OPEN ACCESS

# A cohort study of the service-users of online contraception

Emma Rezel-Potts ,[1] Melissa J Palmer,[2] Caroline Free,[2] Paula Baraitser[1]

[1]School of Population Health & Environmental Sciences, King's College London, London, UK
[2]Department of Population Health, London School of Hygiene and Tropical Medicine, London, UK

**Correspondence to**
Dr Emma Rezel-Potts, School of Population Health & Environmental Sciences, Guy's Campus, King's College London, London SE1 1UL, UK; emma.rezel-potts@kcl.ac.uk

Received 6 February 2020
Revised 14 April 2020
Accepted 16 April 2020
Published Online First 5 May 2020

## ABSTRACT

**Background** In January 2017, the first free service providing oral contraceptive pills (OCPs) ordered online and posted home became available in the London boroughs of Lambeth and Southwark – ethnically and socioeconomically diverse areas with high rates of unplanned pregnancy. There are concerns that online services can increase health inequalities; therefore, we aimed to describe service-users according to age, ethnicity and Index of Multiple Deprivation (IMD) quintile of area of residence and to examine the association of these with repeated use.

**Methods** We analysed routinely collected data from January 2017 to April 2018 and described service-users using available sociodemographic factors and information on patterns of use. Logistic regression analysis examined factors associated with repeat ordering of OCPs.

**Results** The service was accessed by 726 individuals; most aged between 20 and 29 years (72.5%); self-identified as being of white ethnic group (58.8%); and residents of the first and second most deprived IMD quintiles (79.2%). Compared with those of white ethnic group, those of black ethnic group were significantly less likely to make repeat orders (adjusted OR 0.53, 95% CI 0.31 to 0.89; p=0.001), as were those of Asian and mixed ethnic groups.

**Conclusions** These are the first empirical findings on free, online contraception and suggest that early adopters broadly reflect the population of the local area in terms of ethnic diversity and deprivation as measured by IMD. Ongoing service development should prioritise the identification and removal of barriers which may inhibit repeat use for black and minority ethnic groups.

### Key messages

- Uptake of a free, online contraceptive service in two inner London boroughs was high among residents of the most deprived areas according to Index of Multiple Deprivation (IMD) quintile.
- Two-thirds of the service-users were aged between 20 and 29 years and 58.8% were of white ethnic group, reflecting the ethnic diversity of the area.
- Black and minority ethnic service-users had lower odds of repeat access. This warrants further investigation into potential barriers to online contraception for these groups.

## BACKGROUND

Inequalities in access to healthcare remain an important issue for health systems[1] and inequalities in access to contraceptive services have profound impacts on marginalised groups.[2 3] Online and digital services are proliferating and have been promoted as a strategy to achieve universal health coverage.[4] However, concerns have been raised that such strategies might increase existing inequalities in access relative to face-to-face provision.[5] In line with global trends, the English National Health Service (NHS) has published a report to advocate online healthcare to meet expanding demand within constrained resources.[6 7] To date, there has been limited focus on the effect of these to address inequalities in access to contraceptive services.

In 2017, two inner London boroughs, Lambeth and Southwark, became the first areas to commission a free-to-access, online contraception service which includes online contraceptive information, online clinical self-assessment and a 3- or 6-month supply of oral contraceptive pills (OCPs) posted home; supported via text or phone calls between the service-user and provider. The service meets the Faculty of Sexual & Reproductive Healthcare (FSRH) standards for remote providers of sexual and reproductive health (SRH).[8]

Linked

► http://dx.doi.org/10.1136/bmjsrh-2020-200668

Check for updates

© Author(s) (or their employer(s)) 2020. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

**To cite:** Rezel-Potts E, Palmer MJ, Free C, *et al*. *BMJ Sex Reprod Health* 2020;**46**:287–293.

BMJ Sex Reprod Health: first published as 10.1136/bmjsrh-2020-200610 on 5 May 2020. Downloaded from http://jfprhc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.

Exploratory interviews with those who deliver or commission SRH services in these boroughs revealed concerns that bringing elements of such services online may only benefit busy professionals of higher socioeconomic status and those with the skills and experience to understand online health information and receive health products in the post.[9 10]

Potential inequalities in online access are particularly important to address in Lambeth and Southwark where there are relatively high levels of socioeconomic deprivation.[11 12] In England, the official measure of deprivation is the Index of Multiple Deprivation (IMD),[13] which ranks every small area or Lower-layer Super Output Area (LSOA) in England from most to least deprived. More than 70% of LSOAs in Lambeth and Southwark are in the two most deprived quintiles.[14]

The population in these boroughs is also ethnically diverse and has a relatively young age profile.[11 12 15] In 2018, the age standardised abortion rate per 1000 resident women aged 15–44 years in Lambeth and Southwark was 22.5 and 23.1, respectively, far higher than the national rate of 17.4.[16] In both boroughs, repeat abortions are more common among black African and black Caribbean women than in other ethnic groups.[17]

This study provides a quantitative description of users and service use through an analysis of the online service's routinely collected data during its first period of availability in these boroughs. It aims to determine service-user characteristics and contraceptive activity and factors associated with repeat online ordering of OCPs.

## METHODS

The online contraceptive service-provider in Lambeth and Southwark, SH:24, provided an anonymised dataset for all contraceptive orders from their launch on 10 January 2017 until 25 April 2018. This was an automatically generated database reflecting the online ordering process completed by service-users and the provider's system of recording dates that orders had been initiated and dispatched.

Data were generated for an OCP order when an individual had provided all necessary information in the online consultation process, including name, age, postcode, medical history and medical contraindications. For the purposes of this study, these individuals were defined as 'service-users'. We defined OCP orders with a dispatch date as 'complete orders' and those with missing dispatch dates as 'incomplete orders'. The routinely collected data were not informative of the reasons for incomplete ordering.

Service-users could order desogestrel (75 $\mu$g), a progestogen-only pill (POP), or levonorgestrel/ethinylestradiol (150 $\mu$g), a combined oral contraceptive (COC). The ordering process for COC involved more questions than for POP due to added medical contraindications, for example, those ordering COC had to self-report their blood pressure.

Those with two or more complete orders (determined by the presence of a dispatch date) from 10 January 2017 up to and including 25 April 2018 were considered to have repeat orders. Their sociodemographic characteristics were compared with service-users with a single complete order, excluding those whose index OCP order had not yet expired as it was not known if they would go on to make repeat orders. This was done according to the service-users' date of attendance, so they were subject to exclusion if they created their first order of a 3-month supply of OCPs after 30 January 2018 or 7 November 2018 if the supply was for 6 months. Service-users were excluded from analysis if they had no complete orders.

Ethical approval for this research was granted by The Proportionate Review Sub-Committee of the National Research Ethics Service (NRES) Committees – North of Scotland (Ref 15/NS/0031).

### Patient and public involvement

The rationale for this research comes from an exploratory qualitative study which included interviews with contraceptive providers and existing patients of community clinics within the target population.[10] The SH:24 service employed human-centred design strategies involving focus groups and extensive testing of the service with more than 100 potential users.

## ANALYSIS

Descriptive data for service-users of SH:24's online contraception service were derived including age (years), ethnic group, IMD quintile (for the LSOA derived from service-users' home postcodes), percentage of service-users ordering either COC or POP for their index order and percentage of service-users with a complete index order. All service-users self-reported their ethnicity during the ordering process. To maximise the potential for power during the analysis stage, ethnicity categories were collapsed into Office for National Statistics (ONS) top line categories (ie, white, black, Asian, mixed ethnicity or other).[18] The characteristics of the service-users are presented alongside the characteristics of the target population of Lambeth and Southwark for comparison.

Service-users were then described according to whether they had a single order or repeat orders of OCPs. Bivariate analyses using chi-squared tests were conducted to test associations between age group, ethnic group and IMD quintile and the outcome of repeat orders of OCPs. Crude logistic regression examined the strength of association between age group, ethnic group and IMD quintile and the outcome of repeat orders of OCPs.

Multivariable logistic regression analysis examined the strength of association in the presence of all available sociodemographic variables and the outcome of repeat orders of OCPs from the online service.



BMJ Sex Reprod Health: first published as 10.1136/bmjsrh-2020-200610 on 5 May 2020. Downloaded from http://jfprhc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.

**Table 1** Descriptive data of service-users accessing an online contraceptive pill service between 10 January 2017 and 25 April 2018 (n=726). Data pertain to service-users' index order only. Characteristics of target population (female residents of Lambeth and Southwark, aged 16–44 years) provided for comparison (n=168 313*)

| Parameter | Study sample | | | Population (Lambeth and Southwark) | |
|---|---|---|---|---|---|
| | % | 95% CI | N | % | N |
| Age group (years) | | | | | |
| 16–19 | 9.0 | (7.0 to 11.3) | 65 | 7.0 | 11 834 |
| 20–24 | 37.5 | (33.9 to 41.1) | 272 | 15.5 | 26 019 |
| 25–29 | 35.0 | (31.5 to 38.6) | 254 | 26.9 | 45 307 |
| 30–34 | 10.5 | (8.3 to 12.9) | 76 | 21.7 | 36 540 |
| 35–39 | 5.7 | (4.1 to 7.6) | 41 | 16.2 | 27 289 |
| 40+ | 2.5 | (1.5 to 3.9) | 18 | 12.7 | 21 324 |
| Ethnic group | | | | | |
| White | 58.8 | (55.1 to 62.4) | 427 | 57.6 | 93 148 |
| Black | 17.6 | (14.9 to 20.6) | 128 | 23.5 | 38 030 |
| Asian | 8.5 | (6.6 to 10.8) | 62 | 9.8 | 15 787 |
| Mixed | 10.5 | (8.3 to 12.9) | 76 | 6.2 | 10 065 |
| Other | 2.8 | (1.7 to 4.2) | 20 | 2.9 | 4628 |
| Unknown† | 1.8 | (1.1 to 3.0) | 13 | 0.0 | 0 |
| | | | | LSOAs in each quintile (%)‡ | LSOAs in each quintile (n)‡ |
| IMD quintile§ | | | | | |
| First (most deprived) | 39.1 | (35.6 to 42.8) | 283 | 36.0 | 124 |
| Second | 40.4 | (36.8 to 44.1) | 292 | 37.2 | 128 |
| Third | 16.7 | (14.1 to 19.7) | 121 | 19.8 | 68 |
| Fourth | 3.5 | (2.3 to 5.1) | 25 | 5.5 | 19 |
| Fifth (least deprived) | 0.3 | (0.0 to 1.0) | 2 | 1.5 | 5 |
| Index order | | | | | |
| POP | 46.6 | (43.0 to 50.3) | 338 | – | – |
| COC | 53.4 | (49.7 to 57.1) | 388 | – | – |
| Index order complete | | | | | |
| Yes | 81.3 | (78.2 to 84.0) | 590 | – | – |
| No | 18.7 | (16.0 to 21.8) | 136 | – | – |

*Total population figure derived from Greater London Authority age-range creator for Office for National Statistics (ONS) mid-year population estimates covering 2014; this source also provided population age group frequencies and proportions. These files take into account the revised estimates for 2002–2010 released in April 2013 down to Local Authority level and the post 2011 estimates based on the Census results. Ethnicity population frequencies and proportions derived from ONS ethnicity data which are based on 2011 Census results only; total number of females of reproductive age according to these data is lower (n=161 658).
†Service-users self-selected 'prefer not to say'.
‡Frequencies and proportions of LSOAs per IMD quintile derived from Ministry of Housing, Communities & Local Government IMD data (2015) (n=344).
§Missing data for three observations for IMD.
COC, combined oral contraceptive pill; IMD, Index of Multiple Deprivation; LSOA, Lower-layer Super Output Area; OCP, oral contraceptive pill; POP, progestogen-only pill.

All analyses were conducted using Stata V.14.1 (StataCorp, College Station, TX, USA).

## RESULTS

The total number of unique service-users was 726 and they are described in table 1. Service-users were aged between 16 and 53 (median=25; IQR=17–50) years. Most service-users were residents of areas classified as being in the first and second most deprived quintiles, 283 (39.1%) and 292 (40.4%), respectively. In terms of ethnic group, 427 (58.8%) identified as being of white ethnicity and 128 (17.6%) as black ethnicity.

Table 1 also shows descriptive data from the target population for comparison. Online service-users differed from the population profile in terms of age with disproportionate numbers of women aged 20 to 34 years. Service-users reflected the proportion of women of reproductive age self-identifying as white in



BMJ Sex Reprod Health: first published as 10.1136/bmjsrh-2020-200610 on 5 May 2020. Downloaded from http://jfprhc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.

**Table 2** Descriptive data of service-users accessing online contraception between 10 January 2017 and 25 April 2018 remaining in analytic sample (n=482)

| Parameter | % | 95% CI | N |
|---|---|---|---|
| Age group (years) | | | |
| 16–19 | 6.2 | (4.2 to 8.8) | 30 |
| 20–24 | 44.6 | (34.0 to 42.9) | 185 |
| 25–29 | 37.3 | (33.0 to 41.8) | 180 |
| 30–34 | 10.8 | (8.2 to 13.9) | 52 |
| 35–39 | 5.2 | (3.4 to 7.6) | 25 |
| 40+ | 2.1 | (1.0 to 3.8) | 10 |
| Ethnic group | | | |
| White | 60.2 | (55.6 to 64.6) | 290 |
| Black | 16.0 | (12.8 to 19.6) | 77 |
| Asian | 8.9 | (6.5 to 11.8) | 43 |
| Mixed | 11.2 | (8.5 to 14.4) | 54 |
| Other | 2.3 | (1.1 to 4.0) | 11 |
| Unknown* | 1.5 | (0.6 to 3.0) | 7 |
| IMD quintile | | | |
| First (most deprived) | 35.2 | (30.9 to 39.7) | 169 |
| Second | 42.5 | (38.0 to 47.1) | 204 |
| Third | 19.2 | (15.9 to 23.3) | 92 |
| Fourth | 2.9 | (1.6 to 4.9) | 14 |
| Fifth (least deprived) | 0.2 | (0.0 to 1.2) | 1 |
| Type of OCP at index order | | | |
| POP | 48.8 | (44.2 to 53.3) | 235 |
| COC | 51.2 | (46.7 to 55.8) | 247 |
| Index order successful | | | |
| Yes | 95.0 | (92.7 to 96.8) | 458 |
| No | 5.0 | (3.2 to 7.3) | 24 |

*Service-users self-selected 'prefer not to say'.
COC, combined oral contraceptive pill; IMD, Index of Multiple Deprivation; OCP, oral contraceptive pill; POP, progestogen-only pill.

the target population (57.6%). The black population of the boroughs was slightly under-represented in the study sample while the 'mixed' ethnic group category was over-represented. The proportions of Asian and 'other' ethnic groups were very similar. The proportions of LSOAs in the most deprived quintiles indicates that the service-users' broadly reflect the target population in terms of this measure of deprivation.

### Comparing service-users with repeat and non-repeat orders

The sample included service-users with only incomplete orders (n=109) and service-users whose first order had not yet expired (n=135). The sample was then restricted to those who ordered OCPs two or more times during the study period (n=228) and those whose index order had expired but did not order again, namely non-repeat users (n=254). These individuals are described in table 2.

Table 3 presents the proportion of service-users who made repeat orders by sociodemographic characteristics. Ethnic group was the only covariate to have a statistically significant association with the outcome of having repeat orders at the bivariate level (p<0.01). Table 3 shows that in multivariable analysis adjusting for available sociodemographic factors, ethnic group retained its statistically significant association with repeat orders. Compared with service-users reported as being of white ethnic group, those of black ethnic group were significantly less likely to make repeat orders (adjusted odds ratio (adjOR) 0.53, 95% CI 0.31 to 0.89; p=0.001).

## DISCUSSION

### Main findings

In its first 15 months of availability, a free-to-access online contraceptive service in the London boroughs of Lambeth ad Southwark was accessed by 726 unique service-users. Nearly 80% were residents of the first and second most deprived IMD quintiles, broadly reflecting the population of Lambeth and Southwark. Most service-users were aged between 20 and 29 years. In terms of ethnic group, around 60% identified as being of white ethnicity and 18% as black ethnicity. Online-users reflected the proportion of women of reproductive age self-identifying as white in the target population. The black population of the boroughs was slightly under-represented in our sample while the 'mixed' ethnic group category was over-represented. Service-users self-reporting their ethnicity as black, Asian or mixed ethnicity were found to have lower odds of repeat ordering of OCPs compared with those of white ethnic group both at the crude level, and after adjusting for age and IMD quintile.

### Strengths and limitations

This is the first study to describe the users of a free-to-access, NHS commissioned, online contraception service. This innovative form of contraceptive delivery is a shift from traditionally provided face-to-face services, namely general practice and community clinics, where the majority of women in England access their OCPs.[19] Although the study remains exploratory, it is the first to provide an indication of the characteristics of early adopters of an online OCP service and compare these with a target population at high-risk of poor reproductive health outcomes.

This study used routinely collected data only, therefore the reasons for incomplete orders and non-repeat ordering are unknown. This study does not facilitate comparisons to service-users from other services, thus preventing comparison of outcomes to those observed within face-to-face providers . Furthermore, the sample size is small, which is most apparent in the numbers occupying subdivided sociodemographic groups. This



BMJ Sex Reprod Health: first published as 10.1136/bmjsrh-2020-200610 on 5 May 2020. Downloaded from http://jfprhc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.

**Table 3** Crude and adjusted odds ratios of individuals who have ordered oral contraceptive pills from an online contraceptive service between 10 January 2017 and 25 April 2018 (n=482)

| Parameter | Repeat orders (%) (95% CI) | Crude OR (95% CI) | P value | Adjusted OR (95% CI)† | P value | N |
|---|---|---|---|---|---|---|
| All | 47.3 (42.8 to 51.9) | – | – | – | – | 482 |
| Age group (years) | | | | | | |
| 16–19 | 46.7 (28.3 to 66.0) | 0.99 (0.45 to 2.14) | 0.9730 | 0.96 (0.43 to 2.13) | 0.9553 | 30 |
| 20–24 | 47.0 (39.7 to 54.5) | 1 (Ref.) | | 1 (Ref.) | | 185 |
| 25–29 | 47.8 (40.3 to 55.3) | 0.97 (0.63 to 1.49) | | 0.97 (0.63 to 1.49) | | 180 |
| 30–34 | 44.2 (30.4 to 58.7) | 0.87 (0.46 to 1.64) | | 0.87 (0.46 to 1.64) | | 52 |
| 35–39 | 48.0 (27.8 to 68.7) | 1.07 (0.44 to 2.62) | | 1.08 (0.44 to 2.62) | | 25 |
| 40+ | 60.0 (26.2 to 87.8) | 1.80 (0.47 to 6.80) | | 1.80 (0.47 to 6.80) | | 10 |
| Ethnic group | | | | | | |
| White | 54.8 (48.9 to 60.7) | 1 (Ref.) | 0.0021* | 1 (Ref.) | 0.001* | 290 |
| Black | 41.6 (30.4 to 53.6) | 0.59 (0.35 to 0.97) | | 0.53 (0.31 to 0.89) | | 77 |
| Asian | 32.6 (19.1 to 48.5) | 0.40 (0.20 to 0.78) | | 0.39 (0.20 to 0.77) | | 43 |
| Mixed | 31.5 (19.5 to 45.6) | 0.38 (0.20 to 0.70) | | 0.37 (0.20 to 0.69) | | 54 |
| Other | 45.5 (16.7 to 76.6) | 0.69 (0.20 to 2.30) | | 0.63 (0.18 to 2.14) | | 11 |
| Unknown | 14.3 (0.4 to 57.9) | 0.14 (0.02 to 1.16) | | 0.14 (0.02 to 1.16) | | 7 |
| IMD quintile‡ | | | | | | |
| First (most deprived) | 51.5 (43.7 to 59.2) | 1 (Ref.) | 0.5463 | 1 (Ref.) | 0.4346 | 169 |
| Second | 44.1 (37.2 to 51.2) | 0.74 (0.49 to 1.12) | | 0.71 (0.46 to 1.09) | | 204 |
| Third | 47.8 (37.3 to 58.5) | 0.86 (0.52 to 1.44) | | 0.81 (0.47 to 1.37) | | 92 |
| Fourth | 42.9 (17.7 to 71.1) | 0.71 (0.24 to 2.13) | | 0.62 (0.20 to 1.96) | | 14 |
| Fifth (least deprived) | 0.00 (0.0 to 97.5)§ | – | | – | | 1 |

*p value significant <0.05.
†Adjusted for repeat order from service; age group; ethnic group; IMD quintile.
‡Missing data for two observations for IMD.
§One-sided, 97.5% CI.
IMD, Index of Multiple Deprivation; OR, odds ratio; Ref., reference.

is most pertinentwhere there are small numbers of service-users of black, mixed and particularly Asian ethnic groups available for subgroup analyses (table 3).

### Interpretation

Our findings indicate that those using online contraception broadly reflect the target population in terms of levels of deprivation, measured by area-level IMD. Use of contraception has been shown to be negatively associated with living in a deprived area,[20] which indicates the potential of the online service to be accessible to those at risk of unplanned pregnancy. This provides evidence against the perception that online services may only benefit those who are from less deprived backgrounds.[5 10] This finding may be related to the quality of the intervention which was intended to be easily understandable and straightforward to navigate. To achieve this, intervention-developers used a human-centred design approach involving focus groups with more than 100 women and repeated testing of the developing service with potential users.

Comparing the ethnicity breakdown of our sample to that of the wider population of women of reproductive age in the boroughs, it appears that early adopters of the online service broadly reflect the local population in terms of ethnicity, although those of black ethnicity are slightly under-represented while those of mixed ethnic group are over-represented. Those of black, Asian and mixed ethnic groups had lower odds of repeat use compared with those of white ethnic group. This is consistent with previous studies on face-to-face services, indicating that those of black or Asian ethnic groups have lower ongoing use of effective contraception[21] and that black women are more likely to discontinue OCPs at 12 months (adjusted HR 1.21, 95% CI 1.02 to 1.44).[22] The observational nature of the study prevents understanding of whether the lower odds of repeat ordering of OCPs were due to factors internal or extraneous to the service. The evidence of access to other digital services is mixed. An observational study of an online sexually transmitted infection (STI) testing service from the same platform (SH:24) delivered to residents in these boroughs found that young people aged between 16 and 20 years and black and ethnic minority (BME) groups were more likely to use clinic services for STI testing than online services.[23] A randomised controlled trial (2017) of the same



BMJ Sex Reprod Health: first published as 10.1136/bmjsrh-2020-200610 on 5 May 2020. Downloaded from http://jfprhc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.

service found higher rates of testing in the arm with access to online STI testing and reported no differences in uptake between sociodemographic groups.[24] Differences between the trial and observational study findings could be because all trial participants received equal STI testing promotion information. The contraception element of the online service could see improved repeat use among BME populations if contraception promotional efforts are more effectively targeted in the local community.

The majority of service-users were aged between 20 and 29 years, suggesting that online contraception could appeal to the age groups in which unplanned pregnancies occur most frequently.[25] However, among the pregnancies occurring in adolescents in England, many are unplanned and over half result in abortions.[16] The online service did not permit access to those aged under 18 years,which is arguably a sound decision reflecting the need for adherence to guidelines around safeguarding when prescribing to young people.[26] Despite this, a small proportion (9.0%) of service-users aged 16–18 years were found in the dataset (65/726), attributed to possible errors in the system during this early stage in the availability of the service (C Howroyd (Service Development Director), oral communication, 18 May 2018). This small proportion aside, the lack of online access for adolescents emphasises the importance of continued investment in specialist providers and young peoples' SRH services.

Further work should explore whether and how adaptations to the service might facilitate ongoing access for those from BME groups, particularly in this diverse area. It is also recommended that this analysis is repeated on a larger sample size, when the online intervention has been more widely and frequently used. This would enable regression analysis using ethnicity data for subcategories. Further qualitative research with contraceptive-users is required to understand how the option of online access affects the complex motivations and decision-making around contraceptive access, use and continuation.

## CONCLUSIONS

These are the first empirical findings on free-to-access, online contraception and suggest an online service that was developed using a human-centred design approach can be used by those from more deprived areas as measured by IMD. Early adopters reflect the population in terms of ethnicity with similar proportions of white and Asian ethnic groups, a slightly lower proportion of those of black ethnicity and an over-representation of those of mixed ethnicity. While these results help to allay the concerns that digital contraceptive healthcare may severely exacerbate health inequalities, ongoing research and service development should prioritise the identification and removal of barriers which may be inhibiting repeat access for BME groups to ensure that contraceptive provision can meet the needs of ethnically diverse populations.

**Acknowledgements** The authors thank Chris Howroyd, Service Development Director at SH:24, for providing data for the analysis.

**Contributors** PB conceived the project. PB and CJF are joint PhD supervisors for ER-P. ER-P designed the study protocol as part of her PhD with input from CJF and PB. MJP assisted ER-P in the analysis plan. ER-P and MJP carried out all data cleaning, derivation of variables for analysis and all analysis. CJF checked the analysis and do-files. ER-P drafted the article with PB and CJF. All authors were involved in the interpretation of the results, and read and commented on all drafts, giving final approval of the submitted version.

**Funding** This work was funded by Guy's and St Thomas' Charity via SH:24 (a not-for-profit community interest company).

**Competing interests** ER-P, the corresponding author, reports receiving a PhD studentship from Guy's and St Thomas' charity via SH:24. PB reports grants from Guy's and St Thomas' charity via SH:24 during the conduct of the study. CJF reports receiving funding for her time from Guy's and St Thomas' Charity paid via SH:24. PB is also a director of SH:24.

**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

**Patient consent for publication** Not required.

**Ethics approval** Ethical approval for this research was granted by The Proportionate Review Sub-Committee of the National Research Ethics Service (NRES) Committees – North of Scotland (Ref 15/NS/0031). All data are routinely collected and anonymised and, as such, no identifiable data were apparent within this study.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** Data are available upon reasonable request. The data that support the findings of this study are available from the corresponding author (ER-P) upon reasonable request.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

**ORCID iD**
Emma Rezel-Potts http://orcid.org/0000-0003-2986-792X

## REFERENCES

1 World Health Organization. Tracking universal health coverage: 2017 global monitoring report, 2017. Available: https://www.who.int/healthinfo/universal_health_coverage/report/2017/en/ [Accessed 1 Nov 2019].
2 Sedgh G, Singh S, Hussain R. Intended and unintended pregnancies worldwide in 2012 and recent trends. *Stud Fam Plann* 2014;45:301–14.
3 Sedgh G, Finer LB, Bankole A, *et al*. Adolescent pregnancy, birth, and abortion rates across countries: levels and recent trends. *J Adolesc Health* 2015;56:223–30.



BMJ Sex Reprod Health: first published as 10.1136/bmjsrh-2020-200610 on 5 May 2020. Downloaded from http://jfprhc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.

4 World Health Organization. Global diffusion of eHealth: making universal health coverage achievable: report of the third global survey on eHealth, 2016. Available: https://www.who.int/goe/publications/global_diffusion/en/ [Accessed 1 Nov 2019].
5 Veinot TC, Mitchell H, Ancker JS. Good intentions are not enough: how informatics interventions can worsen inequality. *J Am Med Inform Assoc* 2018;25:1080–8.
6 Health and Social Care Information Centre. NHS digital data and information strategy, 2015. Available: https://digital.nhs.uk/data-and-information/nhs-digital-data-and-information-strategy [Accessed 1 Nov 2019].
7 National Health Service (NHS). Five year forward view, 2014. Available: https://www.england.nhs.uk/publication/nhs-five-year-forward-view/ [Accessed 9 Oct 2019].
8 Faculty of Sexual and Reproductive Healthcare (FSRH)/British Association for Sexual Health and HIV (BASHH). FSRH/BASHH standards for online and remote providers of sexual and reproductive health services, 2019. Available: https://www.fsrh.org/standards-and-guidance/documents/fsrhbashh-standards-for-online-and-remote-providers-of-sexual/ [Accessed 12 Oct 2019].
9 Baraitser P, Syred J, Spencer-Hughes V, *et al*. How online sexual health services could work; generating theory to support development. *BMC Health Serv Res* 2015;15:1.
10 Rezel-Potts E, Free C, Syred J, *et al*. Expanding choice through online contraception: a theory of change to inform service development and evaluation. *BMJ Sex Reprod Health* 2020;46:108–15.
11 Lambeth Council. Demography Factsheet: Lambeth: - "a diverse and changing population", 2017. Available: https://www.lambeth.gov.uk/sites/default/files/ssh-demography-factsheet-2017.pdf [Accessed 13 Dec 2018].
12 Southwark Council. Southwark profile, 2019. Available: https://www.southwark.gov.uk/health-and-wellbeing/public-health/health-and-wellbeing-in-southwark-jsna/southwark-profile [Accessed 01 Dec 2019].
13 Ministry of Housing, Communities & Local Government. National statistics: English indices of multiple deprivation 2015, 2015. Available: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015 [Accessed 03 Nov, 2018].
14 Greater London Authority. Indices of deprivation, 2015. Available: https://data.london.gov.uk/dataset/indices-of-deprivation [Accessed 3 Nov 2018].
15 Office for National Statistics. Ethnic group by sex (females) by age for the local authorities of Lambeth and Southwark, 2011. Available: https://www.nomisweb.co.uk/ [Accessed 03 Oct 2019].
16 Department of Health & Social Care and The Office for National Statistics. Abortion statistics for England and Wales: 2017, 2018. Available: https://www.gov.uk/government/collections/abortion-statistics-for-england-and-wales [Accessed 02 Feb 2019].
17 Lambeth, Southwark and Lewisham Public Health Departments. Lambeth, Southwark and Lewisham sexual and reproductive health strategy 2018-23 draft for consultation, 2018. Available: https://www.lambeth.gov.uk/sites/default/files/co-lambeth-southwark-and-lewisham-sexual-and-reproductive-health-strategy-2018-23.pdf [Accessed 23 Oct 2018].
18 Office for National Statistics. Ethnicity and national identity in England and Wales: 2011, 2012. Available: https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11 [Accessed 23 Oct 2018].
19 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.
20 Bentley R, Kavanagh A, Smith A. Area disadvantage, socioeconomic position and women's contraception use: a multilevel study in the UK. *J Fam Plann Reprod Health Care* 2009;35:221–6.
21 Saxena S, Copas AJ, Mercer C, *et al*. Ethnic variations in sexual activity and contraceptive use: national cross-sectional survey. *Contraception* 2006;74:224–33.
22 Stuart JE, Secura GM, Zhao Q, *et al*. Factors associated with 12-month discontinuation among contraceptive pill, patch, and ring users. *Obstet Gynecol* 2013;121:330–6.
23 Barnard S, Free C, Bakolis I, *et al*. Comparing the characteristics of users of an online service for STI self-sampling with clinic service users: a cross-sectional analysis. *Sex Transm Infect* 2018;94:377–83.
24 Wilson E, Free C, Morris TP, *et al*. Internet-accessed sexually transmitted infection (e-STI) testing and results service: a randomised, single-blind, controlled trial. *PLoS Med* 2017;14:e1002479.
25 Wellings K, Jones KG, Mercer CH, *et al*. The prevalence of unplanned pregnancy and associated factors in Britain: findings from the Third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). *Lancet* 2013;382:1807–16.
26 National Institute for Health and Care Excellence. Scenario: prescribing to young people, 2017. Available: https://cks.nice.org.uk/contraception-assessment#!scenario:2 [Accessed 3 Oct 2018].




BMJ Sex Reprod Health: first published as 10.1136/bmjsrh-2020-200610 on 5 May 2020. Downloaded from http://jfprhc.bmj.com/ on April 19, 2024 by guest. Protected by copyright.