Engagement with regular asymptomatic COVID-19 testing in young people in North West England: a qualitative focus group study

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ABSTRACT
Objectives Communities in North West England had some of the highest incidence of COVID-19, particularly in their younger populations. Test kits were provided to young people in Blackburn with Darwen to encourage regular testing and reduce COVID-19 transmission. The aim of this study was to identify barriers and facilitators to engaging in regular asymptomatic testing in young people.

Design Focus groups.

Setting Young people and parents of school-aged children in North West England.

Participants 14 participants aged 12–15 years, 13 participants aged 16–25 years and 9 participants who were parents of school-aged children.

Results Six focus groups (36 participants) were conducted. Analysis identified young people were not against testing and many wanted to test to protect others; however, they felt their needs were not met when they were seeking information on the importance of testing and accessing tests. Young people also felt they wanted more autonomy to make decisions and access tests themselves, without having to rely on parents. Language barriers and challenges with the testing process, particularly reporting the results, were also identified as barriers for parents and young people. Parents were reluctant to test in the absence of symptoms and also noted that young people were very adaptable and testing became more acceptable to them as the pandemic progressed.

Conclusions Tailored messaging for young people would help this group engage in regular testing and feel part of the COVID-19 response. Regular testing is not currently required in England, however, it is important to understand barriers to engaging in testing for young people, as testing may be reintroduced in response to this or future pandemics.

BACKGROUND
In January 2021, the government announced the third national lockdown in England and began to roll out the use of regular asymptomatic testing as a strategy to help control the spread of COVID-19.1 COVID-19 tests were available for everyone with symptoms, however, due to evidence of asymptomatic transmission,2 lateral flow tests (LFTs) were available and regular asymptomatic testing was advised. LFTs were provided to local councils to help protect those who were unable to work from home.3 Between April 2021 and March 2022, LFTs were freely available to everyone in England and twice weekly asymptomatic testing was used as a strategy to allow restrictions to lift.4 Individuals over the age of 16 could order LFT kits from the government website or collect them from local NHS pharmacies. LFT kits were also supplied to all educational settings and employment settings offering rapid testing.5 With LFTs, results were provided on the test kit within 30 min of taking a test. Results should have been registered with an official government agency, for example, GOV.UK or NHS Test and Trace, however research suggests this was not done routinely.6

In January 2022, despite a decrease in overall rates of COVID-19, there was a surge in cases among children; nearly 12% of children under 11 and 6.5% of 11–16 years old tested positive.5 Areas in North West England saw some of the highest increases in COVID-19 cases in England during an outbreak of the Delta variant. In Blackburn with Darwen, the rise in COVID-19 cases due to the Delta variant was seen predominantly in those under 25 years of age,5 with outcomes from...
Surge testing showing that confirmed cases in the under 25s were over 50% higher than those aged 25 years and above. While those under 25 years of age are at lower risk of serious illness from COVID-19, their behaviours may put them at higher risk of contracting and spreading the virus.7

Many young people have experienced disruption to their education due to government lockdowns in England,8 and regular asymptomatic testing was introduced in many educational settings to help reduce COVID-19 transmission and enable young people to return to face-to-face education.9 In addition to national guidance for everyone to engage in regular asymptomatic testing, in July 2021, Blackburn with Darwen Council provided all school children 16 years and under with seven LFT kits and an accompanying leaflet outlining the importance of testing regularly throughout the school holidays (available on request from corresponding author). There are limited data on young people’s engagement with testing, however, one study including school children and university students identified communication, a sense of community and convenience were key facilitators to taking a test.10 This study did not differentiate between younger children and older students and it is likely there are different practical barriers to testing for these groups. Further research from Australia indicated one in five parents would not take their child for testing if they had symptoms,11 suggesting there is a need to better understand testing intentions in young people and parents.

It is important that young people are able to follow COVID-19 testing guidelines and can access tests when needed, to reduce the spread of virus. Engaging in regular testing is particularly important for young people, as those aged 25 and younger are less likely to have as many vaccinations compared with those over 25 years of age,12 with older age groups being offered vaccinations before younger age groups.

To support young people to engage in regular testing, it is essential to understand young peoples’ and parents’ experiences of regular testing to inform policy and practice decisions. Although regular asymptomatic testing is currently only required in specific high-risk settings, regular testing in the general population is likely to be reintroduced if COVID-19 cases increase or if new variants are identified.13 It is, therefore, important to understand the barriers and facilitators to young people engaging in testing. The aim of this study was to gain a better understanding of experiences of regular asymptomatic testing in young people aged 12–25 years and parents, including identifying barriers and facilitators to engaging in regular testing.

METHOD
Study design
Focus groups were carried out with young people aged 12–25 and parents of school-aged children in Blackburn with Darwen, between 23 August 2021 and 5 October 2021. Focus groups for the 12–15 years old took place at a primary school, where participants were attending a summer school run by a local Youth organisation. Focus groups for the 16–25 years old took place at a local college and housing shelter. The parents focus group took place at a community centre where a regular parents support group was based. We undertook a qualitative approach to enable us to explore participants’ experience and perceptions of testing in depth. It was not possible to involve the public in the design, conduct or reporting of this study due to the responsive nature of the work.

Participants
Six focus groups were conducted (36 participants in total). Two focus groups were carried out with participants aged between 12 and 15 years (seven participants per focus group), three focus groups were carried out with participants aged between 16 and 25 years (three groups with 4–5 participants per group), and one focus group was carried out with parents (nine participants). We use the term ‘young people’ throughout to describe the participants aged 12–25 years, to take into account these participants include children and young adults. Demographic characteristics of participants are shown in table 1.

Participants were recruited via youth organisations in Blackburn with Darwen. Organisations were identified through Blackburn with Darwen community networks using purposive sampling. Each organisation was contacted via email with a recruitment leaflet and participant information sheet to share with their members. Individuals who wanted to participate contacted the lead researcher via email. Parents of children under the age of 15 who wanted to participate contacted the lead researcher on behalf of their child. Written and/or verbal consent was obtained from all participants. Parents provided written consent for children under the age of 15 years and verbal consent from participants was also obtained at the start of the focus groups. Everyone who expressed an interest in participating in the study was invited to take part in a focus group.

| Table 1 Demographic characteristics of focus group participants |
|---------------------------|---------------------------|---------------------------|
| Age                       | 12–15 years               | 16–25 years               | Parents                  |
| Mean                      | 12.9                      | 18.0                      | 44.7                     |
| SD                        | 1.1                       | 1.5                       | 10.1                     |
| Gender                    |                           |                           |                          |
| Male                      | 5 (36%)                   | 5 (38%)                   | 0 (0%)                   |
| Female                    | 9 (64%)                   | 8 (62%)                   | 9 (100%)                 |
| Ethnicity                 |                           |                           |                          |
| White                     | 6 (43%)                   | 9 (69%)                   | 1 (11%)                  |
| Asian                     | 8 (57%)                   | 3 (23%)                   | 8 (89%)                  |
| Other                     | 0 (0%)                    | 1 (8%)                    | 0 (0%)                   |


Open access
Focus groups
Focus groups were used to ensure a wide range of experiences and attitudes were captured over a short space of time. A topic guide (online supplemental files 1–3) with open-ended questions was used to ensure key areas were covered, but also allowing flexibility to explore new themes as they arose. The topic guide included questions on experiences of regular COVID-19 testing, sources of COVID-19 testing information and perceptions of the importance of COVID-19 testing in young people. Focus groups lasted up to 1 hour and participants were reimbursed for their time; adults received a £25 shopping voucher and children received a £10 shopping voucher.

Analysis
Focus groups were recorded using a digital recorder and transcribed verbatim. The facilitator also took notes during the focus groups, which helped inform the analysis. Data were depersonalised by removing any identifiable data (including names and locations) and imported into NVivo (QSR International, London, UK) for analysis. Data from all focus groups were analysed separately and outcomes from both the 12–15 years and 16–25 years focus groups were combined.

Data were analysed using an inductive approach 14 where the first author familiarised themselves with the data by listening to the audio and reading the transcripts for all the focus groups. An initial coding framework was developed based on coding four transcripts using an inductive approach that is, codes were not decided a priori. Fieldnotes were used alongside the inductive coding to develop the themes. During this stage, ~10% of the data were independently coded by a second coder (CR) and meetings were held to discuss coding and reach consensus on a coding framework. The coding framework was then applied to the remaining transcripts by the lead author. This was done inductively to allow new codes to be added as the analysis progressed. The final themes were refined by all the authors. Focus groups were conducted by the lead author, a UK Health Security Agency employee. Participants were aware of this so reflexivity was used throughout the analysis to take into account any potential influence on participant responses.

Patient and public involvement
None.

RESULTS
Seven main themes and six subthemes were identified. These themes related to barriers and facilitators to engaging with regular asymptomatic testing, with five themes relating to barriers to engaging with testing and two themes relating to facilitators of engaging with testing. The main themes relating to barriers to testing were: conceptualisation of health and illness; young people’s lack of autonomy; unmet information needs (lack of information from trusted sources, lack of targeted information for young people, frustration with frequent changes to guidance); language barriers; and challenges with the testing process (parental challenges of testing their child, challenges with reporting results, fear of testing positive). The main themes relating to facilitators to testing were protecting others and adapting to the situation.

Young people, particularly those under 16 years of age, depended on their parents or guardians to make decisions about testing. Their engagement with regular testing was therefore—in part—determined by how their parents or guardians viewed the policy. As such, the results we report here combine findings from the young people and parent focus groups where applicable, to demonstrate the integrated nature of how barriers and facilitators to testing arise in young people.

Conceptualisation of health and illness
For some parents in our study, testing was understood as something that was enacted in response to a child becoming ill, developing symptoms or being in close contact with a confirmed case. Unless these criteria were met, parents were reluctant for their child to take a test: ‘Just because, like, for no reason, just to get them tested?… I’m not really in favour with that’ (Parent Focus Group). This suggests that for these parents, the way in which they conceptualised illness—as a state of experiencing symptoms—was not compatible with an asymptomatic testing policy, where testing is encouraged in the absence of symptoms.

Young people’s lack of autonomy
Despite requiring consent from their parents to take tests in school, young people under 16 discussed how they would welcome the autonomy to make their own decisions and access testing independently. Young people recognised that the only way they could access tests would be through their parents, but if tests were available to them directly, they would use them: ‘For people our age, we would have to go through our parents. But I know my sister did and she’s over 18. So, she just ordered it and it came through the post.’ (12–15 years Focus Group 2).

Young people also suggested that tests should be made available from local shops to make them easier to access without having to rely on their parents or guardians: ‘Local shops could have a few. Because we can’t drive, can we? We can’t go where adults can go, and sometimes your adults are busy.’ (12–15 years Focus Group 1).

Unmet information needs
Lack of information from trusted sources
While young people in our study wanted autonomy to make their own decisions about testing, they encountered barriers when seeking and understanding information about the testing programme. Some participants stated they had not seen information about testing, while those who had seen information noted that this was predominantly on social media, which was not viewed as a trusted source of information. Participants suggested that information aimed at young people from trusted sites would...
help encourage them to take a test; the government and NHS websites were mentioned specifically: ‘[Information] come from a government website, or a trusted website. Not, like, a dodgy website’ (16–25 years Focus Group 2). Some of the young people aged 12–15 years suggested that information should come from authority figures—the Prime Minister and government were mentioned specifically: ‘I’d listen more if it came from Boris Johnson.’ (12–15 years Focus Group 2).

Lack of targeted information for young people

In both sets of focus groups (parents and young people), participants discussed how there was a lack of targeted information for young people. Some young people felt the information available did not apply to them: ‘I feel it’s more around the elderly… I feel like they’re being given information that applies to them, [rather] than us.’ (16–25 years Focus Group 2).

These views were echoed in the parent focus groups, where some participants felt that a lack of engagement with young people resulted in them not following COVID-19 guidance: ‘they don’t really approach the younger generation. And that’s why they don’t wear masks in town’ (Parent Focus Group).

Again, these views were reflected in the parent focus group where they discussed how information for the general public could be challenging for young people to understand: ‘Do you know the charts they have, or the media, it’s not really… I don’t think it’s kids-friendly, the way they write it… I think they need to be more kids-friendly. It’s more adults’ (Parent Focus Group).

Frustration with frequent changes to guidance

The frequent changes in government guidance on testing exacerbated confusion about testing in the absence of symptoms, particularly when messages about risk changed as the pandemic progressed: ‘They kept saying at the beginning, it doesn’t affect children, children are safe, they don’t need to wear their masks. And now suddenly, when everyone’s been vaccinated, now it’s all aimed at children. Now children need to be careful. Why not before but now? It just seems a bit strange to me’ (Parent Focus Group).

Language barriers

In addition to the lack of targeted information, some young people noted they found the way in which a positive test was indicated confusing: ‘When I first used the lateral flow test, it has C and T. And I didn’t understand what it meant. So, when I tested it, it said C. And C for me I thought it meant you have COVID.’ (16–25 years Focus Group 3). For the LFTs used at the time, ‘C’ indicated control and was used to show the test was working correctly.

Some young people also discussed how those with English as a second language struggled to understand how to complete the test. It was suggested that testing instructions should be available in different languages: ‘For people who aren’t very fluent in English, they struggle a lot to understand how to do the test properly […] For example in our Blackburn community, we live in a diverse community, where multiple people speak different languages. So, we have leaflets in the council with other languages that people can access.’ (16–25 years Focus Group 3).

Young people in the study felt that information given about testing, including the instructions given in the test kits, included words they could not understand: ‘Sometimes they use proper scientific words as well… I don’t understand half of it’ (12–15 years Focus Group 1). It was suggested that this type of information should be aimed specifically at young people: ‘They should do the same booklet that they do positioned to the little one, like a children version, because the words, I can barely understand them sometimes because they’re more like adult words. And they should use more pictures in the kids one and stuff’ (12–15 years Focus Group 1).

Challenges with the testing process

Parental challenges of testing their child

Many parents found that it was difficult to do the test on young children and felt guilty about their child having to take a test: ‘I felt bad, because they were crying, obviously. Felt really bad, and I was blaming myself.’ Some parents, specifically those with teenagers, did not trust their child to take the test on their own in case they did not take it properly: ‘When I do it, I make sure I do it. They’re not allowed to do it, I do it, just to make sure.’ (Parent Focus Group).

Challenges with reporting results

While many young people in the 16–25 years focus groups understood how to take a test, some were not aware that they needed to report the test result or how to do so. Some found recording the result difficult: ‘It’s quite difficult to record the test… you went through about… I went through about 20 different pages on the Government website just to record a test. So, after doing a test every three days, it just got too much to record all of them’ (16–25 years Focus Group 3).

Similarly, some parents found it difficult to report the result of the test: ‘It was such a long procedure… I kept trying to put the details in, but it wouldn’t…’ (Parent Focus Group). Digital exclusion was also identified as a barrier to reporting test results; some parents were unable to use a computer and preferred to report the results over the phone: ‘I like doing everything over the phone. I’m really bad with technology.’ (Parent Focus Group).

Fear of testing positive

As well as challenges around taking the testing and reporting results, the implications of the test results were also highlighted as a potential barrier. Participants in the 12–15 years focus groups stated that they were not concerned about taking a test, but it was the outcome of the test that they feared the most: ‘That many people, they’re really ill and they’ve also died and stuff, so it’s scary that could happen to you as well.’ (12–15 years Focus Group 1). Some participants stated that they were scared to take the test at first, but actually found the result more daunting: ‘she got tested, she was like, it was proper scary because I thought I might get it.’ (12–15 years Focus Group 1).
Protecting others

The main facilitator of engagement with testing was motivation to protect other people. Many young people from both age groups stated that they would get a COVID-19 test to protect others: ‘For the safety of those around you, so if you’re not feeling too good or [you have] any of the symptoms you should go and get tested, for the people around you and not just for yourself’ (12–15 years Focus Group 2). Some young people had caring responsibilities, which influenced their decision to take a test: ‘I’ve got a child. So, I have to think for my child as well as myself’ (16–25 years Focus Group 1).

Many participants recognised that COVID-19 can be passed on without people showing any symptoms and felt that testing was important for stopping community transmission of COVID-19: ‘Keeping people safe as well… it’s just protecting the community’ (12–15 years Focus Group 1). Some young people from the focus groups were aware of testing centres and surge testing happening in local communities, however, there was some confusion over who was eligible for these testing services. Some young people were not aware that testing centres and surge testing were available for everyone and thought that these were only for older adults and key workers.

Some parents chose to isolate and engage with testing before visiting more vulnerable family members: ‘The test was because my parents. Because if they’re over 60… so every time all of us, there’s four of us, so we all do the test every time before we went down to see mum and dad. Or we’d isolate for ten days, do the test, and then we’d go and see mum and dad’ (Parent Focus Group).

Adapting to the situation

Some parents stated that despite children being scared about COVID-19 at the beginning of the pandemic, many have adapted to the situation and now take tests regularly: ‘For kids, there was a fear factor in the beginning, like the COVID tests and that, they were like, ugh. Because there’s a personal space. But then kids adapt. And then after the once or twice we’ve done the test, they’re like, oh mummy, I can do it myself now. So kids do adapt’ (Parent Focus Group).

DISCUSSION

In this study, we explored young peoples’ and parents’ attitudes and behaviours in relation to regular asymptomatic testing. Specifically, we examined any barriers or facilitators to engaging in regular asymptomatic testing. Overall, the young people in this study were not against COVID-19 testing and were concerned about spreading the virus to loved ones and their wider communities. They recognised that by taking a test they could contribute to stopping the spread of the virus. However, young people felt there was a lack of public health information aimed at their age group from trusted sources, suggesting that they felt excluded, despite being required to take part in regular asymptomatic testing.

Despite young peoples’ acknowledgement of the importance of testing, some parents were against regular asymptomatic testing for their children. Unless testing was required, for example, in order to attend school, or their child was showing symptoms, most parents did not want their child to take part in regular testing. Previous research exploring parents’ views of the school testing programme found that a key barrier to testing was that parents were reluctant to test their children in the absence of symptoms.15 Similarly, the parents in our study were reluctant to allow their child to take a test unless they were experiencing symptoms. This created a barrier for young people to take part in regular testing, as those under 16 years of age require the permission of an adult to take a test. In circumstances where young people want to take a test, they often lack the autonomy to do so. It is possible that the environment within which testing is offered to young people, for example, schools is influencing their decision making and could be one reason for the different in testing engagement between parents and young people. Further qualitative research with both parents and children would help us better understand this dynamic.

Our study also highlighted that young people felt that information about COVID-19 testing had not been aimed at their age group. Some information, including testing booklets, contained language that was too complicated and left them feeling excluded. Previous research found that young people wanted to play an active part in the recovery from the pandemic, but felt that they needed more information that was directed at their age group, and a separate platform in which they could have their voices heard.16

In our study, most young people stated that the information that they had seen about COVID-19 testing was mainly from social media, with many stating that they could not trust the information they had read. To help them feel recognised by those in authority, young people expressed a need for government messaging aimed at their age group. This finding supports previous research which highlighted that young people want simple, tailored messaging in public health campaigns that can be easily accessed by all ages.17 This would help them feel like they are being included in political decisions and recognised in the COVID-19 response.17 To ensure that young people are included in the public health response and engage in regular testing, the government and local authorities should involve young people in the production of testing materials and messages to ensure that instructions are clear to follow and can be understood by those of a younger age. This recommendation supports learning from previous pandemics, which suggested that involving communities in the response can help shape social norms and enable public health messages to have a more powerful impact.18

Young people felt strongly about protecting others in their community and this was stated as the main reason for taking a test. This finding supports previous research showing that young people had an awareness of the impact of the pandemic on the wider community, specifically elderly people, socially disadvantaged people and parents19 and
highlighted that concern about COVID-places where the incidence was lower. Previous research has more concerned about infecting others, compared with number of cases and therefore young people may have been willing to accept testing as a way of keeping others safe, especially when testing was recommended by health professionals. This work was undertaken in a region with a high number of cases and therefore young people may have been more concerned about infecting others, compared with places where the incidence was lower. Previous research has highlighted that concern about COVID-19 and the impact to self and others contributed to willingness to test, as well as adherence to other public health measures such as isolation.

Our study, therefore, identified several barriers and facilitators to young people engaging with regular asymptomatic testing. Based on the barriers identified, we were able to develop several recommendations for improving young people’s engagement with regular asymptomatic testing, should this be required in the future; these are presented in table 2.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Recommendations based on barriers to testing</th>
</tr>
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<tbody>
<tr>
<td>Barrier</td>
<td>Recommendation</td>
</tr>
<tr>
<td>Conceptualising health and illness</td>
<td>Provide clear information about what asymptomatic transmission is and how testing can help reduce the risk of transmission.</td>
</tr>
<tr>
<td>Lack of autonomy</td>
<td>Provide local shops with testing kits. This will allow local residents who do not have online access or are unable to travel to their nearest chemist to get testing kits when needed.</td>
</tr>
<tr>
<td>Unmet information needs</td>
<td>Authority figures should provide clear messaging to young people about testing. This may help young people understand the importance of participating in regular testing. Government/NHS websites should provide targeted information about the importance of testing that is aimed at young people. This should be a separate page that includes language that is suitable for young people. It should include information on why young people should get tested, how they do it, what to do once they have completed the test and key information about COVID-19 (eg, case numbers and reasons for high case numbers, that are specific to their geographical area). Involve young people in the production of testing materials and messages to ensure that instructions are clear to follow and can be understood by those of a younger age.</td>
</tr>
<tr>
<td>Language barriers relating to testing kits</td>
<td>Make paper copies of testing messages and instruction booklets available in different languages so that they are inclusive to all. Having these only as digital copies excludes populations that are not able to access or understand digital devices. Provide clear instructions and pictures of what a positive and negative test look like, this should stop any confusion between the letters that are on the testing device. Involve young people in the production of testing materials and messages to ensure that instructions are clear to follow and can be understood by those of a younger age.</td>
</tr>
<tr>
<td>Challenges with the testing process</td>
<td>Provide clear instructions for how to report a test, including visual demonstrations such as videos. Provide alternative methods of reporting for those who do not have digital or online access.</td>
</tr>
<tr>
<td>Fear of testing positive</td>
<td>Provide clear information on what it means to test positive. This should include information on support available to young people that need to self-isolate due to a positive test result. As results are received in the absence of a medical or trained professional, clear information aimed at young people should aim to eliminate any fear or stigma that is associated with a positive test result.</td>
</tr>
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were willing to accept testing as a way of keeping others safe, especially when testing was recommended by health professionals. This work was undertaken in a region with a high number of cases and therefore young people may have been more concerned about infecting others, compared with places where the incidence was lower. Previous research has highlighted that concern about COVID-19 and the impact to self and others contributed to willingness to test, as well as adherence to other public health measures such as self-isolation.

Our study, therefore, identified several barriers and facilitators to young people engaging with regular asymptomatic testing. Based on the barriers identified, we were able to develop several recommendations for improving young people’s engagement with regular asymptomatic testing, should this be required in the future; these are presented in table 2.

**Limitations**

The North West, particularly Blackburn with Darwen, was one of the areas most affected by COVID-19. Blackburn with Darwen had high numbers of COVID-19 cases, particularly in their younger population. It was, therefore, important to understand why young people were not engaging in regular testing in this community, which is why we chose to focus on understanding the attitudes and behaviours of young people in this area. However, it should be noted that the study sample used is not necessarily representative of the wider UK population.

As part of the recruitment strategy for this study, we identified parent groups that were part of the same organisation that was used to recruit participants for the 12–15 years focus group. The benefit of using this strategy was that a good rapport had already been established in the organisation and this enabled a relaxed environment for open and honest communication, which allowed for rich data to be gathered. However, this strategy resulted in the parents who took part in the focus groups being predominately mothers/grandmothers who were of Asian ethnicity. They were, therefore, not necessarily representative of parents or grandparents of different ethnicities. Further research could explore to what extent the themes reported in this study are consistent among different ethnicities, across the country.

**CONCLUSION**

Young people are at increased risk of COVID-19 transmission, and regular asymptomatic testing could help to reduce the risk of young people catching and spreading COVID-19. However, there is a lack of information concerning young people’s engagement with regular testing. We identified that the main barriers to young people engaging with regular testing were unmet information needs and lack of autonomy.
in testing. These barriers could be addressed by providing clear and targeted messages aimed at young people. Information aimed at young people should be available on government or NHS websites and include topics such as the importance of testing, how to complete a test, what to do once they have completed the test and key information about COVID-19. While young people are not currently being asked to engage in regular asymptomatic testing, it is important to understand the barriers that reduce young people’s engagement with testing as regular testing is likely to be part of future infectious disease outbreaks or pandemics.

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Contributors LT, CR and HC designed the study. LT ran the focus groups. LT and CR analysed the data and drafted the manuscript. All authors reviewed the manuscript and approved the final content, with CR acting as guarantor.

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Ethics approval This study involves human participants and was approved by Public Health England Research Ethics and Governance Group R&D 464. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request.

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