would like to invite you to take part in a research study exploring young people's engagement with chlamydia screening through pharmacies in the NE of England. This information sheet describes the study and explains what will be involved if you decide to take part.

Reasons for the study

Chlamydia is the most common sexually transmitted infection in England. Young people aged 15-24 are at high risk of the infection. To reduce its health complications including infertility and its spread, Public Health England advises screening as much of the high-risk group as possible.

Although many community pharmacies offer free chlamydia screening for young people, the uptake of testing from this setting is relatively low in the North East and compared with other healthcare settings. The reasons why are unclear. This study is your opportunity to contribute to our understanding of the provider factors that influence uptake of chlamydia testing and you would be most welcome to give us your thoughts about the service and reasons why your pharmacy is not currently contracted to provide the testing kit.

How you will be involved in the study

To hear your views about the pharmacy chlamydia service, I would like to invite you to take part in a short interview at a time convenient for you.

You are of course under no pressure to participate but your views are extremely important to us and will contribute to greater understanding about the service and how to maximise delivery.

During the interview I'd like to ask you about the sexual health services you currently provide for young people, why chlamydia testing is not offered at the pharmacy and signposting to venues which do offer testing. If you are happy to take part, please read and complete the consent form which is attached with this information sheet. We will also discuss this form at the start of the interview.

Your answers will be tape recorded but will remain confidential including personally identifiable details. If, during or after the interview, you change your mind about taking part and wish to withdraw from the study you will need to inform myself or another member of the research team within 28 days of the interview.

Once the interview has been typed and checked, the tape recording will be destroyed. No one, except myself and my supervisors, will be able to look at the transcript. All the data will be stored securely at Newcastle University.

How the discussion will be used

The findings of the interview will be disseminated to Local Authority commissioners in the North East and Local Pharmaceutical Committees to promote delivery of the service with the aim of increasing chlamydia testing rates in community pharmacies. The findings will also be published in an academic journal and presented at both regional and national sexual health and public health conferences. Any extracts from what you say that are quoted in written work will be entirely anonymous.

I would be happy to send you a report summarising the study findings if you wish.

Benefits of taking part

There wouldn't be direct benefits of taking part in the study. However, your insights will help to make improvements in the pharmacy chlamydia screening service in the hope of increasing uptake of testing among young people.

Are there any risks?

No. There is no known risk if you decide to take part in this study.

If you decide you would like to take part

If you would like to take part in the study, please do call or email me using my contact details below. I very much look forward to hearing from you.

For more information

If you have any questions about this study or the interview process, please do get in touch with me. Alternatively, you can also contact Simon Forrest from the research team for any queries or complaints. Our contact details are:

Lara Ahmaro
Email: L.Ahmaro2@newcastle.ac.uk
Tel: [redacted]
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The other members of the research team are:

Laura Lindsey, School of Pharmacy, Newcastle University
Cate Whittlesea, School of Pharmacy, University College London

Newcastle University is the sponsor for this study based in the United Kingdom.

This study was approved by the Faculty of Medical Sciences Research Ethics Committee, part of Newcastle University's Research Ethics Committee. This committee contains members who are internal to the Faculty, as well as one external member. This study was reviewed by members of the committee, who must provide impartial advice and avoid significant conflicts of interests.

Ethics approval reference number: 1603/6935/2018. Version: 1, 3/09/2018.

A copy of this form and a signed consent form will be given to you.

Study: 'A qualitative exploration of young peoples,' providers' and commissioners' perceptions of the community pharmacy chlamydia screening service'

Name of researcher conducting study: Lara Ahmaro

Ethics approval reference number: 1603/6935/2018. Version: 1, 3/09/2018.

Please complete this consent form after you have read the information sheet and the study and interview procedure have been explained to you. If you have any questions please let me know before you decide to join in.

	Please initial to confirm consent
I confirm that I have read and understood the information sheet for the above study and the researcher has answered any queries to my satisfaction.	
I understand that my participation is voluntary and that I am free to withdraw from the interview at any time, up until it is typed, without having to give a reason and without any consequences. If I exercise my right to withdraw and I don't want my data to be used, it will be destroyed.	
I understand that any information recorded in the interview will remain confidential and no information that identifies me will be made publicly available.	
I agree to be quoted directly.	
The use of the data in research and publications has been explained to me.	
I voluntarily agree to participate in the interview.	
I consent to being audio recorded during the interview.	

Please confirm whether you would like a summary of the findings once available: **YES/ NO**

Participant initials:
Participant signature:
Date:

Researcher signature:
Date:

Thank you for agreeing to take part in this study.

Your contribution is very much appreciated.

Appendix 5: Contract managers' participant information sheet and consent form

Participant Information Sheet

An invitation to take part in an interview to help us understand about the delivery of chlamydia testing to young people in community pharmacies

Hello,

My name is Lara Ahmaro. I am a researcher at Newcastle University.

I would like to invite you to take part in a research study exploring young people's engagement with chlamydia screening through community pharmacies in the NE of England. This information sheet describes the study and explains what will be involved if you decide to take part.

Reasons for the study

Chlamydia is the most common sexually transmitted infection in England. Young people aged 15-24 are at high risk of the infection. To reduce its health complications including infertility and its spread, Public Health England advises screening as much of this high-risk group as possible.

Although many community pharmacies offer free chlamydia screening for young people, the uptake of testing is low in the North East compared with other healthcare settings. The reasons why are unclear. This study is your opportunity to contribute to our understanding of the organisational factors that influence uptake of testing and you would be most welcome to give us your thoughts and share your experiences about commissioning the service in community pharmacies.

How you will be involved in the study

To hear your views about the pharmacy chlamydia service, I would like to invite you to take part in a short interview with myself either at your office or over the telephone if this would be easier.

You are of course under no pressure to participate but your views are extremely important to us and will contribute to greater understanding about the service and how to maximise delivery.

During the interview I'd like to gather your views on the purpose of the pharmacy chlamydia testing service, any issues you may have encountered during its implementation in pharmacies, training of pharmacy staff and possible suggestions to improve the service and increase uptake of testing. If you are happy to take part, please read and complete the consent form which is attached with this information sheet. We will also discuss this form at the start of the interview. Your answers will be tape recorded but will remain confidential including personally identifiable details. If, during or after the interview, you change your mind about taking part and wish to withdraw from the study you will need to inform myself or another member of the research team within 28 days of the interview.

Once the interview has been typed and checked, the tape recording will be destroyed. No one, except myself and my supervisors, will be able to look at the transcript. All data will be stored securely at Newcastle University.

How the discussion will be used

The findings of the study will be disseminated to Local Authority commissioners for Teesside/North Tyneside and Local Pharmaceutical Committees to promote delivery of the service with the aim of increasing chlamydia testing rates in community pharmacies. The findings will also be published in an academic journal and presented at both regional and national sexual health and public health conferences. Any extracts from what you say that are quoted in written work will be anonymous.

I would be happy to email you a report summarising the study findings if you wish.

Benefits of taking part

There wouldn't be direct benefits of taking part in the study. However, your insights will help to make improvements in the pharmacy chlamydia screening service in the hope of increasing uptake of testing among young people.

Are there any risks?

No. There is no known risk if you take part in this study. Although your participation in the study will remain confidential, you may be identified because sexual health commissioning groups in Teesside/North Tyneside are small. The main purpose of the interview will be to gather further information about the pharmacy chlamydia screening service and possible ways to make it a more young people-friendly service.

If you decide you would like to take part

If you would like to take part in the study, please do call or email me using my contact details below. I very much look forward to hearing from you.

For more information

If you have any questions about this study or the interview process, please do get in touch with me. Alternatively, you can also contact Simon Forrest from the research team for any queries or complaints. Our contact details are:

Lara Ahmaro
Email: l.ahmaro2@newcastle.ac.uk
Tel: [redacted]
Institute of Health and Society, Newcastle University, Baddiley-Clark Building, Newcastle upon Tyne, NE2 4AX

Simon Forrest
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Institute of Health and Society, Newcastle University, Baddiley-Clark Building, Newcastle upon Tyne, NE2 4AX

The other members of the research team are:

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Newcastle University is the sponsor for this study based in the United Kingdom.

This study was approved by the Faculty of Medical Sciences Research Ethics Committee, part of Newcastle University's Research Ethics Committee. This committee contains members who are internal to the Faculty, as well as one external member. This study was reviewed by members of the committee, who must provide impartial advice and avoid significant conflicts of interests.

Ethics approval reference number: 1603/6935/2018. Version 1: 3/09/2018.

A copy of this form and a signed consent form will be given to you.

Study: 'A qualitative exploration of young peoples,' providers' and commissioners' perceptions of the community pharmacy chlamydia screening service'

Name of researcher conducting study: Lara Ahmaro

Ethics approval reference number: 1603/6935/2018. Version 1: 3/09/2018.

Please complete this consent form after you have read the information sheet and the study and interview procedure have been explained to you. If you have any questions please let me know before you decide to join in.

	Please initial to confirm consent
I confirm that I have read and understood the information sheet for the above study and the researcher has answered any queries to my satisfaction.	
I understand that my participation is voluntary and that I am free to withdraw from the interview at any time, up until it has been analysed, without having to give a reason and without any consequences. If I exercise my right to withdraw and I don't want my data to be used, it will be destroyed.	
I understand that any information recorded in the interview will remain confidential and no information that identifies me will be made publicly available.	
I agree to be quoted directly.	
The use of the data in research and publications has been explained to me.	
I voluntarily agree to be a participant for the interview.	
I consent to being audio recorded during the interview.	

Please confirm whether you would like a summary of the findings once available: **YES/ NO**

Participant initials:
Participant signature:
Date:

Researcher signature:
Date:

Thank you for agreeing to take part in this study.

Your contribution is very much appreciated.

Appendix 6: Interview schedule for interviews with young people

INTERVIEW

1) Perceived severity of chlamydia and STIs

- We hear a lot about sexual health and STIs. What do you think it means to young people? What worries about STIs do they have?
  - Do you agree? Why?

Prompt: *Awareness of chlamydia and symptoms?*

2) Pharmacy services

- Next, I'd like to ask whether you have a high-street pharmacy local to you? What types of services does it offer?

- What reasons might you use it?
  - What might make it easier and what might put you off going?

- Have you ever used a pharmacy for sexual health advice or supplies or testing? *(If 'yes' then go to **question 3** and if 'no' then go to **question 4)***

3) Pharmacy sexual health provision (users)

- Thinking of last time that you went to a pharmacy for sexual health advice, how was it?
  - Did you get what you wanted?
  - How did you find the staff?

- If you have been before, was it the same pharmacy? Why/why not?

Prompts:

- *Pharmacy location and opening times?*
- *Atmosphere in the pharmacy? (consultation room, attending alone/with sexual partner)*
- *Receiving advice from the opposite sex?*

4) Pharmacy sexual health provision (non-users)

- Many high-street pharmacies provide sexual health services for young people, including providing the emergency contraception tablet and condoms. What do think would make a pharmacy a good place to get sexual health advice?
  - What would *not* make it a good setting?
  - If you were to see the pharmacist for emergency contraception/condom supply, how would you feel about receiving a chlamydia testing kit too?

Prompts:

- *Pharmacy location and opening times?*
- *Atmosphere in the pharmacy? (consultation room, attending alone/with sexual partner)*

5) Pharmacy chlamydia testing (users and non-users)

Now, I'd like to focus on the pharmacy chlamydia testing service.

- Firstly, I'd like to ask what you know about the chlamydia testing kit? *(if unknown, describe the kit and method of testing)*
  - What do you think of this method?

- *For participants in Teesside:* If it would be possible for the kit to test for both chlamydia and gonorrhoea, would you be more likely to use it? Why/Why not?

- Have you been tested for chlamydia in any setting at all e.g. at the GP surgery, GUM (genitourinary medicine) clinic or college?
    - If yes, how did you find the experience?
    - If no, where would you likely go for testing and why?

Now, I'm going to read some statements on cards, and after reading each one it would be very helpful if you could share your thoughts about these statements.

(Reads out statements-gathers response after each statement)

'Young people would be embarrassed to tell their friends about chlamydia testing'

'It would be helpful if my pharmacy provided both STI testing and treatment for me'

'If I had an STI I would want the pharmacy to tell all my sexual partners for me for treatment'
(if yes, why? Would you discuss it in your relationship?)

Prompts:
- *Atmosphere in the pharmacy? (consultation room, attending alone/with sexual partner)*
- *Greater promotion of pharmacy chlamydia testing required? (cues to action)*
- *Thoughts of taking kit away for a urine sample?*
- *Why are other settings preferred?*

- Lastly, I'd like to ask what you feel are the most important points that would make a pharmacy a good place to get a chlamydia testing kit?

Prompts:
- *Young people-friendly?*
- *Privacy and confidentiality in the pharmacy?*
- *Pharmacy treatment?*

Appendix 7: Interview schedule for interviews with pharmacist providers

INTERVIEW

1) Experience of providing chlamydia testing

To understand how your pharmacy offers the chlamydia testing kit, I'd like to ask:

- How long have you been providing the testing kit?

- How do you offer it?

Prompt:

- *Is chlamydia testing offered alongside other SH services?*
- *Uptake of testing in during these consultations? If not, why not?*

2) Focusing exercise- Engagement with offering testing (cognitive participation)

In a minute, I will hand out a scenario to you about an 18-year-old female attending the pharmacy. I'd like you to read the scenario carefully, and think about the questions that follow:

Scenario

Kate who is 18 years old attends her local pharmacy to collect her regular contraceptive pill.

- *How would you feel about asking her if she'd like a chlamydia testing kit and why?*

When asked if she would like a chlamydia testing kit, Kate agrees as her last test was two years ago.

- *Where would you counsel her on the kit?*
- *Do you feel you've received adequate training to counsel her?*
- *How would you feel about offering testing if she was 16 or younger, or to a young man, and why?*

(Allows participant time to do this)

Have you thought about these points?

Prompts*:*

- *Any unmet training needs?*
- *Counselling/ completing PharmOutcomes?*
- *Any concerns about approaching young people (Fraser competence)?*
- *Main counselling points?*
- *Patient engagement an issue?*
- *Use of consultation rooms?*

3) Understanding the purpose of screening (coherence)

I will now move on to ask more general questions about the chlamydia testing service.

- What is the purpose of offering chlamydia testing to young people in a community pharmacy setting?

- Does the promotion of this service match with the overall goals and activity of your pharmacy?

  Prompt: *Is it clear why opportunistically offering testing is so important?*

4) Work undertaken to drive the testing service forward (collective action)

- What have you found easy and what have you found difficult about promoting the chlamydia testing service?

- If you have any issues with the service would you feel comfortable to discuss these with the contract managers?

  Prompts:
  - *Patient engagement?*
  - *Any issues with offering testing to the opposite sex?*
  - *Working collectively as a team to offer testing?*
  - *Evaluating the service?*
  - *Use of consultation rooms?*

5) Evaluation of the service (reflexive monitoring)

- Do you feel that using the pharmacy chlamydia testing service is an effective and worthwhile way to increase chlamydia detection **in your area**?

- Have you had any feedback from young people who have used the service?

- Do you have any suggestions for improving the promotion and use of the service among young people?

  Prompts:
  - *Pharmacy location in high areas of deprivation?*
  - *PGD for treatment or PN advantageous?*
  - *Testing for more than one STI?*

Appendix 8: Interview schedule for interviews with pharmacist non-providers

INTERVIEW

1) Background

- I'd firstly like to ask what sexual health services you currently provide at your pharmacy?

- Which of these services do young people most commonly attend? How are they delivered to this age group?

***Prompts**:*

- *Young men in particular?*
- *Assessing for Fraser competence?*
- *Engaging with young people?*
- *Mention of chlamydia testing in counselling?*

2) Why chlamydia screening is not offered

- I'd like to ask why your pharmacy is not contracted to offer chlamydia testing to young people?

- How would you feel about offering the test? Why?

Prompts:

- *Has pharmacy previously offered testing?*
- *Perception towards offering testing?*

3) Signposting

- Lastly, I'd like to ask if you are approached by young people asking for a chlamydia testing kit?

    - If no, why do you think they may not ask for one?

    - If yes, which settings do you signpost them to and why?

Prompts:

- *Signposting to **other pharmacies**?*
- *Signposting during sexual health consultation?*

Appendix 9: Interview schedule for interviews with contract managers

INTERVIEW

1) Background

- Please tell me more about your role.

- Please tell me about your experience and how long you have been commissioning sexual health services.

2) Gathering information about the community pharmacy chlamydia care pathway

- Please can you describe what the current community pharmacy chlamydia care pathway **is in your area (Teesside/North Tyneside)?**

- How are pharmacies assigned to offer chlamydia testing?

Prompts:

- *Dual/single screening? Why?*
- *Type of training included? Pharmacy visits possible?*
- *Included in other sexual health promotions/services? (other than HLP activities?)*
- *Payment to pharmacies for service? Pharmacist awareness of cost*
- *Reasons why PGD for treatment/PN not included?*

3) Understanding the purpose of chlamydia screening in pharmacies

- What is the *purpose* of offering chlamydia testing to young people in a community pharmacy setting?

- Do you feel that using the pharmacy chlamydia testing service is an effective and worthwhile way to increase chlamydia detection **in your area (Teesside/North Tyneside)**?

Prompts:

- *Is it to provide a young people-friendly service?*
- *Is locality a reason?*

4) Engagement with promoting chlamydia testing in pharmacies

- How do you work with pharmacy teams and Local Pharmaceutical Committees (LPCs) to promote the testing service and make recommendations?

- In terms of engaging with young people about the pharmacy testing service, how have you promoted the test **in your area**? (e.g. advertising)

5) Work undertaken to drive the testing service forward

- What have you found easy and what have you found difficult about assigning the chlamydia testing service to pharmacies?

- If you have any issues with delivery of the service would you feel comfortable to discuss these with the pharmacy teams? If not, why?
  Prompts:

- *A young people-friendly service?*
- *Working collectively as a team to offer testing?*
- *Motivation from teams to promote testing?*
- *Entries being completed on PharmOutcomes?*
- *Relationship with providers?*

6) Evaluation of the service

- Have you had any feedback from young people who have used the service? Generally, what was the main feedback you received?

- Ideally, how would you like to see the pharmacy chlamydia screening service to be run, to promote a more young people-friendly service?

Prompts:

- *Pharmacy location in areas of relatively high deprivation?*
- *Feedback from young people actioned?*
- *PGD/PN to be considered?*
- ***All** pharmacies to offer testing?*
- *Advertising of service?*

Appendix 10: Components of the Normalisation Process Theory Model

Definitions of the NPT model constructs and associated components were compiled from the following references: May and Finch (2009) and May *et al.* (2015).

Normalisation Process Theory construct	Associated components
Coherence *Sense-making work to promote embedding of the practice.*	**Differentiation:** *Understanding how the practice differs to other practices.* **Communal specification:** *Working together to build a shared understanding of the aim and objectives of the practice.* **Individual specification:** *The work individuals do to understand their specific tasks in the practice.* **Internalisation:** *Understanding the benefits of the practice.*
Cognitive participation *The work carried out to enrol individuals and engage in the practice.*	**Initiation:** *Working to drive the practice forward.* **Enrolment:** *Thinking about group relationships to collectively contribute to the practice.* **Legitimation:** *Ensuring that participants believe it is right for them to take part.* **Activation:** *The collective work in understanding the necessary actions to sustain the practice.*
Collective action *The operational work to enact the practice.*	**Interactional workability:** *The interactional work that participants do with each other and with other elements of the practice to routinely operationalise the practice.* **Relational integration:** *The knowledge work involved in being responsible for and maintaining confidence in the practice.* **Skill set workability:** *The allocation work required to enact certain elements the practice.* **Contextual integration:** *The execution of policies and protocols to enact the practice.*
Reflexive monitoring *The appraisal of the practice once it is in use.*	**Systematisation:** *Collecting feedback on effectiveness and usefulness of the practice.* **Communal appraisal:** *Working together in informal and formal groups to evaluate the practice.* **Individual appraisal:** *Individually appraising the effects of the service on oneself.* **Reconfiguration:** *Redefining or modifying the practice as a result of the appraisal work.*

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