UK Health Security Agency

Barriers to reporting LFD test results during the universal testing offer period

A rapid review

Contents

1. Executive summary

1. This rapid scoping review (search up to 9 November 2023) identifies and summarises evidence relating to coronavirus (COVID-19) testing behaviours and, specifically, barriers and facilitators influencing individuals' reporting of all (positive, negative, and void) lateral flow (LFD) test results during the period of the universal testing offer (UTO) from April 2021 to March 2022.

2. Overall, most of the studies included in the literature review focused on testing uptake and the identification of barriers and facilitators. Only a very limited number of studies included an analysis of behaviour around reporting test results and its related barriers and facilitators.

3. Studies highlighted testing should be understood as a social process that is inseparable from processes of contact tracing and isolation and deeply embedded in people's everyday routines, livelihoods and relationships. Additionally, understanding people's knowledge, attitudes, and behaviours related to COVID-19 testing is crucial for designing effective testing programs worldwide (1).

4. Findings show that some study participants misunderstood the residual risk following a negative test result and did not always fully grasp how to interpret and respond to test results (2). Findings also suggest that although negative LFDs provided reassurance, most people still restricted their activity as recommended (3). It is also crucial to acknowledge that this review did not specifically focus on capturing all relevant literature related to behaviours following testing outcomes, so there may be limitations in the scope of this finding.

5. Studies on communication and messaging mainly covered testing uptake and do not mention communication and messaging around the importance of reporting results.

6. Findings highlight how government messages emphasised taking responsibility for the public good by testing (4). Appealing to empathy and honesty-humility as personality traits can be effective tools for practitioners and policymakers when communicating about the importance of accurate self-testing results and creating messages to encourage adherence to COVID-19 behavioural regulations (5).

7. Findings confirmed the usefulness of mobile applications for self-reported data, although the review revealed a significant literature gap in studies around the role of technology (6).

8. No studies on how cultural and linguistic considerations influence the perception and understanding of reported results were found as part of this rapid scoping review.

9. Findings point out that more focus is needed on the contextual and behavioural factors that influence testing protocol adherence as, while testing behaviour is generally recognised as dynamic and complex, current literature demonstrating and quantifying such relationships is scarce, despite its importance for infectious disease surveillance and control (1, 5, 7 to 10).

2. Background

The purpose of this rapid review was to identify and summarise evidence relating to COVID-19 testing behaviours and, specifically, using the COM-B model of behaviour change, barriers and facilitators influencing individuals' reporting of all (positive, negative and void) LFD test results during the period of the UTO from April 2021 to March 2022.

The review aimed to provide a robust foundation for the primary research and fieldwork of the project 'Barriers to reporting LFD test results during the universal testing offer period'. The need for this specific research was identified as a response to the importance of reporting results and challenges incentivising this, highlighted in Chapter 6 of the Chief Medical Officer's technical report on the COVID-19 pandemic in the UK. The rapid review has been conducted by the UKHSA Knowledge and Library Services team and the UKHSA Behavioural Science and Insights Unit (BSIU) team. The qualitative research project this informed was commissioned by UKHSA to Thinks Insight and Strategy.

There was one review question:

1. What is the evidence on the universal testing offer during the pandemic, and the barriers and facilitators or motivators to reporting both positive, negative and void test results, in the UK, focusing on the following subject areas:

a) testing and reporting behaviours
b) identify key stakeholders
c) investigate user experience
d) data visualisation techniques (used in conveying results and information to the public and decision-makers)
e) communication channels
f) consider cultural and linguistic considerations
g) the role of technology
h) investigate behavioural and contextual factors
i) the impact of reporting on decision-making
j) compare international best practices

3. Methods

A rapid review was conducted by UKHSA, following streamlined systematic methods to accelerate the review process. Two literature searches were undertaken to look for relevant direction or guidance materials, secondary evidence, primary research, ongoing trials and research studies, implementation support and information for the public published or available as a preprint up to 9 November 2023, the date on which the first search was conducted. The first search covered subject areas from 1.a) to 1.i). The second search focused on subject area 1.j). Forward citation searching was undertaken on 9 articles for the first search and on 8 articles for the second search, which were highly relevant to the search question, identified in initial scoping activity.

A second review was conducted to further identify the main findings, gaps, additional hypotheses and research questions to inform the project's primary research and fieldwork. The COM-B framework was also used to identify barriers and facilitators to testing uptake and reporting LFD test results with a focus on understanding the capability, opportunity, and motivation components that impact testing and test results reporting behaviours. The COM-B model of behaviour change is a simple yet comprehensive diagnostic framework from behavioural science that ensures that all possible influences on a behaviour, both conscious, subconscious, and contextual, are taken into consideration.[1] The evaluation of the national COVID-19 testing programme in England between October 2020 and March 2022 carried out by the EY–Oxford Health Analytics Consortium appointed by UKHSA was also included and consulted at this stage (11).

Due to the rapid nature of this review, a formal critical appraisal of the included literature was not undertaken.

3.1 First search

Table 1. Summary of resources searched and results

Source	Number of results	Number of results after removing duplicates and screening for relevance
UKHSA Behavioural Science and Insights Unit COVID-19 Literature Report Database	705	12
Citation chaser	9	6
Cochrane Library	49	7
Embase	396	9

[1] Michie S, Atkins L and West R. ‘The behaviour change wheel: a guide to designing interventions’ First edition

Source	Number of results	Number of results after removing duplicates and screening for relevance
Medline	213	41
PsycInfo	111	3
Scopus	632	19
Social Policy and Practice	24	1
SOCIndex	35	0
UKHSA research portal	6	1
Total	2,180	99

3.2 Second search

Table 2. Summary of resources searched and results

Source	Number of results	Number of results after removing duplicates and screening for relevance
UKHSA Behavioural Science Insights Unit COVID-19 Literature Report Database	24	16
Citation chaser	76	34
Cochrane Library	99	5
Embase	1,292	18
Medline	731	41
PsycInfo	181	5
Scopus	1,083	10
Social Policy and Practice	4	0
Total	3,490	129

Full details of the methodology are provided in Annexe A.

4. Results

This section includes the rapid review main findings for each subject area covered by the search, from 1.a) to 1.j), as reported in the Background section of this report. For each subject area, the section distinguishes findings by identified key stakeholders and targeted groups (general public, university settings, workplace settings, healthcare workers, scientific advisors, care homes settings, school settings, parents, young people, marginalised and/or disadvantaged groups). For the subject area 1.j) compare international best practice, findings are reported for each of the other subject areas the search covered from 1.a) to 1.i).

A list of barriers and facilitators for testing uptake and for reporting test results is included at the end of this section, differentiating between barriers and facilitators identified in UK based resources (first search) and barriers and facilitators identified by reviewing international based studies (second search). Barriers and facilitators reported are also categorised following the COM-B framework.

4.1 Testing and reporting behaviours

This section includes rapid review findings for subject area 1.a) testing and reporting behaviours.

4.1.1 General public

Most of the studies included in the literature review explored testing uptake and identified a list of barriers and facilitators, but only a very limited number of studies include an analysis of reporting test results and their related barriers and facilitators. Identified barriers and facilitators for both testing uptake and test reporting are all listed in sections 4.10, 4.11 and 4.12.

One of the few studies including an analysis of reporting test results is the ‘Evaluation of the National COVID-19 Testing Programme in England Between October 2020 and March 2022’ carried out by the EY–Oxford Health Analytics Consortium appointed by UKHSA (11). Of the total number of LFD tests distributed as part of the national COVID-19 testing programme in England between October 2020 and March 2022, 15.7% were reported during the evaluation period, with reporting decreasing over time and the discrepancy between LFD tests distributed and reported could be explained by a low intention to report results and individuals not seeing the value in reporting a negative test result. The evaluation also suggests complacency to report test results stems from a lack of knowledge of the importance of reporting, specifically reporting negative results, as well as reporting fatigue. Demographic factors such as ethnicity and deprivation indices were closely associated with the uptake and reporting of tests (11).

Love and colleagues in 2022 reported that in their study, of the 812 participants who were contacts of confirmed COVID-19 cases and were sent LFD packs, 570 (70.2%) reported one or more LFD results and 102 (17.9%) tested positive. Concordance between reported LFD results and a supplied LFD image was 97.1%. This study shows high acceptability, compliance and

positivity rates when using self-administered LFDs among contacts of confirmed COVID-19 cases (12). Smith and others in 2022 mentioned the investigation of reporting test results as a research objective. However, they did not study factors related to reporting as a separate aspect but as a part of testing uptake analysis (13).

Kim and colleagues in 2023 also reported in their study that testing behaviour showed complex associations with factors reflecting transmission level, disease susceptibility/severity (for example age, dominant variant, and vaccination), public health measures (for example testing strategies and lockdown), and associated changes in risk perception, varying throughout the pandemic and differing between infected and non-infected people (9).

Most studies on the effectiveness of daily contact testing, for example, Love and others in 2022, indicated that daily testing with LFDs could allow individuals to reduce the risk of onward transmission while minimising the adverse effects of self-isolation. Marchant and others in 2021 demonstrated that there is public health benefit in offering tests to contacts as a routine part of the contact-tracing process (14). Bevan and colleagues' review findings in 2021 suggest that social solidarity is a key motivator for testing uptake and testing should be understood as a social process that is inseparable from processes of contact tracing and isolation and is embedded in people's everyday routines, livelihoods and relationships (1).

Studies conducted during the national COVID-19 testing programme in England between October 2020 and March 2022 have suggested a lack of understanding among the general population of when to use LFD and PCR tests, with many people using LFDs when they were symptomatic rather than following the guidance to conduct a PCR test, according to a national survey conducted in June 2021 (n = 3,665). This suggests that the public's intended and actual testing behaviours were out of step with government recommendations. Specifically, people were confused about the role asymptomatic testing played within the broader range of testing requirements and did not understand the difference between the role of PCR testing and that of LFD testing. Scepticism was also described in relation to test performance, with low levels of public trust in the accuracy of test results (11).

4.1.2 University settings

Cox and others in 2022 reported that in their study there was a majority (62%) but not universal support for voluntary participation in testing, with a range of concerns expressed about the potentially negative effects of mandating testing. Those who supported mandatory testing tended to do so because it would protect others. There was also a majority (64%) opposition to penalties for refusing to test. Views on restricting access to face-to-face teaching for non-participants were polarised (15). Blake and colleagues in 2022 reported that social responsibility and innovation were a main and recurring theme in interviews conducted with students (16). However, French and others in 2022 found low uptake of testing in their study among university students due to a lack of awareness, knowledge and understanding, and concerns about the accuracy and safety of tests. They highlighted how these factors might bring into question the role of mass LFD tests in university settings and that innovative strategies may be needed to

increase LFD tests uptake among students (17). Finally, Ludema and colleagues in 2022 found that receiving antibody test results did not lead to significant behaviour change in undergraduate students whether the SARS-CoV-2 antibody result was positive or negative (18).

4.1.3. Workplace settings

Van der Scheer and others 2022 in their study on workplace testing interventions reported that participants' concerns included those relating to goal drift, risk of false negatives, and potential negative impacts for household members and people whose roles lacked contractual and financial stability. The need to build trust in the testing programme, for example through effective communication from leaders, was also emphasised (19). Smith and colleagues in 2022 suggested that encouraging testing through workplaces and places of study is likely to increase uptake, although care should be taken not to pressure employees and students. Increasing knowledge that everyone is eligible for regular asymptomatic testing and addressing common misconceptions may drive uptake (13). Marsden and others 2022 in their study on residents of the Liverpool area who were key workers at participating fire, police, NHS and local government organisations, and who were identified as close contacts of cases showed that daily contact testing proved useful, flexible, and well-tolerated initiative to sustain key worker services (20).

4.1.4 Healthcare workers and care homes settings

Bow and colleagues 2022 reported that in their study, of the 138 health care workers (HCWs) that were identified as contacts of a confirmed SARS-CoV-2 case, 111 (80%) consented to daily LFD testing, of whom 82 (74%) completed the required programme without interruption and 12 (11%) completed with interruption. The main reasons interviewees gave for staff declining daily contact testing (DCT) were work fatigue leading to a preference for 10 days of quarantine, and scepticism over the performance of LFDs (21). This highlights a significant issue related to the lack of compliance, driven by both physical exhaustion and doubts about test accuracy.

Alhakmi and colleagues in 2022 in their study on engagement and compliance with biweekly self-testing and reporting in selected Imperial College Healthcare Trust wards reported that the peak pan-London testing compliance rate of 32% was reached in December 2020 but was followed by a steady decline to 7% in September 2021 (22).

Tulloch and others 2021 reported that qualitative data from their study showed difficulty in implementing testing strategies in care homes due to excessive work burden. Factors influencing adherence related to test integration and procedural factors, socio-economic factors, cognitive overload and the emotional value of testing. More focus is needed on the contextual and behavioural factors that influence protocol adherence (7). This trend further underscores the challenges in maintaining consistent compliance with testing protocols over time.

4.1.5 School settings, parents, and young people

Thorpe and colleagues in 2023 identified language barriers and challenges with the testing process, particularly reporting the results, for parents and young people. They reported that

young people felt they wanted more autonomy to make decisions and access tests themselves, without having to rely on parents. However, parents noted that young people were very adaptable, and testing became more acceptable to them as the pandemic progressed (23). Taylor-Egbeyemi and others 2023, on regular asymptomatic testing for COVID-19 in schools in England, reported that the impact of testing positive was highlighted as a key concern and related to the following barriers:

- financial implications for the rest of the family if a child tested positive
- concerns around children or parents being blamed for other children in their class or bubble being sent home to isolate
- mistrust in the government
- perception of testing as a way to maintain fear
- perception of testing as a form of abuse

Reported facilitators were:

- the desire to protect others (protecting family, protecting the wider community)
- the desire to return to normality
- hearing others' positive experiences

The authors suggest parents and children would benefit from additional practical and social support to facilitate engagement with the school's testing programme (24).

Finally, Lorenc and colleagues in 2021 reported that participants in their study supported school COVID-19 testing but identified the need to consider data security and stigma around COVID-19 diagnosis (25).

4.2 User experience

This section includes rapid review findings for subject area 1.c) investigate user experience.

4.2.1 General public

While much consideration was given by the organisers of the national COVID-19 testing programme in England between October 2020 and March 2022 to improve user experience, the level of reporting and detail required by the programme, including personal information, posed a challenge for some. People expressed practicality issues with reporting results, saying that the time and effort involved was a challenge, as well as technology and cache issues. Some people expressed being too busy to report their test results, while others described starting to register online or on the phone, but that the process took too long so they abandoned the attempt to report the result. There was also variation in people's preference of which platform to report results through. People were more likely to report a result on the GOV.UK portal than report a result using the NHS COVID-19 app or over the phone with NHS Test and Trace. It should, however, be noted that each of these reporting mediums served different purposes during the

pandemic: telephonic reporting was enabled for those who could not register digitally while reporting test results on the NHS COVID-19 app was anonymous and part of the apps contact tracing function, which was alongside the reporting of test results on the gov.uk portal for surveillance purposes. Mistrust was particularly strong around the use of data, privacy, and the potential loss of control of data when reporting a positive test result (11).

Batteux and others 2022 reported that a considerable proportion of participants misunderstood the residual risk following a negative test result. The addition of a single sentence ("But there is still a chance you may be infectious") to current NHS Test and Trace wording increased understanding of residual risk. However, it must be noted that this study was pre-UTO (2). Denford, Martin and colleagues in 2022 reported that although negative LFDs provided reassurance, most people still restricted their activity as recommended (3).

4.2.2 School settings

Denford, Towler and others 2022 highlighted that staff, students, and parents of students who had been identified as being in close contact with someone with COVID-19 and participated in their study did not always fully understand how to interpret and respond to test results. While participants reported high levels of adherence to the guidance, there was a dissonance between reported adherence and the actual understanding of testing procedures. Improved communications were desired to ensure that all students and parents have a good understanding of the rationale for testing, what test results mean, how test results should be acted on, and how likely students are to test positive following close contact (26). It is important to note, however, that the study did not specifically examine whether this dissonance affected actual adherence to reporting behaviours.

4.3 Data visualisation techniques

No studies explored the different data visualisation methods used in conveying results and information to the public and decision-makers, focus of subject area 1.d).

4.4 Communication channels

This section includes rapid review findings for subject area 1.e) communication channels.

4.4.1 General public

Studies on communication and messaging mainly covered testing uptake and did not mention communication and messaging around the importance of reporting results. However, it is important to note that as reported in the evaluation of the national COVID-19 testing programme in England between October 2020 and March 2022 carried out by the EY–Oxford Health Analytics Consortium, interviews with UKHSA stakeholders highlighted that at the time there was a perceived trade-off between encouraging the public to report test results and the risk of deterring the public from testing altogether, which may have contributed to the low levels of

reporting seen. This differed from the more proactive and clear communication strategies taken to encourage testing, face coverings and good ventilation (11).

Dalili and colleagues in 2022 reported that individuals first heard about LFD testing through various channels including work, media, and word of mouth, and decided to get tested based on the ease and convenience of testing, workplace communications, and to identify asymptomatic cases to help stop the spread (27).

Renedo and others 2023 reported that the government messages emphasised taking responsibility for the public good, but they appeared to overlook social, economic and political factors affecting the ways that people were able to respond. Ray and colleagues in 2023 highlight that appealing to empathy and honesty-humility as personality traits can be effective tools for practitioners and policymakers when communicating about the importance of accurate self-testing results and creating messages to encourage adherence to COVID-19 behavioural regulations (4).

Smith and others 2022 also found that psychological factors were associated with intention to adhere to key components of the contact tracing system. Messages that increase knowledge that COVID-19 can be transmitted even if someone does not have symptoms and that an individual's actions can contribute to the spread of the virus may promote engagement with the test, trace, and isolate system (13).

Smith and colleagues in 2021 reported that non-adherence was associated with being male, younger age, having a dependent child in the household, lower socioeconomic grade, greater financial hardship during the pandemic, and working in a key sector and suggested that targeting messaging and policies to these specific groups (28).

Harris in 2021 showed that complex socio-economic factors were associated with the willingness to get a test, self-isolate, and the levels of vaccine hesitancy, such that, in future ensuring that (re-)vaccination and ‘track and trace’ programmes are successful, may need to be better nuanced by references to such factors (29). Thorpe and others 2023 specifically suggest that tailored messaging for young people would help young people engage in regular testing and feel part of the COVID-19 response (23).

4.4.2 Healthcare workers and scientific advisors

Martindale and colleagues in 2021 in their account highlighted tensions between the communication and implementation of national testing developments, but also between scientific advisors' and healthcare workers' perceptions about infectiousness and uncertainties about the responsibility for testing and its implications at the local level (30).

4.4.3 Marginalised and/or disadvantaged groups

Renedo and others 2023 suggest that in future emergencies, marginalised communities must be given better material, political and technical support to help them design and implement effective community-led solutions, particularly where government institutions are untrusted (4). Mark and colleagues in 2021 reported improved messaging as a possible solution to incentivise testing, targeting individuals experiencing compounding disadvantages caused by being part of underserved groups, especially in countries where knowledge gaps are likely to be greater (31).

4.4.4 University settings

Blake and others 2022 highlighted the complexity and challenges generated by multiple lines of communication and rapid adaptions to a changing pandemic context as a main barrier for testing service implementation in university settings and suggested that clear communications and strategies to reduce anxiety are likely to be important for testing uptake and adherence (16). Wanat and colleagues in 2021 suggested that clear messages highlighting the benefits of regular testing for family, friends and society in identifying asymptomatic cases, transparent communication about the accuracy of LFDs and how to act on either a positive or negative result are needed. Concerns about safety, convenience of testing and ability to do tests need to be addressed to ensure successful scaling up of asymptomatic testing (32).

4.5 Cultural and linguistic considerations

This section includes rapid review findings for subject area 1.f) cultural and linguistic considerations.

4.5.1 General public

No studies were identified on how cultural and linguistic considerations influenced the perception and understanding of reported results, especially in diverse populations, but some studies explore these issues related to testing uptake. Watson and others in 2022 highlighted that the UK Scientific Advisory Group for Emergencies (SAGE) emphasised the need for high levels of engagement with communities and individuals to ensure the effectiveness of any COVID-19 testing programme. Conversations revealed that high levels of communication, trust and convenience were necessary to ensure people's engagement with the programme. This suggests community leaders and stakeholder organisations should be involved throughout programme development and implementation to optimise these features of the testing. Participants' and stakeholders' motivations, challenges and concerns need to be understood and these insights are used to modify the programme in a continuous, real-time process to ensure and sustain engagement with testing over the extended period necessary (8).

4.5.2 Marginalised and/or disadvantaged groups

Renedo and colleagues in 2023 showed that gypsies and travellers reported experiencing poor treatment from health services, police harassment, surveillance, and constrained living

conditions. For these communities, claiming the right to health in an emergency required them to rely on community networks and resources. They organised collective action to contain COVID-19, such as using free government COVID-19 tests to support self-designed protective measures including community-facilitated testing and community-led contact tracing (4). Vandrevala and others 2022 found that people of Black and South Asian ethnicity conceptualised COVID-19 as a disease that made them visible to others outside their community and were seen as having more severe risk and suffering worse consequences, resulting in fear, stigmatisation and alienation. Views about COVID-19 were embedded in cultural beliefs, relating to culturally specific ideas around the disease, such as ill-health being God's will. Testing was less about accessing timely and effective treatment for themselves and more about acting to protect the family and community. Testing symbolised a loss of income, anxiety and isolation, accentuated by issues of mistrust of the system and not being valued, or being treated unfairly. Health communications should focus on counterbalancing the mistrust, alienation and stigmatisation that act as barriers to testing, with trust built using local credible sources (33). Martin and colleagues in 2021 reported that in their study acceptability of daily testing was lower among people from ethnic minority groups (10).

4.6 The role of technology

This section includes rapid review findings for subject area 1.g) the role of technology.

4.6.1 General public

Varsavsky and others 2021 highlighted that self-reported data from mobile applications can provide an agile resource to inform policymakers during a quickly moving pandemic. They suggest their method could help to detect rapid case increases in regions where government testing provision is lower (6).

4.7 Behavioural and contextual factors

This section includes rapid review findings for subject area 1.h) investigate behavioural and contextual factors.

4.7.1 General public

Ray and colleagues in 2023 reported that as home self-testing using LFDs became common practice, there was concern that some people were falsifying test results. Authors also highlight that responses to direct questioning surveys that probe sensitive behaviours are often compromised by social desirability bias and suggest future research assessing prevalence of (non)adherence to behaviours possibly affected by social desirability could consider indirect questioning methods (5).

Bevan and others 2021 highlight how understanding people's knowledge, attitudes, and behaviour related to COVID-19 testing is key to the design of effective testing programs worldwide (1).

4.8 The impact of reporting on decision-making

This section includes rapid review findings for subject area 1.i) the impact of reporting on decision making.

4.8.1 General public

No studies on how reported results influence policy and individual decision-making during a pandemic, with a focus on behavioural changes and compliance with recommendations have been found. However, Ward and colleagues in 2023 highlighted that community antibody self-testing and self-reporting produced rapid insights into the changing course of the pandemic and the impact of vaccine rollout, with implications for future surveillance (34).

4.9 International best practice

This section includes rapid review findings for subject area 1.j) compare international best practices.

4.9.1 General public

4.9.1.1 Current testing and reporting practices

Martínez-Pérez and others 2022 in their study in Brazil found that upon receiving a positive self-test result, the majority of respondents would communicate it (88.49%) and request facility-based post-test counselling (98.32%) (35). Martínez-Pérez and colleagues in 2023 in their study in Peru also found that self-testing is perceived as an acceptable approach and 86.93% of participants would report it (36). Thomas and others in 2022 in Indonesia reported that, of 630 respondents (318 were female), most respondents would communicate it (86.03%) and request post-test counselling (80.79%) (37). Folayan and colleagues in 2023 in their study in Nigeria reported that of the total 2,126 respondents, 1,931 (90.87%) would report a positive result, but there is no indication of how many individuals would report a negative result (38). Sievers and others 2022 in their US study in a residential treatment rehabilitation facility found that 96% of participants (48 of 50) would report positive results to their corresponding public health department (39). On the other hand, Arias-Uriona and colleagues in 2022 reported that of the total individuals included in their study in Bolivia, 16% reported symptoms, 10% a test, and 4.2% a positive COVID-19 test (40). However, none of these studies explored barriers and facilitators to testing and reporting. Kanyangarara and others 2023 reported that, in their United States study, multivariate logistic regression results indicated that individuals who were aged 50 years or older, self-identified as Black/African American, were obese, and were employed as frontline health care workers or nursing home staff were more likely to self-report COVID-19 test positivity (41). Berger and colleagues in 2022 found that in the United States, the reopening of

schools accompanied by a mandatory test was advantageous as it reduced the number of unreported COVID-19 infections among schoolchildren (42).

4.9.1.2 Communication channels

Card in 2022 found that cultural orientations (for example, collectivism-individualism, hierarchism-egalitarianism) and personality traits (for example agreeableness) are salient correlates of COVID-19 prevention behaviours and therefore should be accounted for in the development, design and delivery of health promotion messages aiming to increase uptake of these behaviours (43). Torres-Slimming and others 2023 in Peru reported that adequate information about the self-test features and instructions and post-use access to counselling and care must be made available through the Ministry of Health (44). Education and information sharing by trusted members of the community are important tools to combat misinformation and build trust also for African American and Hispanic public housing residents in the United States (45). Brumwell and colleagues in 2022 reported in their study in South Africa that participants emphasised the need for awareness and sensitisation campaigns and to ensure that pre- and post-self-test counselling services are easily accessible. Collaboration with traditional leaders and community-based organisations would improve results communication and linkage to counselling and confirmatory testing (46). Shi and others 2023 in the United States provided empirical evidence for public health agencies to conduct more targeted community-based testing campaigns to enhance access to testing in future public health crises (47). Nguyen and colleagues in 2022 suggested that users and institutions need guidelines for how to safely store and share test results (48).

4.9.1.3 The role of technology

Kolb and others 2023 in their study on ‘Prevalence of positive COVID-19 test results collected by digital self-report in the US and Germany’ found that during the observation period for the app (from March 2020 to July 2022), 40,646 participants were enrolled who self-reported 35,077 COVID-19 test results. However, they noted a stagnation of self-reported cases in the United States in October 2021 and in Germany in February and March 2022 when case numbers were still on the rise. However, the study excluded children and adolescents and showed a strong underrepresentation of older people. Individuals possibly also tested multiple times during their infection and therefore the absolute number of cases was overcounted (50). Anand and colleagues in 2023 reported that in the United States digital support increased confidence in the COVIDST app reporting and interpretation (50). Gudza-Mugabe and others 2022 in Zimbabwe report that decentralising diagnostic testing leveraging existing human resources became a game-changer in improving COVID-19 containment measures and WhatsApp platforms made it easier for data to be reported from remote areas (51). A personalised online system, the GetaKit.ca website, using a risk assessment to calculate if a person needed testing proved useful for uptake within Black, Indigenous or of Colour people (BIPOC) in the United States (52). Jairoun and colleagues in 2022 found that medicine vending machines (OTC) offer the potential for SARS-CoV-2 self-testing kits alongside making available OTC treatments to alleviate the symptoms of COVID-19, providing confidentiality alongside ease of use in case people do not want their status broadcasted (53). Herbert, Kheterpal and others 2022 studied the use of a digital assistant to report COVID-19 rapid antigen self-test results to health

departments in 6 US communities as they reported that widespread distribution of rapid antigen tests is integral to the United States strategy to address COVID-19. However, it is estimated that few rapid antigen test results are reported to local departments of health. Among all distributed kits, 14,398 households (4.6%) used the digital assistant, but beneficiaries reported three-quarters of their rapid antigen test results to their state public health departments (30,965 tests reported of 41,465 total test results so 75.0% of total test results). The reporting behaviour varied by community and was significantly higher among communities that were incentivised for reporting test results versus those that were not incentivised or partially incentivised. In all communities, positive tests were less frequently reported than negative tests. These results suggest that application-based reporting with incentives may be associated with increased reporting of rapid tests for COVID-19. However, increasing the adoption of the digital assistant may be a critical first step (54).

Ribeiro and colleagues in 2020 reported that, in Portugal, the 'Public Health' created a platform called Trace COVID-19 to monitor and follow patients with confirmed disease, with suspected symptoms or who have been exposed in close contact with other patients with the disease. This platform enabled clinicians to follow the patients at home, saving resources in hospitals and primary care centres, prioritising the patients who need to be evaluated, and giving patients regular contact to answer their needs (55). Herbert, Broach and others 2022 explored the feasibility of at-home serial testing using over-the-counter SARS-CoV-2 tests with a digital smartphone app for assistance: participants' high adherence to the recommended testing schedule, significant reliability between participants and study staff's test interpretation, and the acceptability of the smartphone app and self-test indicate that self-tests for SARS-CoV-2 with a smartphone app for assistance and reporting is a highly feasible testing modality among a diverse population of adults in the United States (56).

4.9.1.4 Investigate behavioural and contextual factors nudges

Findings from Strickland and colleagues in 2022 collectively emphasised the flexibility of methods from diverse areas of behavioural science for informing public health crisis management. They particularly studied behavioural economic methods to inform COVID-19 response around prevention, testing, and vaccination (57). Perry and others in 2021 in the United States suggested that public health efforts to combat the COVID-19 pandemic must address social, economic, and psychological factors that enable and constrain individual behaviour. Increasing access to preventative interventions and technologies, including vaccines, is unlikely to markedly reduce morbidity and mortality without effective messaging and economic support to improve uptake in vulnerable populations (58). Carissa and colleagues in 2021 in their study in Australia concluded that even in a health system with free and widespread access to COVID-19 testing, motivation and capability barriers were prevalent issues, particularly for people with lower health literacy. This study highlights the importance of diagnosing behavioural barriers to target public health interventions for COVID-19 and future pandemics (59). Allen and others in 2020 in the United States, to facilitate an agile response to the pandemic, developed How We Feel, a web and mobile application that collects longitudinal self-reported survey responses on health, behaviour and demographics (60).

4.10 Summary of barriers and facilitators for testing uptake (UK studies)

This section includes barriers and facilitators for testing uptake identified in UK based resources (first search).

4.10.1 Capability barriers and facilitators (for example knowledge, skills, physical abilities)

Barriers:

- lack of awareness, knowledge and understanding of COVID-19 testing (17)

Facilitators:

- knowledge about coronavirus (33)
- knowing that COVID-19 can be asymptomatic (13)
- having heard more about LFDs (13)
- knowing to be eligible to receive regular LFDs (13)

4.10.2 Opportunity barriers and facilitators (for example social norms, money, time, access to services)

Barriers:

- low level of social support (61)
- challenges with the testing process and the test reporting system (details not specified) (23, 62)
- time (62)
- rapidly changing pandemic situation and perceived mixed messages about the rules in government advice (specific to service implementation in university settings) (16)
- delays in service accreditation and rollout to staff (specific to service implementation in university settings) (16)
- lack of availability of sufficient tests for larger families (62)
- lack of follow-up support for positive cases within the service (specific to service implementation in university settings) (16)
- working in a key sector during the pandemic (28)[2]
- excessive work burden (specific to care home workers) (7)
- having a dependent child in the household (28)

[2] Participants were categorised as working in a key sector if they worked in one of several sectors specified in government guidance: “Parents whose work is critical to the coronavirus (COVID-19) response include those who work in health and social care and in other key sectors outlined in the following sections” (28). See ‘Children of critical workers and vulnerable children who can access schools or educational settings’ for more information.

- greater financial hardship during the pandemic (28)
- compounding disadvantages caused by being part of an underserved group, for example, ethnic minorities, lower socio-economic and educational status (10, 28, 31)

Facilitators:

- knowledge about coronavirus (33)
- knowing that COVID-19 can be asymptomatic (13)
- having heard more about LFDs (13)
- knowing to be eligible to receive regular LFDs (13)
- high level of social support, for example, access to help, a sense of belonging to a neighbourhood (61)
- ease and convenience of testing (27)
- clear messaging and clear, open, and high-level communication (8, 25, 63)
- promoting collective responsibility (25)
- sense of social solidarity (1)
- high levels of engagement with communities and individuals and a sense of community (8)
- involvement of community leaders and stakeholder organisations throughout testing programme development and implementation (8)
- service visibility and reduction in organisational bureaucracy and red tape (specific to service implementation in university settings) (16)
- collaborative working with regular feedback on service status and flexibility in service delivery approaches (specific to service implementation in university settings) (16)
- incentives, practical support, more personalised support, financial reimbursement, and financial aid (8, 21, 28)
- workplace communications (27)
- being employed, working, and working in a sector that adopted LFDs early (13)
- being eligible for workplace and school testing (62)
- being a contact of a confirmed COVID-19 case (12)

4.10.3 Motivation barriers and facilitators (for example plans, experiences, habits, emotions)

Barriers:

- beliefs about being at low personal risk of infection (62)
- adherence to other government COVID-19 guidance, including having received a vaccination (62, 64)
- false reassurance following test-negative results (2)
- believing to not need to test if not having face-to-face interactions with others (62)
- cultural mistrust in central government (8)
- mistrust of the system and not being valued, or being treated unfairly (33)

- views about COVID-19 embedded in cultural beliefs, relating to culturally specific ideas around disease, such as ill-health being God's will (33)
- concerns about data security (8, 25)
- higher level of coronavirus conspiracy thinking (65)[3]
- work fatigue (specific to daily testing of health care workers) (21)
- ambivalence towards testing and isolating in the target population (specific to service implementation in university settings) (16)
- concerns about the accuracy and safety of test results (17, 62, 64, 66)
- scepticism on LFD performance (specific to daily testing of health care workers) (21)
- feeling mass asymptomatic testing as a potential waste of resources (specific to students) (66)
- feeling that their needs were not met when they were seeking information on the importance of testing and accessing tests (66)
- lack of autonomy to make decisions and access tests themselves (specific to young people) (23)
- physical discomfort when testing (62)
- concerns about stigma (25)
- believing to not need to test for COVID-19 unless you have come into contact with a case (13)

Facilitators:

- worry about the health and social impacts on self and family and wanting to protect family, community, and “others” (specific to students) (33)
- wanting to keep campus safe (specific to students) (64)
- personal susceptibility and greater perceived risk of COVID-19 (13)
- concerns about the impacts of coronavirus on specific demographic groups (33)
- having been infected with COVID-19 (53)
- having experienced COVID-19 symptoms (13)
- being vaccinated against COVID-19 (13, 53)
- perception that testing would provide peace of mind to engage in personal interactions they might otherwise have avoided (62)
- perceived benefits of protecting against infection (63)
- wanting to access facilities and events (64)
- wanting to avoid self-isolation (63)
- reduction in the negative impacts of isolation through opportunities for students to socialise (specific to service implementation in university settings) (16, 66)
- wanting to help identify asymptomatic cases to stop the spread (27)
- to contribute to national efforts to control COVID-19 (16)
- simplicity, convenience, and efficiency of testing (16)
- trust (specific to service implementation in university settings) (8)

[3] Freeman and others in 2022 report that higher levels of coronavirus conspiracy thinking were associated with less adherence to all government guidelines and less willingness to take diagnostic or antibody tests or to be vaccinated (65).

- students having lower levels of anxiety (specific to university settings) (16)
- students' greater satisfaction with university communications (16)
- believing that personal behaviour has an impact on COVID-19 transmission (13)

4.11 Summary of barriers and facilitators for reporting LFD test results (UK studies)

This section includes barriers and facilitators for reporting LFD test results identified in UK based resources (first search).

4.11.1 Capability barriers and facilitators (for example, knowledge, skills, physical abilities)

No capability barriers and facilitators for reporting LFD test results were identified due to lack of evidence. However, this reflects the limited research available in this area rather than an absence of capability barriers and facilitators.

4.11.2 Opportunity barriers and facilitators (for example social norms, money, time, access to services)

Barriers:

- working in a key sector during the pandemic (28)[4]
- having a dependent child in the household (28)
- greater financial hardship during the pandemic (28)
- compounding disadvantages caused by being part of an underserved group, for example ethnic minorities, lower socioeconomic and educational status (10, 28, 31)

Facilitators:

- clear messaging and clear, open, and high-level communication (8, 25, 63)
- promoting collective responsibility (25)
- sense of social solidarity (1)
- high levels of engagement with communities and individuals and sense of community (8)
- involvement of community leaders and stakeholder organisations throughout testing programme development and implementation (8)

[4] Participants were categorised as working in a key sector if they worked in one of several sectors specified in government guidance: "Parents whose work is critical to the coronavirus (COVID-19) response include those who work in health and social care and in other key sectors outlined in the following sections" (28). See 'Children of critical workers and vulnerable children who can access schools or educational settings' for more information.

- incentives, practical support, more personalised support, financial reimbursement, and financial aid (8, 21, 28)

4.11.3 Motivation barriers and facilitators (for example plans, experiences, habits, emotions)

Barriers:

- false reassurance following test-negative results (2)
- believing to not need to test if not having face-to-face interactions with others (62)

No facilitators for reporting LFD test results were identified due to lack of evidence.

4.12 Summary of barriers and facilitators for testing uptake (International studies)

This section includes barriers and facilitators for testing uptake identified in international based resources (second search).

4.12.1 Barriers

- concerns about the ability of low-literate individuals to use and interpret the self-tests and about the availability of healthcare system support (psychological and clinical) for those who self-test positive (67)
- socio-economic disadvantage (40)
- cultural diversity, and older age (68)
- concerns about the consequences of testing positive and the belief that testing was not necessary (45)
- mistrust of information sources and the health care system in general (45)
- being vaccinated (69)
- counterfeit kits known to be on the market, fear of stigma, isolation, and clinical care costs (37)
- the absence of symptoms, disbelief of the appropriateness of the campaign as an anti-epidemic measure, and a recent COVID-19 diagnosis (70)

4.12.2 Facilitators

- tests seen as accurate, safe to use, easily available (for example, through community pharmacies) and affordable (44)
- pharmacy providers recommendations (71)
- partnering with trusted community organizations (72, 73)
- information to come from "people who look like [them] and come from the same background as [them]" (45)

- awareness raising, passing of regulations, and participatory engagement of a range of community actors, such as village officers (37)
- privacy and anonymity (73)
- not previously diagnosed with COVID-19, have received COVID-19 vaccination, living with a child aged under 12 years old and whose household members were also tested (70)
- living with multiple household members and low or no cohesion among household members (74)

5. Health inequalities

5.1 Testing and reporting behaviours

This section includes health inequality considerations for subject area 1.a) testing and reporting behaviours.

The literature on COVID-19 testing reveals significant disparities in testing uptake and test result reporting, influenced by factors such as financial hardship, employment in key sectors, and belonging to underserved groups. Tailored interventions addressing the identified barriers and facilitators are essential to reduce health inequalities and improve pandemic responses.

5.2 User experience

This section includes health inequality considerations for subject area 1.c) investigate user experience.

Investigating user experience in the national COVID-19 testing programme in England highlighted inequalities due to practical issues with reporting, such as time, effort, and technology barriers, particularly affecting underserved groups. Mistrust regarding data use and misunderstandings about the residual risk of negative test results further hindered effective participation (11). Improved communication and tailored strategies were suggested as needed to address these barriers and enhance understanding and compliance across different demographics.

5.3 Communication channels

This section includes health inequality considerations for subject area 1.e) communication channels.

Communication channels significantly influenced COVID-19 testing behaviours, with studies noting a lack of emphasis on the importance of reporting test results. The evaluation of the national COVID-19 testing programme in England highlighted a perceived trade-off between encouraging result reporting and maintaining high testing rates, which contributed to low reporting levels (11). Effective communication that considers social, economic, and psychological factors, and targets specific groups such as marginalised communities, young people, and those facing financial hardship, is essential to improve both testing uptake and result reporting.

5.4 Cultural and linguistic considerations

This section includes health inequality considerations for subject area 1.f) consider cultural and linguistic considerations.

Cultural and linguistic considerations significantly impact COVID-19 testing uptake and perceptions, with high engagement, communication, and trust being crucial for effective testing programs (8). Marginalised groups, such as gypsies, travellers, and people of black and South Asian ethnicity, face barriers including mistrust, fear of stigmatisation, and economic loss, necessitating community-led initiatives and culturally sensitive messaging (4, 33). Building trust through local credible sources and addressing unique community concerns are essential for improving testing acceptability and engagement (10).

5.5 Behavioural and contextual factors

This section includes health inequality considerations for subject area 1.h) investigate behavioural and contextual factors.

Research on behavioural nudges highlights significant health inequalities in COVID-19 testing practices and adherence. Ray and colleagues in 2023 noted concerns about falsified test results and the impact of social desirability bias, suggesting that future studies use indirect questioning methods to assess true behaviours (5). Studies emphasise the need for understanding people's knowledge, attitudes, and behaviours, while addressing social, economic, and psychological factors, to design effective and equitable testing programs, particularly for vulnerable populations with lower health literacy and motivation barriers (1, 57 to 59).

5.6 The impact of reporting on decision making

This section includes health inequality considerations for subject area 1.i) the impact of reporting on decision making.

Significant disparities in reporting and communication of COVID-19 test results highlight persistent health inequalities across diverse populations. Studies reveal varying rates of reporting positive results, influenced by factors such as age, ethnicity, socioeconomic status, and occupation. Barriers identified include mistrust, cultural diversity, and logistical challenges, underscoring the need for tailored communication strategies and equitable access to testing and support services (35, 37 to 41). Efforts must focus on addressing these disparities to ensure effective public health responses and mitigate the impact of COVID-19 among marginalised and vulnerable groups worldwide.

6. Limitations

This rapid scoping review used streamlined systematic methods to accelerate the review process. Sources of evidence searched included databases of peer-reviewed and preprint research, but although the ‘Evaluation of the national COVID-19 testing programme in England between October 2020 and March 2022’ was included, an extensive search of other sources was not conducted (such as websites of public health organisations), so it is possible relevant evidence may have been missed.

7. Evidence gaps

The literature review revealed several critical evidence gaps in the current understanding of COVID-19 testing and reporting practices. Most studies focused on testing uptake, identifying various barriers and facilitators, but few analysed the barriers and facilitators specific to reporting test results. This gap includes the need for research on whether factors influencing testing uptake also apply to test reporting and the specific challenges faced by different social groups, such as language barriers and the complexity of reporting mechanisms. Additionally, stakeholder views on the acceptability of mandating or incentivising test participation and reporting remain underexplored. The decline in compliance rates with self-testing and reporting, as noted in both UK and international contexts, underscores the necessity for research into the causes of this trend and strategies to enhance compliance.

Communication channels and their effectiveness in promoting positive, negative and void result reporting also require further investigation. There is a significant gap in understanding how public messages emphasising social responsibility for reporting test results are perceived and the role of cultural and linguistic nuances in influencing these perceptions. The role of technology in data visualisation and real-time reporting has been inadequately explored, particularly in the UK context.

Furthermore, there is a paucity of research employing longitudinal and qualitative methods to understand the dynamic and complex nature of COVID-19 testing and reporting behaviour, especially in under-resourced settings. Understanding the motivations, challenges, and concerns of participants and stakeholders is crucial for developing continuous, real-time adaptations to testing programs. Overall, more behaviourally-informed research is needed to effectively address these gaps and enhance compliance and engagement in testing and reporting practices.
Additional evidence gaps by subject area are reported in sections from 7.1 to 7.5.

7.1 Current testing and reporting practices

1. Most of the studies included in the literature review explored testing uptake and identified a list of barriers and facilitators, but only a very limited number of studies include an analysis of reporting test results and their related barriers and facilitators. Denford and others 2022 found that behaviour during the testing period was modified to reduce risks and harms as much as possible and testing was considered a potential compromise, reducing both the risk of transmission and the negative impact of self-isolation, and was regarded as a way to return to normal (26). Research is needed to test if and which of the barriers and facilitators related to testing uptake also apply to reporting test results. Research is also needed to look for barriers and facilitators that might be specific to test reporting.

2. Cox and colleagues 2022 highlight how stakeholder views regarding the acceptability of mandating or incentivising participation remain little understood (15). It would be interesting to understand if support for voluntary and/or mandatory participation is also associated with support for voluntary or mandatory reporting. Understanding stakeholders' views on this matter would help build targeted communication and information material and interventions.

3. Thorpe and others 2023 identified language barriers and challenges with the testing process, particularly reporting the results, for parents and young people. They highlighted the importance of understanding barriers to engaging in testing for young people, as testing may be reintroduced in response to this or future pandemics (23). Research is needed to test specific language barriers and challenges with test reporting and to understand if these apply to other social groups.

4. Alhakmi and colleagues 2022 in their study on engagement and compliance with biweekly self-testing and reporting in selected Imperial College Healthcare Trust wards reported that the peak pan-London testing compliance rate of 32% was reached in December 2020 but was followed by a steady decline to 7% in September 2021 (22). In the international context, Kolb and others 2023 also noted a stagnation of self-reported cases for the general public in the United States in October 2021 and in Germany in February and March 2022 when case numbers were still on the rise (49). Research is needed to analyse what caused the decrease in compliance, what could have been done to encourage compliance and which groups to target to increase compliance. Van der Scheer and colleagues in 2022 also suggest that further consultation on ethical frameworks for testing programmes in the workplace and refinement in new settings is needed (19).

7.2 Communication channels

1. Renedo and others 2023 report that, while government messages emphasised taking responsibility for the public good (for example, to protect the National Health Service), they appeared to overlook social, economic, and political factors affecting the ways that people were able to respond (4). Social responsibility was a main and recurring theme within different studies on testing uptake. Research is needed to understand if the public saw and responded to any government messages emphasising taking responsibility for the public good about registering results specifically. Research is also needed to explore the role of social responsibility in reporting test results.

2. Dalili and colleagues in 2022 reported that individuals first heard about LFD testing through various channels including work, media, and word of mouth, and decided to get tested based on the ease and convenience of testing, workplace communications, and to identify asymptomatic cases to help stop the spread (27). Research is needed to identify what communication channels work best for the general public, but also specific target groups.

7.3 Cultural and linguistic considerations

Of the 99 UK-based references screened for relevance, only 9 included reference to local and regional factors and cultural and linguistic considerations that may influence the perception and understanding of reported results. Of the 129 international references screened for relevance, none of them contained references to this theme. More research is needed to explore the influence of cultural and linguistic considerations and local factors. Renedo and others 2023 also suggest that in future emergencies, communities must be given better material, political and technical support to help them design and implement effective community-led solutions, particularly where government institutions are untrusted or untrustworthy (4). Research is needed to understand who the best messengers for marginalised groups and which messages work best for them.

7.4 The role of technology

Of the 99 UK-based references screened for relevance, only 3 included references to data visualisation methods used in conveying results and information to the public and decision-makers and the role of technology in real-time reporting or information dissemination. Of the 129 international references screened for relevance, 19 of them included references to this theme. More research is needed to explore potentially relevant data visualisation methods and study the role of technology.

7.5 Investigate behavioural and contextual factors

Tulloch and others 2021 suggest that more focus is needed on the contextual and behavioural factors that influence protocol adherence (7). Watson and colleagues in 2022 highlight that participants' and stakeholders' motivations, challenges and concerns need to be understood and these insights are used to modify the programme in a continuous, real-time process to ensure and sustain engagement with testing over the extended period necessary (8). Kim and others 2023 also report that while testing behaviour is generally recognised as dynamic and complex, current literature demonstrating and quantifying such relationships is scarce, despite its importance for infectious disease surveillance and control (9). Bevan and colleagues in 2021 review found that existing research was limited in depth and scope (1). Martin and others 2021 suggest that the impact of receiving a negative test on behaviour remains a risk that needs to be monitored and mitigated by appropriate messaging and future research should examine attitudes and behaviour in a context where infection levels are lower, testing is more familiar, and restrictions on activity have been reduced. More behaviourally informed research and research employing longitudinal and qualitative methods based in under-resourced settings and examining intersections between testing and experiences of social, political, and economic vulnerability is needed (10).

Ray and colleagues in 2023 report that appealing to empathy and honesty-humility as personality traits can be effective tools for practitioners and policymakers when communicating about the importance of accurate self-testing results and creating messages to encourage adherence to COVID-19 behavioural regulations (5). Research is needed to assess if this is also relevant for compliance with reporting test results.

8. Conclusion

Overall, most of the studies included in the literature review studied testing uptake and identified a list of barriers and facilitators for it, but only a very limited number of studies included an analysis of behaviour around reporting test results and its related barriers and facilitators. This is the main gap that the project 'Barriers to reporting LFD test results during the universal testing offer period' tried to fill by assessing and analysing the behaviours of individuals in reporting their COVID-19 test results, using the COM-B framework, with a focus on understanding the capability, opportunity, and motivation components that impact reporting behaviours (75).

Findings from this review suggest that social solidarity is a key motivator for testing uptake and testing should be understood as a social process that is inseparable from processes of contact tracing and isolation and is embedded in people's everyday routines, livelihoods and relationships. For this reason, the project examined the impact of the broader testing user journey on reporting behaviours, particularly how elements such as increased scrutiny of self-isolation, communication strategies related to the role and purpose of reporting within testing, and the potential for testing to enable specific activities like attending events, visiting family and so on, affect the willingness to report results.

Findings show that a considerable proportion of study participants misunderstood the residual risk following a negative test result and did not always understand how to interpret and respond to test results. Studies on communication and messaging mainly cover testing uptake and do not mention communication and messaging around the importance of reporting results. However, as reported in the 'Evaluation of the national COVID-19 testing programme in England between October 2020 and March 2022' carried out by the EY–Oxford Health Analytics Consortium appointed by UKHSA, "interviews with UKHSA stakeholders highlighted that at the time there was a perceived trade-off between encouraging the public to report test results and the risk of deterring the public from testing altogether, which may have contributed to the low levels of reporting seen. This differed from the more proactive communication strategies taken to encourage the use of testing, face coverings and good ventilation. These findings may be interpreted as people valuing testing more than reporting a result, a theme that echoed earlier surveys, particularly for LFDs, which showed that there was a relatively low intention to report LFD results, and this intention appeared to reduce further during the course of the pandemic". This is in line with this literature review findings highlighting how government messages emphasised taking responsibility for the public good by testing. Appealing to empathy and honesty-humility as personality traits can be effective tools for practitioners and policymakers when communicating about the importance of accurate self-testing results and creating messages to encourage adherence to COVID-19 behavioural regulations (5). Concerning this, the project 'Barriers to reporting LFD test results during the universal testing offer period' explored the feasibility and effectiveness of implementing altruistic and material incentives to encourage the reporting of test results in the context of future pandemics, with an emphasis on

understanding their ethical considerations and potential impact (see Barriers to reporting LFD test results during the universal testing offer period: a rapid review).

Findings also confirmed the usefulness of mobile applications for self-reported data, although the review revealed a significant literature gap in studies around the role of technology. Studies around cultural and linguistic considerations were also scarce.

Finally, the review highlighted that more focus is needed on the contextual and behavioural factors that influence protocol adherence as, while testing behaviour is generally recognised as dynamic and complex, current literature demonstrating and quantifying such relationships is scarce, despite its importance for infectious disease surveillance and control. The project conducted a comprehensive analysis of the entire journey from the moment an individual orders a COVID-19 LFD test to the submission of test results during the pandemic, with a retrospective approach to uncover the real-world barriers and challenges that impeded timely reporting and, ultimately, to extract valuable lessons from this experience, focusing on scenarios when tests were provided free of charge.

9. Disclaimer

UKHSA's rapid reviews aim to provide the best available evidence to decision makers in a timely and accessible way, based on published peer-reviewed scientific papers, unpublished reports and papers on preprint servers. Please note that the reviews: i) use accelerated methods and may not be representative of the whole body of evidence publicly available; ii) have undergone an internal, but not independent, peer review; and iii) are only valid as of the date stated on the review.

Please note additionally, to the greatest extent possible under any applicable law, that UKHSA accepts no liability for any claim, loss or damage arising out of, or connected with the use of, this review by the recipient or any third party including that arising or resulting from any reliance placed on, or any conclusions drawn from, the review.

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11. Annexe A. Methods specification

11.1 Search strategy (UK studies)

Table 3. Limits applied

Age group	Language	Publication type	Time limit
N/A	English	• direction or guidance • secondary evidence • primary research • ongoing trials and research • implementation support • information for the public	2020 onwards

11.1.1 Search terms

Search terms were developed from:

- results retrieved from a scoping search
- previous searches undertaken by Knowledge and Library Services staff on similar topics
- relevant MeSH/EMTREE terms and thesaurus terms from other databases where available

11.1.2 Databases and search strategies

Cochrane

Date run: 9 November 2023 21:52:11

ID	Search	Hits
#1	MeSH descriptor: [SARS-CoV-2] explode all trees	2,419
#2	MeSH descriptor: [COVID-19] explode all trees	4,894
#3	(corona* NEAR/1 (virus* or viral*)):ab,ti,kw	383
#4	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel" or Ncov* or "n-cov" or "SARS-CoV-2" or "SARSCoV-2" or SARSCoV2* or "SARS-CoV2" or COVID*2)	13,299
#5	(CoV not (Coefficien* or co-efficien* or covalent* or Covington* or covariant* or covarianc* or "cut-off value" or "cutoff value" or "cut-off volume" or "cutoff volume" or "combined optimisation value" or "central vessel trunk" or CoVR or CoVS))	1,052

ID	Search	Hits
#6	#1 or #2 or #3 or #4 or #5	14,643
#7	MeSH descriptor: [COVID-19 Testing] explode all trees	123
#8	"universal test"	87
#9	MeSH descriptor: [Self-Testing] explode all trees	1,365
#10	MeSH descriptor: [Diagnostic Tests, Routine] explode all trees	337
#11	"lateral flow" or "lateral-flow" or "self test" or "self-test" or "home test" or "diagnostic test" or "rapid antigen" or "covid-19 test" or "covid19 test"	8,521
#12	(corona* or covid*) NEAR/5 test*	3,524
#13	#7 or #8 or #9 or #10 or #11 or #12	13,315
#14	report* NEAR/8 result*	46,317
#15	(engag* or participat* or motivat* or facilitat* or barrier* or adherence or behavi*)	37,6432
#16	#14 or #15	40,5832
#17	#6 and #13 and #16	505

Table 4. Embase

<1974 to 2023 November 7>

#	Query	Results from 9 November 2023
1	exp coronavirus disease 2019/	361,184
2	exp Severe acute respiratory syndrome coronavirus 2/	103,229
3	covid*19.tw,kw,kf.	398,377
4	(corona* adj1 (virus* or viral*)).tw,kw,kf.	7,174
5	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).tw,kw,kf.	448,613
6	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).tw,kw,kf.	147,831
7	1 or 2 or 3 or 4 or 5 or 6	484,631
8	exp COVID-19 testing/	10,555
9	"universal test*".tw,kw,kf.	6,294
10	self-testing/	1,139

#	Query	Results from 9 November 2023
11	diagnostic test/	88,082
12	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").tw,kw,kf.	102,611
13	((corona* or covid*) adj6 test*).tw,kw,kf.	34,492
14	8 or 9 or 10 or 11 or 12 or 13	207,267
15	(report* adj9 result*).tw,kw,kf.	551,686
16	(engag* or participat* or motivat* or facilitat* or barrier* or behavi* or adherence).tw,kw,kf.	4,252,843
17	15 or 16	4,697,717
18	7 and 14 and 17	5,161
19	limit 18 to (abstracts and human and english language)	4,972
20	limit 19 to yr="2020 -Current"	4,951
21	exp United Kingdom/	466,564
22	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).tw,kw,kf.	61,480
23	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).tw,kw,kf.	590,027
24	21 or 22 or 23	870,997
25	20 and 24	396

Table 5. Ovid MEDLINE(R) ALL

<1946 to November 8, 2023>

#	Query	Results from 9 November 2023
1	exp SARS-CoV-2/	161,577
2	exp COVID-19/	245,517
3	(corona* adj1 (virus* or viral*)).tw,kw,kf.	6,505

#	Query	Results from 9 November 2023
4	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).tw,kw,kf.	399,734
5	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).tw,kw,kf.	131,246
6	1 or 2 or 3 or 4 or 5	407,503
7	exp COVID-19 Testing/	11,828
8	"universal test*".tw,kw,kf.	6,645
9	Self-Testing/	489
10	Diagnostic Tests, Routine/	15,198
11	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").tw,kw,kf.	74,347
12	((corona* or covid*) adj6 test*).tw,kw,kf.	25,144
13	7 or 8 or 9 or 10 or 11 or 12	118,869
14	(report* adj9 result*).tw,kw,kf.	366,454
15	(engag* or participat* or motivat* or facilitat* or barrier* or adherence or behavi*).tw,kw,kf.	3,515,198
16	14 or 15	3,806,981
17	6 and 13 and 16	4,292
18	limit 17 to (abstracts and english language and humans)	3,094
19	limit 18 to yr="2020 - 2023"	3,079
20	exp United Kingdom/	391,781
21	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).tw,kw,kf.	51,095
22	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).tw,kw,kf.	322,157
23	20 or 21 or 22	607,305
24	19 and 23	213

#	Query	Results from 9 November 2023
25	20 or 21 or 22	607,305
26	19 and 23	213

Table 6. APA PsycInfo

<2002 to October week 5 2023>

#	Query	Results from 9 November 2023
1	exp covid-19/	28,103
2	(corona* adj1 (virus* or viral*)).tw.	247
3	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).tw.	40,086
4	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).tw.	2,629
5	1 or 2 or 3 or 4	40,241
6	"universal test*".tw.	73
7	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").tw.	3,530
8	(corona* or covid*).mp. and test*.tw.	7,495
9	6 or 7 or 8	10,800
10	(report* adj9 result*).tw.	77,141
11	(engag* or participat* or motivat* or facilitat* or barrier* or behavi* or adherence).tw.	1,337,899
12	10 or 11	1,380,629
13	5 and 9 and 12	2,483
14	limit 13 to (human and english language and abstracts)	1,986
15	limit 14 to yr="2020 -Current"	1,982
16	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).tw.	84,559

#	Query	Results from 9 November 2023
17	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).tw.	29,014
18	16 or 17	110,055
19	15 and 18	111

Scopus

(TITLE-ABS-KEY ((corona* W/1 (virus* OR viral*))) OR TITLE-ABS-KEY ((coronavirus* OR 2019ncov* OR 19ncov* OR "2019 novel*" OR ncov* OR "n-cov" OR "sars-cov-2*" OR "sarscov-2*" OR sarscov2* OR "sars-cov2*" OR covid*2)) OR TITLE-ABS-KEY ((cov AND NOT (coefficien* OR "co-efficien*" OR covalent* OR covington* OR covariant* OR covarianc* OR "cut-off value*" OR "cutoff value*" OR "cut-off volume*" OR "cutoff volume*" OR "combined optimi*ation value*" OR "central vessel trunk*" OR covr OR covs))) AND TITLE-ABS-KEY (("lateral flow" OR "lateral-flow" OR "self test*" OR "self-test*" OR "home test*" OR "diagnostic test*" OR "rapid antigen" OR "universal test*" OR "covid*test" OR "covid-19 test*" OR "covid19 test*")) OR TITLE-ABS-KEY (((corona* OR covid*) W/5 test*)) AND TITLE-ABS-KEY ((report* W/8 result*)) OR TITLE-ABS-KEY (((engag* OR participat* OR motivat* OR facilitat* OR barrier* OR adherence OR behavi*)))) AND PUBYEAR > 2019 AND PUBYEAR < 2024 AND (LIMIT-TO (AFFILCOUNTRY , "united kingdom"))

Table 7. Social Policy and Practice

<202310>

#	Query	Results from 9 November 2023
1	("covid 19" or covid-19).ti,ab.	5,512
2	(corona* adj1 (virus* or viral*)).ti,ab.	10
3	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).ti,ab.	5,898
4	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).ti,ab.	94
5	1 or 2 or 3 or 4	5,898
6	"universal test*".ti,ab.	6

#	Query	Results from 9 November 2023
7	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").ti,ab.	119
8	((corona* or covid*) adj6 test*).ti,ab.	120
9	6 or 7 or 8	190
10	(report* adj9 result*).ti,ab.	4,287
11	(engag* or participat* or motivat* or facilitat* or barrier* or behavi* or adherence).ti,ab.	91,081
12	10 or 11	94,104
13	5 and 9 and 12	24

Table 8. SocINDEX

Friday, November 10, 2023 11:03:07am

#	Query	Limiters or expanders	Last run via	Results
S14	S5 AND S10 AND S13	Expanders - Apply equivalent subjects Narrow by Language: - English Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	372
S13	S11 OR S12	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	1,039,991
S12	TX (engag* or participat* or motivat* or facilitat* or barrier* or behavi* or adherence	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	1,028,546
S11	TX report* n6 result*	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	85,651
S10	S6 OR S7 OR S8 OR S9	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	1,519

#	Query	Limiters or expanders	Last run via	Results
S9	(corona* or covid*) n6 test*	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	454
S8	TX ("universal test*" or "lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*")	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	1,240
S7	SU self testing	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	1
S6	SU covid-19 testing	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	138
S5	S1 OR S2 OR S3 OR S4	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	16,976
S4	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases	3,797

#	Query	Limiters or expanders	Last run via	Results
	Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2)		Search Screen - Advanced Search Database - SocINDEX with Full Text	
S3	TX (corona* n1 (virus* or viral*))	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	516
S2	SU COVID-19	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	15,721
S1	SU SARS-CoV-2	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - SocINDEX with Full Text	430

11.1.3 Citation searching

In addition to the database searches, the reviewer undertook forward citation searching on 9 articles, which are highly relevant to the search question, identified in the scoping. Citation searching was undertaken using Citationchaser. Citationchaser is an R package that automates the process of citation searching using Lens.org API.

References used in Citationchaser:

- https://doi.org/10.1136/bmjopen-2021-053850
- https://doi.org/10.3389/fpubh.2021.714041
- https://doi.org/10.1186/s12889-022-13800-x
- https://doi.org/10.1186/s12889-022-13204-x
- https://dx.doi.org/10.1186/s12889-022-12605-2
- https://dx.doi.org/10.1099/jmm.0.001567
- https://doi.org/10.1371/journal.pone.0279347
- https://dx.doi.org/10.1136/bmjopen-2021-058060
- https://dx.doi.org/10.1136/bmjopen-2022-069591

11.2 Search strategy (International studies)

Table 9. Limits applied

Age group	Language	Publication type	Time limit
N/A	English	• Direction or guidance • secondary evidence • primary research • ongoing trials and research • implementation support • information for the public	2020 onwards

11.2.1 Search terms

Search terms were developed from:

- results retrieved from a scoping search
- previous searches undertaken by Knowledge and Library Services staff on similar topics
- relevant MeSH/EMTREE terms and thesaurus terms from other databases where available

11.2.2 Databases or search strategies

Cochrane

Date run: 22 November 2023 13:53:45

ID	Search	Hits
#1	MeSH descriptor: [SARS-CoV-2] explode all trees	2,419
#2	MeSH descriptor: [COVID-19] explode all trees	4,894
#3	(corona* NEAR/1 (virus* or viral*)):ab,ti,kw	383

ID	Search	Hits
#4	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel" or Ncov* or "n-cov" or "SARS-CoV-2" or "SARSCoV-2" or SARSCoV2* or "SARS-CoV2" or COVID*2)	13,299
#5	(CoV not (Coefficien* or co-efficien* or covalent* or Covington* or covariant* or covarianc* or "cut-off value" or "cutoff value" or "cut-off volume" or "cutoff volume" or "combined optimisation value" or "central vessel trunk" or CoVR or CoVS))	1,052
#6	#1 or #2 or #3 or #4 or #5	14,643
#7	MeSH descriptor: [COVID-19 Testing] explode all trees	123
#8	"universal test"	87
#9	MeSH descriptor: [Self-Testing] explode all trees	1,365
#10	MeSH descriptor: [Diagnostic Tests, Routine] explode all trees	337
#11	"lateral flow" or "lateral-flow" or "self test" or "self-test" or "home test" or "diagnostic test" or "rapid antigen" or "covid-19 test" or "covid19 test"	8,521
#12	(corona* or covid*) NEAR/5 test*	3,524
#13	#7 or #8 or #9 or #10 or #11 or #12	13,315
#14	report* NEAR/8 result*	46,317
#15	#6 and #13 and #14	19

Table 10. Embase

<1974 to 2023 November 21>

#	Query	Results from 22 November 2023
1	exp coronavirus disease 2019/	364,592
2	exp Severe acute respiratory syndrome coronavirus 2/	104,185
3	covid*19.tw,kw,kf.	401,799
4	(corona* adj1 (virus* or viral*)).tw,kw,kf.	7,202
5	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).tw,kw,kf.	452,432
6	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).tw,kw,kf.	149,066
7	1 or 2 or 3 or 4 or 5 or 6	488,817

#	Query	Results from 22 November 2023
8	exp COVID-19 testing/	10,634
9	"universal test*".tw,kw,kf.	6,314
10	self-testing/	1,152
11	diagnostic test/	88,178
12	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").tw,kw,kf.	102,918
13	((corona* or covid*) adj6 test*).tw,kw,kf.	34,638
14	8 or 9 or 10 or 11 or 12 or 13	207,820
15	(report* adj9 result*).tw,kw,kf.	553,194
16	7 and 14 and 15	1,320
17	limit 16 to (abstracts and english language)	1,300
18	limit 17 to yr="2020 -Current"	1,292

Table 11. Ovid MEDLINE(R) ALL
<1946 to November 21 2023>

#	Query	Results from 22 November 2023
1	exp SARS-CoV-2/	162,313
2	exp COVID-19/	247,634
3	(corona* adj1 (virus* or viral*)).tw,kw,kf.	6,538
4	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).tw,kw,kf.	402,951
5	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).tw,kw,kf.	132,135
6	1 or 2 or 3 or 4 or 5	410,737
7	exp COVID-19 Testing/	11,918
8	"universal test*".tw,kw,kf.	6,671
9	Self-Testing/	495
10	Diagnostic Tests, Routine/	15,206

11	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").tw,kw,kf.	74,620
12	((corona* or covid*) adj6 test*).tw,kw,kf.	25,268
13	7 or 8 or 9 or 10 or 11 or 12	119,298
14	(report* adj9 result*).tw,kw,kf.	367,624
15	6 and 13 and 14	980
16	limit 15 to (abstracts and english language and humans)	733
17	limit 16 to yr="2020 -Current"	731

Table 12. APA PsycInfo

<2002 to November week 2 2023>

#	Query	Results from 22 November 2023
1	exp covid-19/	28,657
2	(corona* adj1 (virus* or viral*)).tw.	251
3	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).tw.	40,737
4	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).tw.	2,680
5	1 or 2 or 3 or 4	40,894
6	"universal test*".tw.	73
7	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").tw.	3,542
8	(corona* or covid*).mp. and test*.tw.	7,584
9	6 or 7 or 8	10,900
10	(report* adj9 result*).tw.	77,369
11	5 and 9 and 10	228
12	limit 11 to (human and english language and abstracts)	181
13	limit 12 to yr="2020 -Current"	181

Scopus

(TITLE-ABS-KEY ((corona* W/1 (virus* OR viral*))) OR TITLE-ABS-KEY ((coronavirus* OR 2019ncov* OR 19ncov* OR "2019 novel*" OR ncov* OR "n-cov" OR "SARS-CoV-2*" OR "SARSCoV-2*" OR sarscov2* OR "SARS-CoV2*" OR covid*2)) OR TITLE-ABS-KEY ((cov AND NOT (coefficien* OR "co-efficien*" OR covalent* OR covington* OR covariant* OR covarianc* OR "cut-off value*" OR "cutoff value*" OR "cut-off volume*" OR "cutoff volume*" OR "combined optimi*ation value*" OR "central vessel trunk*" OR covr OR covs))) AND TITLE-ABS-KEY (("lateral flow" OR "lateral-flow" OR "self test*" OR "self-test*" OR "home test*" OR "diagnostic test*" OR "rapid antigen" OR "universal test*" OR "covid*test" OR "covid-19 test*" OR "covid19 test*")) OR TITLE-ABS-KEY (((corona* OR covid*) W/5 test*)) AND TITLE-ABS-KEY ((report* W/8 result*))) AND PUBYEAR > 2019 AND PUBYEAR < 2024

Table 13. Social Policy and Practice
<202310>

#	Query	Results from 22 November 2023
1	("covid 19" or covid-19).ti,ab.	5,512
2	(corona* adj1 (virus* or viral*)).ti,ab.	10
3	(coronavirus* or 2019nCoV* or 19nCoV* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or SARSCoV2* or "SARS-CoV2*" or COVID*2).ti,ab.	5,898
4	(CoV not (Coefficien* or "co-efficien*" or covalent* or Covington* or covariant* or covarianc* or "cut-off value*" or "cutoff value*" or "cut-off volume*" or "cutoff volume*" or "combined optimi?ation value*" or "central vessel trunk*" or CoVR or CoVS)).ti,ab.	94
5	1 or 2 or 3 or 4	5,898
6	"universal test*".ti,ab.	6
7	("lateral flow" or "lateral-flow" or "self test*" or "self-test*" or "home test*" or "diagnostic test*" or "rapid antigen" or "covid-19 test*" or "covid19 test*").ti,ab.	119
8	((corona* or covid*) adj6 test*).ti,ab.	120
9	6 or 7 or 8	190
10	(report* adj9 result*).ti,ab.	4,287
11	5 and 9 and 10	4

11.2.3 Citation searching

In addition to the database searches, the reviewer undertook forward citation searching on 8 articles, which are highly relevant to the search question, identified in the scoping. Citation

searching was undertaken using Citationchaser. Citationchaser is an R package that automates the process of citation searching using Lens.org API.

References used in Citationchaser:

- https://doi.org/10.1001/jamainternmed.2021.8075
- https://dx.doi.org/10.15585/mmwr.mm7132a1
- https://dx.doi.org/10.1101/2022.03.31.22273242
- https://doi.org/10.2196/38113
- https://doi.org/10.2196/33088
- https://doi.org/10.1371/journal.pone.0252658
- https://doi.org/10.1093/pubmed/fdab098
- https://doi.org/10.1177/1403494821993717

About the UK Health Security Agency

The UK Health Security Agency (UKHSA) prevents, prepares for and responds to infectious diseases, and environmental hazards, to keep all our communities safe, save lives and protect livelihoods. We provide scientific and operational leadership, working with local, national and international partners to protect the public's health and build the nation's health security capability.

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