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Pharmacy-based sexual health services: a systematic review of experiences and attitudes of pharmacy users and pharmacy staff

Julia Gauly ,¹ Jonathan Ross,² Isobel Hall,¹ Irekanmi Soda,¹ Helen Atherton¹

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¹Warwick Medical School, Warwick University, Coventry, United Kingdom

²Department of Sexual Health and HIV, University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom

Correspondence to

Julia Gauly, Warwick Medical School, University of Warwick, Coventry CV4 7AL, UK; J. Gauly@warwick.ac.uk

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ABSTRACT

Background Pharmacies are increasingly providing services related to contraception and STIs. Identifying pharmacy staff' and users' experiences and attitudes relating to sexual health services is critical to understand users' needs and examining how pharmacy staff can most effectively contribute to patient-centred care. This systematic review aimed to examine pharmacy staff and pharmacy users' experiences and attitudes towards the delivery of a large range of sexual health services.

Methods Seven electronic databases and the reference lists of all included studies were searched in September 2018. Studies giving insight into pharmacy users' and pharmacy staff's experiences and attitudes towards the delivery of services related to contraception and STIs were included. The Mixed Methods Appraisal Tool was used to assess the quality of included studies and a narrative synthesis applied to analyse evidence.

Results Nineteen studies were included. Eleven studies looked at pharmacy staff, four at users and four at both groups. Users found services accessible and convenient and staff found service provision feasible. However, several barriers to service delivery were identified including lack of privacy for delivering services, lack of trained staff available to provide services and subjective judgements being made on who should be provided or offered a service.

Discussion Barriers to service delivery need to be addressed to allow pharmacies to deliver their full potential. Future research on pharmacy-based gonorrhoea and syphilis screening, and hepatitis B vaccination is needed.

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INTRODUCTION

Worldwide, more than a million people acquire an STI daily¹ and around 44% (99.1 million) of all pregnancies in 2010–2014 were unintended.² Unintended pregnancies can cause worse health, economic and social outcomes for women^{3,4} and STIs can have severe reproductive, sexual and maternal-child health consequences.¹ Hence, STIs and unintended pregnancies are major concerns^{5,6} and the provision of sexual health services addressing STIs and unintended pregnancy are highly important.

Pharmacies have the potential to improve access to sexual health services by virtue of their numerous locations; and since industrialised countries face new challenges associated with rising costs and demand, limited financial resources and a shortage of human resources,^{7,8} several countries have recently implemented policies to expand

pharmacists' roles.⁹ For example, pharmacists in England are now providing a range of public health services such as smoking cessation and services for drug misusers.^{10,11} Furthermore, they are increasingly providing services such as contraception and the screening and treatment of STIs.

As a consequence of pharmacies' service expansion, the role of pharmacy staff is changing from drug dispenser to patient-centred care provider.^{7,12} Examining pharmacy staff experiences and attitudes to sexual health services is critical to understand whether they deliver a consistent and high-quality service.¹² Furthermore, exploring pharmacy users' experiences and attitudes may identify training needs and improve service delivery.⁷

A recent systematic review focused on young people's experiences and found pharmacy-based sexual health services to be appealing to and used by this group, although some pharmacy staff created a barrier to service access or refused access.¹³ Another review has explored the acceptability of and barriers to chlamydia testing and included both user and staff perspectives.¹⁴ This review showed that chlamydia screening is feasible, accessible and convenient and that incentives can increase access to testing. Another review on pharmacy-based sexual health services looked at emergency contraception (EC) and found that women liked the service but had concerns about the advice provided on future contraception and STIs.¹⁵ Previous reviews have focused particularly on EC and chlamydia screening.

Therefore, our review aimed to systematically summarise and critically appraise pharmacy users' and staff experiences and attitudes towards the delivery of a large range of pharmacy-based sexual health services.

METHODS

This review is reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting framework.¹⁶ The PRISMA checklist can be found attached (see research checklist). The protocol was published in August 2018 on PROSPERO and is available from: <https://bit.ly/2QIegjv>

Inclusion and exclusion criteria

The review included qualitative studies (interviews, focus groups, ethnography), quantitative studies (randomised controlled trials (RCTs), cross-sectional studies, cohort studies) and mixed method studies. The population of interest was users and providers



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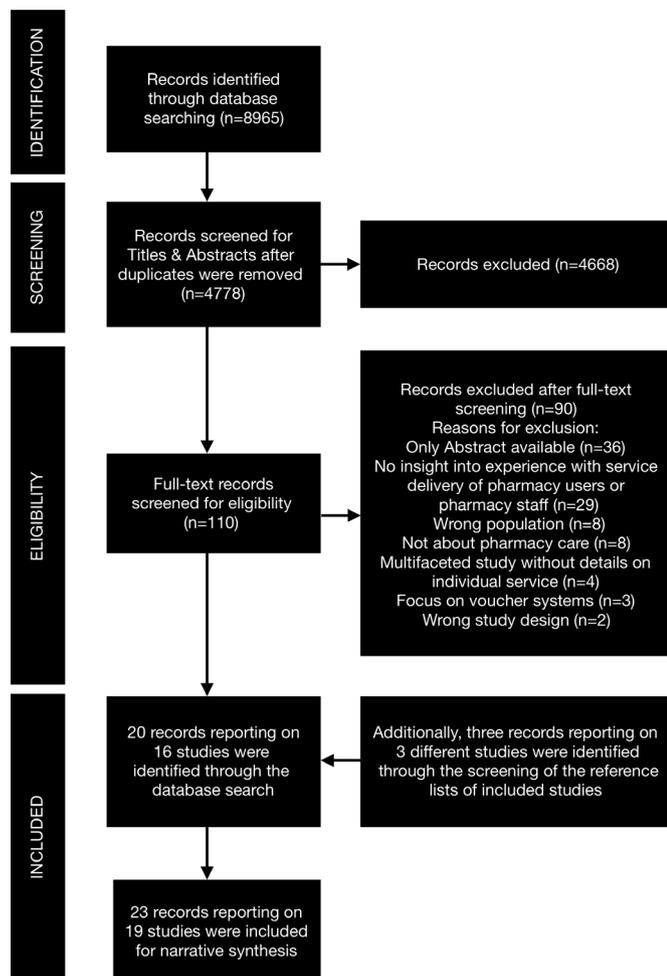


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram.

of pharmacy-based sexual health services. Only studies based in countries within the Organisation for Economic Co-operation and Development (OECD) were included. This was to ensure that results could inform current practice in OECD member countries. A wide range of pharmacy services were included in this review as being relevant to the research question.¹⁷ These were: condoms, EC, chlamydia, gonorrhoea, syphilis and HIV screening, chlamydia treatment, contraceptive pill/oral contraceptives, contraceptive injection, hepatitis B vaccine and partner notification for chlamydia. Studies with and without a comparator group were eligible for inclusion. The outcome groupings of interest were broad to reflect the wide range of possible relevant outcomes for the review question.

The Cochrane Effective Practice and Organisation of Care outcome framework was used to categorise the outcomes of interest¹⁸: service user outcomes (eg, experience, barriers and enablers), provider outcomes (eg, experience, workload, work morale), social outcomes (eg, empowerment), attitudes (eg, service users', providers'), satisfaction (eg, service users', providers').

Search strategy

Cochrane, Embase, Medline, Popline, PsycINFO, Scopus and Web of Science and the reference lists of all included studies were searched without language restrictions on 17 September 2018. Only literature from the past 10 years was included¹⁰ to

ensure findings would inform current practice, which is consistent with previous reviews in the same field.^{10 14}

The search strategy was informed by previous reviews in the field^{13–15} and compiled by JG in collaboration with HA, JR and a librarian. The search was adapted for each database by mapping the keywords 'pharmacy/pharmacies' with terms associated with contraception and STIs. The search strategy used for Medline is presented in online supplementary appendix 1.

Selection of studies

All articles initially identified were deduplicated and the remaining titles and abstracts screened against the inclusion criteria by two researchers independently. Disagreements were resolved through discussion with another researcher. The full texts of potentially relevant articles were retrieved and dual screened against predefined criteria. If an article was excluded at this stage, the reason was recorded. Discrepancies between the reviewers were resolved by another researcher.

Data extraction

A data extraction sheet was developed and piloted. Data were extracted by two researchers independently, with agreement reached through discussion with a third reviewer if required. Outcomes were extracted according to our prespecified framework.

Quality assessment

The methodological quality of included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) V.2018,¹⁹ which is designed for reviews where study designs are mixed and individual studies use mixed methods. The assessment was completed independently by two researchers and disagreements were resolved with another researcher. Studies were categorised as high, medium or low quality, depending on how many MMAT criteria were met. Quality assessment was used to provide context for the study findings.

Data synthesis

A narrative synthesis was conducted by JG in collaboration with HA and JR. Due to the methodological heterogeneity of included studies, conducting a statistical meta-analysis was not possible. Narrative synthesis allowed for the combination of qualitative and quantitative evidence through the comparison of similarities and differences between studies and is a method commonly used to synthesise data in systematic reviews.^{20–23} Elements of guidance by Popay *et al* on the conduct of narrative synthesis were followed.²⁴

The characteristics and key findings of studies were summarised and patterns across studies presented according to the population type. Next, factors offering explanations for relationships within and between studies were sought.

RESULTS

Literature search

Of 4778 articles identified in the literature database search, 110 were identified at title and abstract stage and the full text was screened. Of these, 16 studies met the inclusion criteria. A further three studies were identified through the screening of the reference lists of included studies. A total of 19 studies were included (figure 1).

Table 1 Characteristics and quality of included studies

Study	Study component(s) of interest	Setting	Type of intervention	Comparator	Relevant pharmacy population type	Quality
Black <i>et al</i> ²⁵	Survey	England	Emergency contraception	Yes (family planning clinic; GP)	Pharmacy users (n=50)	Low
Chaumont and Foster ⁴³	Interviews and survey	Canada	Emergency contraception	No	Pharmacists (survey: n=198; interviews: n=17)	High
Cooper <i>et al</i> ³⁹	Interviews	England	Emergency contraception	No	Pharmacists (n=23)	High
Dabrera <i>et al</i> ³⁷	Interviews	England	Chlamydia screening	No	Pharmacists (n=10)	Medium
Darin <i>et al</i> ²⁶	Survey	USA	HIV screening	No	Pharmacy users (n=69)	Low
Debattista ⁵⁷ /Emmertson ⁵⁸	Interviews	Australia	Chlamydia screening	No	Pharmacists (not reported)	Low
Deeks ³⁰ /Parker ³¹	Interviews, focus groups and survey	Australia	Chlamydia screening	No	Pharmacy users (survey: n=945; interviews: n=18) and pharmacy healthcare assistants (survey: 20; focus group=10)	Medium
Downing <i>et al</i> ³⁸	Interviews and survey	Australia	Emergency contraception	No	Pharmacists (survey: n=34; interviews: not reported), non-pharmacists such as pharmacy healthcare assistants and pharmacy managers (survey: n=111; interview: not reported)	Low
Gudka <i>et al</i> ^{27 28}	Survey and focus groups	Australia	Chlamydia screening after emergency contraception	No	Pharmacy users (survey: n=91; focus group: n=5) and pharmacists (focus group: n=6)	High
Gudka <i>et al</i> ²⁹	Survey	Australia	Emergency contraception	No	Pharmacy users (n=113)	Medium
Heller <i>et al</i> ³²	Survey and interviews	Australia	Contraceptive injection	No	Pharmacy users (survey: n=50) and pharmacists (interviews: not reported)	Low
Hussainy <i>et al</i> ⁴²	Survey	Australia	Emergency contraception	No	Pharmacists (n=427)	High
Michie <i>et al</i> ³³	Interviews	Scotland	Oral contraception after emergency contraception	Yes (two types of pharmacy care; family planning clinic)	Pharmacy users (n=12) and pharmacists (n=10)	High
Ragland <i>et al</i> ^{34 35}	Survey	USA	Emergency contraception	Yes (women's clinic)	Pharmacy users (n=87)	High
Rodriguez <i>et al</i> ⁴⁵	Survey	USA	Hormonal contraception		Pharmacists (n=121)	Medium
Ryder <i>et al</i> ⁴⁰	Interviews	USA	Condoms	No	Pharmacists (n=5) and pharmacy healthcare assistants (n=4)	High
Thomas <i>et al</i> ³⁶	Interviews	New Zealand	Chlamydia screening after emergency contraception	Yes (schools; health and youth centres)	Pharmacists (n=12)	High
Whelan <i>et al</i> ⁴¹	Survey	England	Emergency contraception	No	Pharmacists (n=422)	High
Wong <i>et al</i> ⁴⁴	Interviews	Canada	Copper IUD consultation as part of emergency contraception counselling	No	Pharmacists (n=20)	High

GP, general practitioner.

Description of included studies

Quantitative (n=7), qualitative (n=5) and mixed methods (n=7) studies looking at pharmacy staff (n=11), users (n=4) and both users and staff (n=4) were included. Interviews (n=11), surveys (n=12) and focus groups (n=2) gave insight into users' and staff' experiences and attitudes. The characteristics of included studies are presented in [table 1](#). Studies reported on at least one of the following services: EC, oral contraception, contraceptive injection, chlamydia screening, HIV screening and condom distribution.

Two qualitative and two quantitative studies included a comparator group.

Quality of included studies

Ten studies were of high, five of low and four of medium quality. Most studies (n=18) had clear research questions and appropriate data collection methods (n=16). While most qualitative studies were of high quality, most quantitative studies had a high risk of non-response bias and most mixed methods studies failed

to adequately integrate results. The detailed quality assessment is attached as online supplementary file 1.

Experiences and attitudes of pharmacy users and staff

Pharmacy users

Three key areas of importance to pharmacy users were identified: suitability, privacy and counselling. The main findings are summarised in [table 2](#).

Suitability

Users found pharmacies convenient, easy and quick to access and use. They liked that compared with other providers, no appointments needed to be organised.^{25–33} However, a barrier to service delivery experienced by some users was that trained staff were not always available to provide the service.³²

Privacy

All five studies evaluating ‘privacy’ did so in relation to EC or chlamydia screening. Users’ perceptions of experience conflicted within and between studies: while some were not concerned and stated that privacy was something they liked about pharmacies, others had privacy concerns and were worried about being overheard at the counter.^{25–31} In one study, 98.9% of users of clinical services such as family planning services and general practices (82/83) were satisfied with the level of privacy provided, a significantly lower percentage ($p \leq 0.001$) of pharmacy users (44%; 22/50) were satisfied.²⁵

Counselling

With the exception of some younger individuals, pharmacy users generally had a positive counselling experience, felt comfortable discussing sexual health^{26–35} and found that appropriate advice was provided.^{26–28 30 31 33–35} However, in two quantitative studies, pharmacy users found counselling on EC less informative and satisfactory compared with users of other sexual health providers^{25 34 35}; whereas 95% of users of clinical services (78/83) agreed that adequate advice on EC was provided, fewer pharmacy users (82%; 41/50) did so.²⁵ While both clinic users (86.6%; 100/116) and pharmacy users (81.4%; 71/87) were generally satisfied with the counselling, pharmacy users were slightly less satisfied than users of clinical services.^{34 35}

Pharmacy staff

Five key areas were identified as being of importance in relation to pharmacy staff and three of these were the same as those important to pharmacy users: suitability, privacy and counselling. The two further areas identified were workload and impact. The main findings are summarised in [table 2](#).

Suitability

Staff believed that pharmacies were well suited for the provision of sexual health services because of their large clientele, accessibility and convenience.^{32 36–39} However, some staff thought that pharmacies might not be ideal for condom distribution⁴⁰ as they were not frequently used by young men, and that young men may be hesitant in approaching female pharmacy staff to request sexual health services.⁴⁰

Privacy

While some pharmacy healthcare assistants generally thought that users appeared unconcerned about their privacy, most pharmacy staff felt that privacy was highly important to users requesting sexual health services.^{30 31 37 38 41} Thus, staff preferred

to discuss sexual health in private consultation rooms^{27 28}; where none was available, they tried to counsel in private areas away from other users.^{37 38 42}

Counselling

Staff were generally comfortable counselling users and tried to be youth-friendly and non-judgemental. Dealing with groups and asking sensitive questions were perceived as difficult.^{27 28 30 31 36 38 40 43 44} According to staff, pharmacy users with the exception of young users and women counselled by male staff felt comfortable during counselling.^{40 44} While staff agreed that side effects, dosages, efficacy and future contraception should be included in EC counselling, they had mixed views on the provision of counselling for STIs.^{38 42} According to one study, fewer pharmacy users (28%; 14/50) than users of clinical services (90.4%; 75/83) reported receiving counselling for contraception after receiving EC.²⁵ Furthermore, staff tended not to dispense EC to a person requesting the service on behalf of someone else^{38 42 43} and made subjective judgements on whom to provide or offer services such as EC and chlamydia screening. For example, some were likely to refuse EC to young people.^{38 39 42} With regard to chlamydia screening, staff were sometimes hesitant to offer it to young users, those presenting for a non-sexual health services and users thought to be married or in a long-term relationship.^{36 37}

Workload

Although staff found the provision of sexual health services feasible overall,^{36 37 45} they admitted that the counselling and paperwork added to workload.^{27 28 30 31 41 42} Some staff were concerned about long waiting times and that trained staff were not always available to provide services.^{30 31 36 41}

Impact

Staff felt that the provision of sexual health services benefited their profession and improved their job satisfaction.^{30–32 39 40 45} However, some staff felt conflicted in their roles as a healthcare professional and drug dispenser, feeling pressured to provide services quickly rather than thoroughly.⁴⁴

DISCUSSION

Main findings

We aimed to examine pharmacy staff’ and pharmacy users’ attitudes and experiences of pharmacy-based sexual health services. The studies we identified indicate that pharmacy-based sexual health services are perceived as accessible and convenient to use by both pharmacy users and pharmacy staff. However, lack of availability of trained staff was perceived to be a barrier for some pharmacy users. Furthermore, some pharmacy users and staff had privacy concerns. With the exception of young users and women counselled by male staff, pharmacy users and staff were generally comfortable with the counselling offered. However, two quantitative studies comparing the satisfaction on EC counselling of pharmacy users and users of other service providers showed that pharmacy users were less satisfied with EC counselling than users of other service providers.

Most staff found the provision of sexual health services practically feasible, although some felt under time pressure, and questioned the suitability of pharmacies for condom distribution to young males.

Strengths and limitations

This review provides a timely overview of the literature relating to experiences of pharmacy-based sexual health services using

Table 2 Key findings of included studies

Study	Key findings
Qualitative studies	
Cooper ³⁹	▶ Some pharmacy staff were more likely give out EC to older users and were not willing to give EC to under 25s.
Dabrera ³⁷	▶ Pharmacists were supportive of pharmacy-based chlamydia screening and found service provision feasible. ▶ Some pharmacists were concerned about privacy outside of a consultation room. ▶ Pharmacists were concerned about approaching young people (under 16 years) and found it more challenging to offer STI screening to users attending for non-sexual health complaints.
Michie ³³	▶ Women used the pharmacy because they had difficulties accessing contraception elsewhere and did not want to plan an appointment ahead. ▶ Women felt that the information given to them about contraception was clear.
Ryder ⁴⁰	▶ According to pharmacists, young users were uncomfortable when requesting condoms. ▶ Pharmacy staff felt that dealing with groups of people together is problematic. ▶ Some pharmacists felt that young males do not use the pharmacy for condoms as the pharmacy might be seen as an intimidating environment due to having to talk to female staff.
Wong ⁴⁴	▶ Some pharmacists felt conflicted in their roles as a healthcare professional and a drug dispenser (pharmacists felt pressured by users to provide fast services rather than detailed counselling). ▶ Most pharmacists were comfortable during counselling and believed that users were also comfortable. ▶ Some pharmacists felt that women might feel uncomfortable being counselled by male pharmacists if there is not enough privacy provided; pharmacists felt that it is difficult to ask users sensitive questions.
Quantitative studies	
Black ²⁵	▶ 74% (37/50) pharmacy users and 83.1% (69/83) of users of clinical services found it easy to obtain EHC from the pharmacy ($p=0.163$). ▶ 98.9% (82/83) of clinic users compared with only 44% (22/50) of pharmacy users agreed that adequate privacy had been provided ($p\leq 0.001$). ▶ 95% (78/83) compared with 82% (41/50) of pharmacy users felt that adequate advice was provided ($p=0.015$). ▶ Only 28% (14/50) of pharmacy users compared with 90.4% (75/83) of clinic users reported that future contraception was discussed after accessing EC ($p\leq 0.001$).
Darin ²⁶	▶ Speed (22/52) and convenience (16/52) were the most favourable features of pharmacy users experience. ▶ Lack of privacy at check-in was something users (3 out of 15) did not like about the pharmacy, 'private' and 'confidential' was something that users (7 out of 52) liked about the pharmacy.
Gudka ²⁹	▶ Most women (69%; 73/113) found it very easy/easy to get to the pharmacy and felt very comfortable/comfortable discussing EC with the pharmacist. ▶ 48% (54/113) of women were unconcerned/very unconcerned about privacy in the pharmacy; 29% (33/113) were unconcerned/very unconcerned about privacy.
Hussainy ⁴²	▶ 59.7% (256/427) of pharmacists refused EC when the person presenting was not the person needing EC. ▶ 59.5% of pharmacists preferred to counsel on EC in an area of pharmacy where confidentiality could be assured or in a separate area away from other pharmacy users. ▶ Most pharmacists counselled on EC side effects (90.2%), dosage (91.8%), efficacy in relation to time since unprotected sexual intercourse (88.8%); 81.9% (345/421) of pharmacists felt that it is their role to counsel on regular contraception but only 54.5% (229/420) felt that pharmacists should counsel on STI.
Ragland <i>et al</i> ^{34,35}	▶ The majority of both clinic users (86.6%; 100/116) and pharmacy users (81.4%; 71/87) rated 'strongly agree' on being satisfied with counselling ($p=0.523$). ▶ Pharmacy users (mean \pm SD: 3.6 \pm 0.6) rated significantly lower ($p=0.034$) the statement that the counselling helped them understand EC use better than clinic users (mean \pm SD: 3.8 \pm 0.4).
Rodriguez ⁴⁵	▶ 87.6% of (106/121) pharmacists felt comfortable during counselling.
Whelan ⁴¹	▶ The factors interfering most with pharmacists' ability to provide EC were lack of privacy (46.1%; 195/422) and lack of staff (50.9%; 219/422).
Mixed methods studies	
Chaumont and Foster ⁴³	▶ 70.9% (134/189) of pharmacists were comfortable providing EC. ▶ For 23.3% (10/43) of pharmacists, the primary reason to refuse EC was that the person presenting was not the patient.
Debattista ⁵⁷ (2017)/ Emmerton (2011) ⁵⁸	▶ While pharmacy staff were supportive of pharmacy-based chlamydia screening, some were concerned about the workload.
Deeks <i>et al</i> ³⁰ /Parker ³¹ (2013)	▶ Pharmacy users were highly satisfied with chlamydia screening service and liked the accessibility, convenience and that there was no need to book an appointment or travel a long distance. ▶ A lack of privacy in the pharmacy was stated as a barrier by some participants. ▶ Some users were concerned about confidentiality and privacy (because of other people around; fear of being overheard). ▶ Most pharmacy users felt that appropriate advice was provided. ▶ While most users felt comfortable discussing chlamydia with pharmacy staff, a few young people felt uncomfortable. ▶ Pharmacy assistants felt that offering sexual health services increased their job satisfaction. ▶ Pharmacy assistants were anxious about longer waiting times for users due to offering chlamydia screening. ▶ Users presenting in groups were concerning to pharmacy staff.
Downing <i>et al</i> ³⁸	▶ Pharmacy staff were aware of the importance of privacy and tried to seek a quiet consultation area away from the counter/other customers, if no consultation room was available. ▶ Young age (65%; 28/43) and person presenting not being the patient needing EC (32%/ 14/43) were reasons for staff refusing EC provision. ▶ 85% of pharmacists (109/128) and 72% of non-pharmacist staff (271/295) agreed that advice on STI and future contraception should be provided after EC.

Continued

Table 2 Continued

Study	Key findings
Gudka <i>et al</i> ^{27,28}	<ul style="list-style-type: none"> ▶ 87% (79/91) of pharmacy users stated in a survey that they were not concerned about privacy; however, in a later survey, almost half of the same participants stated that they experienced a lack of privacy and in a focus group, users said that they would not feel comfortable discussing sexual health at the counter and preferred a private consultation area. ▶ Pharmacy users liked that the service was convenient to use, and no appointments needed to be booked. ▶ Pharmacy users felt that pharmacists handled consultations professionally and provided clear and concise information. ▶ Pharmacists were supportive of service provision but found that paperwork and documenting of services was time consuming.
Heller <i>et al</i> ³²	<ul style="list-style-type: none"> ▶ Although most pharmacy users had a positive experience with the service delivery, some experienced difficulties (no trained staff available in chain pharmacies). ▶ Pharmacy users found it easy to use the service and were supportive of pharmacy-based contraceptive injection. ▶ Pharmacists acknowledged that features of the pharmacy were appealing for users when compared with other providers and felt that the pharmacy was an appropriate place for contraceptive services.
Thomas <i>et al</i> ³⁶	<ul style="list-style-type: none"> ▶ Pharmacists are concerned to offer screening to 'older' individuals because they might be in a long-term relationship and might feel offended by being offered the service. ▶ No pharmacists wanted to approach clients in long-term relationships, married people or people with children (pharmacists perceived ethnic minorities to be more likely to be married and faithful). ▶ Most pharmacists believed that pharmacies are well placed to deliver chlamydia screening because of their large clientele and felt that is was feasible within their practice; some pharmacists were concerned that increasing the use of locums could hinder service expansion since locums are often untrained.

EC, emergency contraception.

a systematic and robust approach. One potential limitation is that only studies published after 2007 and conducted in OECD member countries were included.

Removing these restrictions might have revealed a different picture; however, they ensured that our findings can inform current pharmacy practice in high-income countries. The included studies were of variable quality and were not always reported in line with study reporting frameworks, having missing data and risk of bias. This limited the conclusions that could be drawn from these studies within this review. Mystery shopper studies were excluded from this systematic review to capture experiences from 'real' pharmacy users only. Mystery shoppers who are not in need for the service arguably experience the delivery of services differently from people who are in real need of the sexual health service. However, these studies may have added more detail to the review.

Comparisons with existing literature

As identified in another recent review, we found that there is insufficient evidence on pharmacy-based syphilis screening,⁴⁶ and also on gonorrhoea screening and hepatitis B vaccination, as no study on these services met our inclusion criteria. Furthermore, our review included studies which reported on one or more sexual health services. However, since only three studies reported on two sexual health services which were offered as a package, research evaluating several pharmacy services being delivered as part of an integrated sexual health service is required.

In line with the existing literature, pharmacy-based sexual health services were perceived as acceptable, convenient and accessible, compared with other health providers.^{13–15, 46} However, staff sometimes created barriers to access through refusing EC to young users or not offering chlamydia screening. Several mystery shopper studies confirm that young users may be refused access to EC.^{47–50} Young people are at particularly high risk for sexual ill-health and denying EC or not offering screening for STIs can have severe consequences, such as unwanted pregnancy and the spread of STIs.

Pharmacy users in two studies perceived EC counselling as less informative or satisfactory than users of other providers and one of the included studies showed that few pharmacy users were counselled on future contraception. Several mystery shopper studies have shown that counselling on side effects of EC, STIs

and future contraception is often not provided.^{47, 51} Findings in this review suggest that time pressure and mixed views on the appropriateness of counselling in relation to STIs contribute to this and highlight the need for high-quality training which is reviewed regularly.

Pharmacy staff were concerned that men may be less comfortable when counselled by women.

Also that women prefer to be counselled by female staff is supported by one study in which almost half of all women wanted to be counselled by a woman.⁵² Furthermore, staff believed that young males were not frequently using a pharmacy to obtain condoms, because they did not want to approach female staff.

This belief is in line with a study which found that young males between 16 and 17 years were less likely to access retail settings including pharmacies for condoms than older men between 18 and 34 years.⁵³

In contrast to our review and another review on STI testing,⁴⁶ two previous reviews on pharmacy-based sexual health services did not identify privacy as being of concern to patients.^{14, 15} However, we found that privacy concerns were raised in several of our included studies both in relation to EC and STIs, whereas this was not the case for ongoing contraception. Similarly, one previous study on EC found that privacy was a concern,⁵⁴ whereas a study on regular oral contraception did not.⁵⁵ It is likely that the stigma around EC and STIs may cause users to be more sensitive about privacy.⁵⁶

Implications for service delivery and future research

Our findings suggest that to further improve pharmacy-based sexual health services, more transparency is required on whether appropriate trained staff are available, and if female or male pharmacists are present in the pharmacy. This could help users to find a pharmacy that provides appropriate services where they can feel comfortable attending. Improvements to pharmacist training would help to increase pharmacy users' counselling satisfaction on EC. Finally, ensuring more privacy within a pharmacy setting might make people feel more comfortable and facilitate condom uptake in young men.

Consequently, areas that would benefit from future research include clarifying appropriate privacy requirements and counselling preferences for pharmacy users. These factors may influence uptake and use of sexual health services. Other areas for

exploration are how to increase pharmacies' appeal for young users' needs to be explored.

As only three studies identified included pharmacy health-care assistants, who are the first contact to users, future research should evaluate their experiences. There is also an evidence gap relating to syphilis and gonorrhoea screening and hepatitis B vaccination, and research on pharmacy-based provision of these services is needed.

Key messages

- ▶ This systematic review is the first to examine pharmacy staff and users' experiences and attitudes of a large range of pharmacy-based sexual health services.
- ▶ Users find pharmacies accessible and convenient to use, and staff find delivering sexual health services to be feasible within their practice.
- ▶ Barriers to service delivery include lack of privacy, limited availability of trained staff and subjective judgements being made on who should be offered specific services.

Handling editor Dr Adam Huw Bourne

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Collaborators Samantha Johnson; Professor Xavier Armoiry.

Contributors JG, HA and JR planned and designed the systematic review and the systematic review protocol. XA provided feedback on the systematic review protocol. JG designed the literature search with support from HA, JR and SJ. JG carried out the literature search and deduplicated the records. JG, IH and IS screened records for their eligibility. Where no consensus could be reached, HA and JR made a decision on records' eligibility. JG, IH and IS conducted the quality assessment of all included records. Where no consensus could be reached, the study was discussed with Dr Helen Atherton and Professor Jonathan. The analysis and interpretation was conducted by JG with support by HA and JR, who also supported the write up and critical revision of the systematic review. The version to be published was approved by JG, JR, IH, IS and HA.

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ORCID iD

Julia Gauly <http://orcid.org/0000-0002-7835-0882>

REFERENCES

1. Soriano V, Romero JD, Del Romero J. Rebound in sexually transmitted infections following the success of antiretrovirals for HIV/AIDS. *AIDS Rev* 2018;20:187–204.
2. Singh S, Sedgh G, Hussain R. Unintended pregnancy: worldwide levels, trends, and outcomes. *Stud Fam Plann* 2010;41:241–50.
3. Brown SS, Eisenberg L. *The best intentions: unintended pregnancy and the well-being of children and families*. National Academies Press, 1995.
4. Gipson JD, Koenig MA, Hindin MJ. The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. *Stud Fam Plann* 2008;39:18–38.
5. Cleland K, Zhu H, Goldstick N, et al. The efficacy of intrauterine devices for emergency contraception: a systematic review of 35 years of experience. *Hum Reprod* 2012;27:1994–2000.
6. Hughes G, Field N. The epidemiology of sexually transmitted infections in the UK: impact of behavior, services and interventions. *Future Microbiol* 2015;10:35–51.
7. Wiedenmayer K, Summers R, Mackie C. Developing pharmacy practice: a focus on patient care 2006, 2008. Available: <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Developing+pharmacy+practice+A+focus+on+patient+care#5>
8. White C. Sexual health services on the brink. *BMJ* 2017;5395:5395.
9. Mossialos E, Courtin E, Naci H, et al. From "retailers" to health care providers: transforming the role of community pharmacists in chronic disease management. *Health Policy* 2015;119:628–39.
10. Eades CE, Ferguson JS, O'Carroll RE. Public health in community pharmacy: a systematic review of pharmacist and consumer views. *BMC Public Health* 2011;11:582.
11. Saramunee K, Kraska J, Mackridge A, et al. How to enhance public health service utilization in community pharmacy?: general public and health providers' perspectives. *Res Social Adm Pharm* 2014;10:272–84.
12. Rosenthal M, Austin Z, Tsuyuki RT. Are pharmacists the ultimate barrier to pharmacy practice change? *Can Pharm J* 2010;143:37–42.
13. Gonsalves L, Hindin MJ. Pharmacy provision of sexual and reproductive health commodities to young people: a systematic literature review and synthesis of the evidence. *Contraception* 2017;95:339–63.
14. Gudka S, Afuwape FE, Wong B, et al. Chlamydia screening interventions from community pharmacies: a systematic review. *Sex Health* 2013;10:229–39.
15. Anderson C, Blenkinsopp A. Community pharmacy supply of emergency hormonal contraception: a structured literature review of international evidence. *Hum Reprod* 2006;21:272–84.
16. Moher D, Liberati A, Tetzlaff J, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med* 2009;6:e1000097.
17. Jewell S, Campbell K, Jaffer K, Umbrella: an innovative integrated sexual health service in Birmingham, UK. *J Fam Plann Reprod Health Care* 2017;43:229–31.
18. Cochrane Institute. What outcomes should be reported in Cochrane effective practice and organisation of care (EPOC) reviews? 2017: 1–2. <http://epoc.cochrane.org/resources/epoc-resources-review-authors>
19. Hong QN, Pluye P, Sergi F. Mixed Methods Appraisal Tool (MMAT), version 2018; 2018: 1–11. http://mixedmethodsappraisaltoolpublic.pbworks.com/w/file/fetch/127916259/MMAT_2018_criteria-manual_2018-08-01_ENG.pdf
20. Lisy K, Porritt K. Narrative synthesis: considerations and challenges. *Int J Evid Based Healthc* 2016;14.
21. Reny TT, Newman BJ. Protecting the right to discriminate: the second great migration and racial threat in the American West. *Am Polit Sci Rev* 2018;112:1104–10.
22. Arai L, Britten N, Popay J, et al. Implementation of smoke alarm interventions. *Evid Policy* 2007;3:361–83.
23. Rodgers M, Sowden A, Petticrew M, et al. Testing methodological guidance on the conduct of narrative synthesis in systematic reviews: effectiveness of interventions to promote smoke alarm ownership and function. *Evaluation* 2009;15:49–73.
24. Popay J, Roberts H, Sowden A. *Guidance on the conduct of narrative synthesis in systematic reviews: a product from the ESRC methods programme*, 2006.
25. Black KI, Mercer CH, Kubba A, et al. Provision of emergency contraception: a pilot study comparing access through pharmacies and clinical settings. *Contraception* 2008;77:181–5.
26. Darin KM, Klepser ME, Klepser DE, et al. Pharmacist-provided rapid HIV testing in two community pharmacies. *J Am Pharm Assoc* 2015;55:81–8.
27. Gudka S, Marshall L, Creagh A, et al. To develop and measure the effectiveness and acceptability of a pharmacy-based Chlamydia screening intervention in Australia. *BMJ Open* 2013;3:e003338–9.
28. Gudka S, Marshall L, Creagh A. *To develop and pilot a best practice community pharmacy Chlamydia screening model*. Contract no. IIG-003. Canberra: Pharmacy Guild of Australia, 2009.
29. Gudka S, Bourdin A, Watkins K, et al. Self-Reported risk factors for Chlamydia: a survey of pharmacy-based emergency contraception consumers. *Int J Pharm Pract* 2014;22:13–19.
30. Deeks LS, Cooper GM, Currie MJ, et al. Can pharmacy assistants play a greater role in public health programs in community pharmacies? lessons from a Chlamydia screening study in Canberra, Australia. *Res Social Adm Pharm* 2014;10:801–6.
31. Parker RM, Bell A, Currie MJ, et al. 'Catching Chlamydia': combining cash incentives and community pharmacy access for increased Chlamydia screening, the view of young people. *Aust J Prim Health* 2015;21:79–83.
32. Heller R, Johnstone A, Cameron ST. The feasibility of contraceptive injections at the community pharmacy. *Eur J Contracept Reprod Health Care* 2017;22:327–33.
33. Michie L, Cameron ST, Glasier A, et al. Provision of contraception after emergency contraception from the pharmacy: evaluating the acceptability of pharmacy for providing sexual and reproductive health services. *Public Health* 2016;135:97–103.
34. Ragland D, Payakachat N, Stafford RA. Emergency contraception counseling in a retail pharmacy setting: a pilot study. *J Pharm Pract* 2015;28:261–5.
35. Ragland D, Battle M, Kueter TJ, et al. Consumer attitudes towards and satisfaction with emergency contraception counselling: experience from clinic and retail pharmacy settings. *Int J Pharm Pract* 2015;23:349–52.
36. Thomas G, Humphris G, Ozakinci G, et al. A qualitative study of pharmacists' views on offering chlamydia screening to women requesting emergency hormonal contraception. *BJOG An Int J Obstet Gynaecol* 2010;117:109–13.

37. Dabrera G, Pinson D, Whiteman S. Chlamydia screening by community pharmacists: a qualitative study. *J Fam Plann Reprod Health Care* 2011;37:17–21.
38. Downing SG, Payze C, Doyle-Adams S, et al. Emergency contraception over-the-counter: practices and attitudes of pharmacists and pharmacy assistants in far North Queensland. *Aust New Zeal J Obstet Gynaecol* 2011;51:527–31.
39. Cooper RJ, Bissell P, Wingfield J. Ethical, religious and factual beliefs about the supply of emergency hormonal contraception by UK community pharmacists. *J Fam Plann Reprod Health Care* 2008;34:47–50.
40. Ryder H, Aspden T, Sheridan J. The Hawke's Bay condom card scheme: a qualitative study of the views of service providers on increased, discreet access for youth to free condoms. *Int J Pharm Pract* 2015;23:381–9.
41. Whelan AM, Langille DB, Hurst E. Nova Scotia pharmacists' knowledge of, experiences with and perception of factors interfering with their ability to provide emergency contraceptive pill consultations. *Int J Pharm Pract* 2013;21:314–21.
42. Hussaini SY, Stewart K, Chapman CB, et al. Provision of the emergency contraceptive pill without prescription: attitudes and practices of pharmacists in Australia. *Contraception* 2011;83:159–66.
43. Chaumont A, Foster AM. The not so over-the-counter status of emergency contraception in Ontario: a mixed methods study with pharmacists. *FACETS* 2017;2:429–39.
44. Wong K, Hum S, McCarthy L, et al. Beyond plan B: a qualitative study of Canadian pharmacists' emergency contraception counselling practices. *J Obstet Gynaecol Can* 2017;39:1021–7.
45. Rodriguez MI, Biel FM, Swartz JJ, et al. Pharmacists' experience with prescribing hormonal contraception in Oregon. *J Am Pharm Assoc* 2018;58:608–13.
46. Wood H, Gudka S. Pharmacist-Led screening in sexually transmitted infections: current perspectives. *Integr Pharm Res Pract* 2018;7:67–82.
47. Delotte J, Molinard C, Trastour C, et al. [Delivery of emergency contraception to minors in French pharmacies]. *Gynecol Obstet Fertil* 2008;36:63–6.
48. Sampson O, Navarro SK, Khan A, et al. Barriers to adolescents' getting emergency contraception through pharmacy access in California: differences by language and region. *Perspect Sex Reprod Health* 2009;41:110–8.
49. Wilkinson TA, Vargas G, Fahey N, et al. "I'll see what I can do": What adolescents experience when requesting emergency contraception. *J Adolesc Health* 2014;54:14–19.
50. Hussaini SY, Stewart K, Pham M-P. A mystery caller evaluation of emergency contraception supply practices in community pharmacies in Victoria, Australia. *Aust J Prim Health* 2015;21:310–6.
51. Glasier A, Manners R, Loudon JC, et al. Community pharmacists providing emergency contraception give little advice about future contraceptive use: a mystery shopper study. *Contraception* 2010;82:538–42.
52. Wilson A, Williams R. Sexual health services: what do teenagers want? *Ambul Child Health* 2000;6:253–60.
53. French RS, Geary R, Jones K, et al. Where do women and men in Britain obtain contraception? findings from the third national survey of sexual attitudes and lifestyles (Natsal-3). *BMJ Sex Reprod Health* 2018;44:16–26.
54. Peremans L, Verhoeven V, Philips H, et al. How does a Belgian health care provider deal with a Request for emergency contraception? *The European Journal of Contraception & Reproductive Health Care*;12:317–25.
55. Parsons J, Adams C, Aziz N, et al. Evaluation of a community pharmacy delivered oral contraception service. *J Fam Plann Reprod Health Care* 2013;39:97–101.
56. Gostin LO. Genetic privacy. *J Law Med Ethics* 1995;23:320–30.
57. Debattista J, Hayes M, Marshall P, et al. A trial of pharmacy-based testing for *Chlamydia trachomatis* using postal specimen kits. *Journal of Pharmacy Practice and Research* 2017;47:41–6.
58. Emmerton L, Gardiner E. A trial of the distribution of Chlamydia self-collection postal specimen kits from Australian community pharmacies. *Sex Health* 2011;8:130–2.

Supplementary File 1 (Detailed Quality Assessment)

Categorisation into High, Medium and Low Quality								
There are five MMAT-criteria each for qualitative and quantitative studies; and JG categorised studies as high, medium, or low quality if they met 4-5, 3, 1-2 criteria respectively. For mixed methods studies with 15 (or in one case 20) criteria, JG divided them into high, medium and low quality if they fulfilled 11-15 (12-20), 8-10 (9-12), 1-7 (1-8) criteria.								
Overview Quality Assessment (MMAT)								
Methodological Quality Criteria (Qualitative Studies)		Cooper	Dabrera	Michie	Ryder	Wong		
Screening Questions	Are there clear research questions?	Yes	Yes	Yes	Yes	Yes		
	Do the collected data allow to address the research questions?	Yes	Yes	Yes	Yes	Yes		
Criteria for qualitative studies	1) Is the qualitative approach appropriate to answer the research question?	Yes	Yes	Yes	Yes	Yes		
	2) Are the qualitative data collection methods adequate to address the research question?	Yes	No	Yes	Yes	Yes		
	3) Are the findings adequately derived from the data?	Yes	Yes	Yes	Yes	Yes		
	4) Is the interpretation of results sufficiently substantiated by data?	Yes	Yes	Yes	Yes	Yes		
	5) Is there coherence between qualitative data sources, collection, analysis and interpretation?	Yes	Not clear	Yes	Yes	Yes		
<u>Quality Overall</u>		<u>High (5/5)</u>	<u>Medium (3/5)</u>	<u>High (5/5)</u>	<u>High (5/5)</u>	<u>High (5/5)</u>		
Methodological Criteria (Quantitative Studies)		Black	Darin	Gudka	Hussainy	Ragland	Rodriguez	Whelan
Screening Questions	Are there clear research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Do the collected data allow to address the research questions?	Not clear	Not clear	Yes	Yes	Yes	Yes	Yes
Criteria for quantitative descriptive studies	1) Is the sampling strategy relevant to address the research question?	Not clear	No	Yes	Yes	Yes	Yes	Yes
	2) Is the sample representative of the target population?	Not clear	Not clear	Not clear	Yes	Not clear	Yes	Yes
	3) Are the measurements appropriate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	4) Is the risk of nonresponse bias low? (acceptable response rate is 60% or above)	Not clear	Not clear	No	No	No	No	No

	5) <i>Is the statistical analysis appropriate to answer the research question?</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Quality Overall</i>		<u>Low (2/5)</u>	<u>Low (2/5)</u>	<u>Medium (3/5)</u>	<u>High (4/5)</u>	<u>Medium (3/5)</u>	<u>High (4/5)</u>	<u>High (4/5)</u>
Methodological Criteria (Mixed Methods Studies)		Chaumont	Debattista / Emmerton	Deeks / Parker	Downing	GUdka	Heller	Thomas
<i>Screening Questions</i>	<i>Are there clear research questions?</i>	Yes	Not clear	Yes	Yes	Yes	Yes	Yes
	<i>Do the collected data allow to address the research questions?</i>	Yes	Not clear	Yes	Yes	Yes	Yes	Yes
<i>Criteria for the qualitative part of the study</i>	1) <i>Is the qualitative approach appropriate to answer the research question?</i>	Yes	Not clear	Yes	Yes	Yes	Yes	Yes
	2) <i>Are the qualitative data collection methods adequate to address the research question?</i>	Yes	Not clear	Yes	Not clear	Yes	Yes	Yes
	3) <i>Are the findings adequately derived from the data?</i>	Yes	No	Yes	No	Yes	Not clear	Yes
	4) <i>Is the interpretation of results sufficiently substantiated by data?</i>	Yes	No	Yes	No	Yes	Not clear	Yes
	5) <i>Is there coherence between qualitative data sources, collection, analysis and interpretation?</i>	Yes	No	Yes	Not clear	Yes	Not clear	Not clear
<i>Criteria for non-randomised controlled trials (if appropriate)</i>	1) <i>Are the participants representative of the target population?</i>		Yes					
	2) <i>Are measurements appropriate regarding both the outcome and intervention (or exposure)?</i>		Yes					
	3) <i>Are there complete outcome data? (80% or above)</i>		No					
	4) <i>Are the confounders accounted for in the design and analysis?</i>		Not applicable					
	5) <i>During the study period, is the intervention administered (or exposure occurred) as intended?</i>		Not applicable					
<i>Criteria for quantitative</i>	1) <i>Is the sampling strategy relevant to address the research question?</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes

<i>descriptive studies (if appropriate)</i>	2) <i>Is the sample representative of the target population?</i>	Yes	Not clear	Not clear	Not clear	Yes	Not clear	Yes
	3) <i>Are the measurements appropriate?</i>	Yes	Not clear	Yes	Yes	Yes	Not clear	Yes
	4) <i>Is the risk of nonresponse bias low? (acceptable response rate is 60% or above)</i>	No	No	No	No	No	No	Yes
	5) <i>Is the statistical analysis appropriate to answer the research question?</i>	Yes	Not clear	Yes	Not clear	Yes	Not clear	Yes
<i>Criteria on the mixed methods study components</i>	1) <i>Is there an adequate rationale for using a mixed methods design to address the research question?</i>	Yes	Not clear	Not clear	Yes	Yes	No	Not clear
	2) <i>Are the different components of the study effectively integrated to answer the research question?</i>	Not clear	Not clear	Yes	Not clear	No	No	Not clear
	3) <i>Are the results adequately brought together into overall interpretations?</i>	No	No	No	Not clear	No	No	Yes
	4) <i>Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?</i>	Yes	No	Yes	No	Not clear	No	Yes
	5) <i>Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?</i>	Yes	No	No	No	Yes	No	Not clear
<u>Overall Quality</u>	<u>High (12/15)</u>	<u>Low (3/20)</u>	<u>Medium (10/15)</u>	<u>Low (4/5)</u>	<u>High (11/15)</u>	<u>Low (3/15)</u>	<u>High (11/15)</u>	

Appendix 1. Search Strategy (Medline)

Database: Ovid MEDLINE(R) <1946 to September Week 1 2018>
 Search Strategy:

1 pharmacy.mp. or exp PHARMACY/ (51805)
 2 pharmacies.mp. or exp PHARMACIES/ (13208)
 3 1 or 2 (56571)
 4 Contraception.mp. or exp CONTRACEPTION, BARRIER/ or exp CONTRACEPTION/ or exp CONTRACEPTION BEHAVIOR/ or exp LONG-ACTING REVERSIBLE CONTRACEPTION/ (49292)
 5 Contraceptive.mp. or exp Contraceptive Agents/ (90752)
 6 Sexually Transmitted infection.mp. or exp Sexually Transmitted Diseases/ (321054)
 7 STI.mp. (6936)
 8 STD.mp. (8706)
 9 Chlamydia.mp. or exp CHLAMYDIA INFECTIONS/ or exp CHLAMYDIA/ or exp CHLAMYDIA TRACHOMATIS/ (30567)
 10 exp Gonorrhea/ or Gonorrhoea.mp. (14740)
 11 Syphilis.mp. or exp SYPHILIS/ (32561)
 12 Human Immunodeficiency Virus.mp. or exp HIV/ (139482)
 13 rapid test.mp. (2579)
 14 (self-sampling test* or self-sampling kit*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (41)
 15 Hepatitis B vaccine.mp. or exp Hepatitis B Vaccines/ (9808)
 16 (Hepatitis B vaccination or Hepatitis B).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (85547)
 17 Emergency Hormonal Contraception.mp. (56)
 18 Emergency Contraception.mp. or exp Contraception, Postcoital/ (2092)
 19 (Morning after Pill or EHC).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (581)
 20 exp CONDOMS/ or Condom*.mp. (19649)
 21 (sexual health service or sexual health).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] (6907)
 22 Partner notification.mp. or exp Contact Tracing/ (4209)
 23 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 (585340)
 24 3 and 23 (1908)