National Institute for Health and Care Excellence

Final

Vaccine uptake in the general population

[K] Evidence review for COVID-19 call for evidence

NICE guideline NG218

Evidence review underpinning recommendation 1.1.18 in the NICE guideline

May 2022

Final

This evidence review was developed by the Guideline Development Team

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COVID-19 Call for evidence

1.1 Review question

Question of interest to guideline: Is there any learning from the COVID-19 vaccination programme that could be used to increase uptake of routine vaccines?

Questions posed in call for evidence:

- What are the barriers to and facilitators for COVID-19 vaccine uptake?
- What are the most effective interventions for increasing the uptake of COVID-19 vaccines?

1.1.1 Introduction

The UK has a routine vaccination schedule covering key vaccinations for different stages in life including childhood, adolescence, pregnancy, and old age (65 years and older). Current practice is for healthcare practitioners to advise people to accept these vaccinations at the relevant times unless contraindicated. According to UKHSA (previously known as Public Health England), the COVID-19 pandemic has reduced childhood routine vaccination rates. This is likely to continue to disrupt routine vaccinations in the foreseeable future. In addition, certain population groups (such as Gypsy, Roma and Travellers, refugees and asylum seekers) have lower levels of vaccination than the general public and additional or different actions may be required to increase their vaccination rates.

The COVID-19 vaccination programme began during the development of the routine vaccination guideline. This has involved the use of multiple setting for vaccinations; a wide range of vaccination providers; multiple formats for invitations and reminders; extensive information and education campaigns and interventions tailored to local communities to try to address inequalities that lead to low uptake. The committee were interested in whether any lessons could be learned from the COVID-19 vaccination programme and applied to routine vaccination programmes to increase uptake. There was limited published evidence that met the inclusion criteria for the reviews in this guideline due to the short time that the COVID programme has been in place. This evidence was qualitative and is covered in evidence review B (in the section on 0-5 year olds). Given the potential relevance of these programmes to the successful delivery of vaccinations in the UK, a call for evidence was made, looking for evidence specifically related to the COVID-19 vaccination programmes, their effectiveness and any barriers and facilitators to vaccination. This evidence was intended to be used as a source of indirect evidence to identify effective interventions that could be applied to routine vaccination programmes to improve uptake. In addition, it was envisaged that the qualitive evidence might provide additional barriers or facilitators to uptake that were not covered in the existing evidence (review B), particularly focusing on areas or communities with low uptake such as certain ethnic minority communities. This call for evidence used the protocols and review questions detailed in Appendix A, which are summarised in Table 1 and Table 2.

1.1.2 Summary of the protocols

Table 1 PICO table for the most effective interventions for increasing the uptake of COVID-19 vaccines

Population	• All people who are eligible for COVID-19 vaccination and their families and carers (if appropriate).

	• Staff including, but not limited to, those providing advice about or administering vaccines and those people with relevant administrative or managerial responsibilities.
Intervention	Interventions including, but not confined to: • Information, education and methods of communicating them • Vaccination invitations and reminders aimed at providers or individuals including • Interventions targeting acceptability • Interventions to improve access • Interventions to improve infrastructure (targeting processes, staffing and settings)
Comparators	• Other interventions to increase vaccine uptake • Control/usual practice
Outcomes	For all intervention types except interventions that target the recording and identification of eligibility and status: Changes in: • COVID-vaccine uptake (primary outcome) • Offers of vaccination • The numbers of people who develop COVID-19 • Cost/resource use associated with the intervention For interventions that target the recording and identification of eligibility and status: Changes in: • COVID-vaccine uptake • Offers of vaccination • Identification of vaccine eligibility and status • Recording of vaccine eligibility and status • Accuracy and completeness of data records • An individual's knowledge of their own immunisation status • Cost/resource use associated with the intervention

Table 2 SPIDER table for identification of the barriers to, and facilitators for, COVID-19 vaccine uptake

Sample	• People who are eligible for COVID-19 vaccinations and their families and carers (if appropriate). • Staff including, but not limited to, those providing advice about or administering vaccines and those people with relevant administrative or managerial responsibilities.
Phenomenon of interest	COVID-19 vaccinations
Design	Studies using qualitative methods: • Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews • Qualitative studies that collect data from open-ended questions from questionnaires/ surveys • Mixed method study designs (qualitative evidence that matches the above study designs only)
Evaluation	Barriers to, and facilitators for, COVID-19 vaccine uptake including, but not limited to: • Thoughts, views and perceptions of individuals, parents or carers and staff about the vaccination programme and COVID-19 vaccination in general • Issues relating to: ○ acceptability

	○ Implementation ○ accessibility ○ Infrastructure ○ mis-information or lack of information and communication of information ○ informed refusal ○ collective benefit / altruistic motives
Research type	Qualitative and mixed methods

1.1.3 Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A and the methods document. Declarations of interest were recorded according to NICE's conflicts of interest policy.

This review is one of a series of reviews looking at interventions to increase uptake. The following additional methods apply to this review:

1. This review refers to COVID-19 vaccination programmes in the UK, and how any findings can be applied to the UK routine vaccination schedule. The November 2019 routine schedule is available with the current version of the complete routine immunisation schedule.
2. Since the COVID-19 vaccination programme had only been running for a short time during the development of this guideline there has been limited time for researchers to evaluate these programmes and publish the results. For this reason, we used a call for evidence to identify published and unpublished information rather than carrying out a review of published studies which might not have yielded much evidence.
3. Both published and unpublished information were included in this review if they met the inclusion criteria for quantitative or qualitative studies in the protocols (Table 1 and Table 2 and appendix A). The quality of any evidence that was unpublished, and therefore not peer-reviewed, at the time of this review was downgraded for risk of bias.
4. Studies were only included if they evaluated COVID- 19 vaccination programmes based in OECD countries.
5. One study evaluated the effect of the COVID-19 pandemic on routine childhood vaccinations. As the findings were related to vaccines on the UK routine schedule, rather than COVID-19 vaccinations, the study was included in the qualitative review instead (see evidence review B).
6. The findings from included studies were extracted into an NVivo database which is available on request.
7. Where qualitative themes from the COVID-19 evidence supported existing themes in the routine vaccination qualitative review (evidence review B), this is identified in the review in summary Table 4, but this information has not been extracted into Nvivo and quotes are not included. This evidence provides support for existing themes in the main qualitative review but is not included to reduce duplication of effort and because it is lower quality evidence (the findings are partially relevant when applied to routine vaccinations).
8. Where new qualitative themes have emerged that were not identified in the routine vaccination qualitative review (evidence review B) and the mixed-methods acceptability of specific interventions review (evidence review J), the theme has been extracted and presented alongside any relevant quotes. This evidence was evaluated using GRADE-CerQual quality assessments.

1.1.4 Effectiveness and qualitative evidence

Twenty-two responses were received for the call for evidence. Some of these contained multiple references and, in some cases, the same documents were submitted by more than one respondent. The main reasons for excluding evidence were the wrong study type (e.g., surveys, opinion pieces, anecdotal qualitative evidence), information that did not specifically mention COVID-19, relevant quantitative evidence that did not include data on the effects of the intervention or vaccine uptake, and ongoing studies that were potentially relevant but would not have evidence on COVID-19 uptake available in time for the review.

1.1.4.1 Included studies

Nine studies, all UK-based qualitative studies, were included in the review covering a range of populations including:

- pregnant women
- refugees, asylum seekers and undocumented migrants
- Gypsy, Roma and Travellers and people in the boating community
- people who are homeless
- general information for people living in the UK
- general information for the London population.

Much of the evidence supported existing findings from the qualitative review (evidence review B) and the mixed methods acceptability of specific interventions review (evidence review J) but there were also some new themes. Support for existing themes, and the populations for which the supporting information was identified is shown in Table 4. New themes are shown in Table 5.

No relevant quantitative evidence was identified.

For the evidence study selection, please see Appendix B.

1.1.4.2 Excluded studies

The list of excluded studies with reasons for their exclusion are available in Appendix E.

1.1.5 Summary of studies included in the qualitative evidence.

Table 3 Summary of characteristics of the included qualitative studies.

Author	Design and type of analysis	Country	Setting	Sample size	Objective	Population	Contributed to new themes?
Skirrow 2021 (Imperial College)	Open ended question from a survey and semi-structured interviews	UK	Community	1181 (10 interviewed)	To investigate the views of pregnant women in the UK on the likely uptake of a future COVID-19 vaccine for themselves and their children	Pregnant women	No
Doctors of the World and Bevan Healthcare CIC	Focus groups and interviews	UK	Community	7	Exploring vaccine confidence in refugee, asylum seeker and undocumented migrant populations	Refugees and asylum seekers	No
Knights 2021 (Migrant Health Research)	Semi-structured interviews	UK	Community	81 (41 primary care professionals, 16 admin staff, 17 migrants, 15 asylum seekers, 2 refugees	Explore the specific impact of the pandemic on migrants and their access to primary care, implications for COVID-19 vaccination uptake, and to better understand potential solutions to inform the immediate public health response	Migrants, asylum seekers and refugees	Yes
Deal 2021 (Migrant Health Research)	Semi-structured interviews	UK	Community	32	Explore views on the COVID-19 vaccine, including barriers to access, and developing solutions to strengthen delivery and uptake in marginalised migrant communities	Asylum seekers, refugees and undocumented migrants	Yes
Public Health England working in partnership with NHS England, UCL Partners, the Association of Directors of Public Health	Survey including open-ended questions	UK	Local Authorities and Directors of Public Health	28	To map and examine the activities across London to increase COVID-19 vaccine uptake and tackle vaccine hesitancy and access barriers	Local Authorities and Directors of Public Health	Yes

Author	Design and type of analysis	Country	Setting	Sample size	Objective	Population	Contributed to new themes?
(ADPH), Greater London Authority , London School of Hygiene and Tropical Medicine (LSHTM), NIHR ARC North Thames, University College London (UCL) Called PHE 2021 for short.							
Sherman 2021 (Keele University)	Survey with open ended question	UK	Community	1500	To investigate associations between COVID-19 vaccination intention and sociodemographic, psychological, and contextual factors	People living in the UK	Yes
Bath and North East Somerset, Swindon and Wiltshire CCG	Group and individual discussions	UK	Local authority and community	Not reported	Explore the attitudes and perception towards Covid-19 vaccination with the boating community	The boating community	No
Bath and North East Somerset, Swindon and Wiltshire CCG	Semi-structured interviews	UK	Community	22	Explore the attitudes and perceptions of people who are homeless towards Covid-19, vaccinations and the idea of a vaccination for Covid-19	Homeless people	No
Devon CCG	Unclear (possibly group or individual discussions)	UK	Community	37	To understand barriers to COVID-19 vaccine uptake and potential facilitators of vaccination in the Gypsy, Roma and Traveller communities. Inform future relationships between the CCG and these communities	Gypsy, Roma and Traveller communities	No

For the full evidence tables, please see Appendix C.

1.1.6 Summary of the evidence

Table 4 Existing qualitative review themes and the populations from which supporting evidence was found from the COVID call for evidence.

Note: the themes have been summarised here and are covered in more detail in evidence review B.

Existing qualitative review theme	Also in COVID evidence
Trust	
People trust the NHS and healthcare practitioners	• Pregnant women • Gypsy, Roma and Travellers/boating community
People want information from someone they trust, either healthcare practitioners or someone in the community	• Refugees, asylum seekers and undocumented migrants • Gypsy, Roma and Travellers/boating community • London-based vaccination
Access	
Moving between different areas can make it difficult to register with a GP or be contacted by them	• Refugees, asylum seekers and undocumented migrants • Gypsy, Roma and Travellers/boating community
Distance to travel and the cost of public transport can act as a barrier to vaccination	• Refugees, asylum seekers and undocumented migrants • London-based vaccination
Information	
Information should be provided in a language and format that the person can easily understand	• Refugees, asylum seekers and undocumented migrants • Homeless people • London-based vaccination
People want more information to help them make an informed decision	• Refugees, asylum seekers and undocumented migrant • Gypsy, Roma and Travellers, homeless people
The use of social media and opportunities for face-to-face conversations can help raise awareness of vaccinations	• London-based vaccination
Misinformation/sources of information	
People's opinions on vaccination are influenced by social media and their social circle	• Refugees, asylum seekers and undocumented migrants
Misinformation causes vaccine hesitancy	• Refugees, asylum seekers and undocumented migrants

Existing qualitative review theme	Also in COVID evidence
	• Gypsy, Roma and Travellers/boating community, homeless people
Benefits and harms	
Some people think that vaccines are effective while others have concerns about the safety of new vaccines	• People living in the UK

Table 5 Summary of the new themes identified from the COVID-19 call for evidence

Studies	Population	Finding	Illustrative quotes (where available)	CERQual explanation	Confidence
Access					
1 (Knights 2021)	Refugees, asylum seekers and undocumented migrants	Digitalisation of services can reduce some people's access to services, but may make communication with healthcare practitioners easier for others. Online services can restrict some people's ability to register with a GP or fill in forms. However, there are some benefits as a person could use an online translation service to clarify what they want to say.	"So although our registration seems easy, in COVID I expect it's really difficult for people, because they can't just walk in and get forms and do it in the waiting room. At least our receptionists speak a mixture of languages. They could help people fill in the forms." (GP) "The E-consultation method has, surprisingly, shown how the migrant contacts with the surgery have actually increased, compared to pre-COVID.… And increased the reach towards patients who might have language barriers, because they have the ability now to take their time. Maybe use a translator when they're writing, and write down their concerns." (GP)	Downgraded twice for adequacy, once for relevance	Very low
1 (Knights 2021)	Refugees, asylum seekers and undocumented migrants	Virtual appointments can raise issues of confidentiality if people are sharing a room or computer.	"I mean confidentiality is another issue in terms of people's living situation and overcrowding and maybe they're sharing computers or obviously rooms and phone calls. We don't know who's in the background when we ring	Downgraded twice for adequacy, once for relevance	Very low

Studies	Population	Finding	Illustrative quotes (where available)	CERQual explanation	Confidence
			people… there are quite a lot of safeguarding issues." (GP)		
2 (Public Health England 2021, Deal 2021)	Refugees, asylum seekers and undocumented migrants London-based vaccination	Using sites such as town halls, places of worship, food banks and supermarkets may help to increase access to vaccination.	"If you make it easier for everyone in this country whether registered in GP or you don't have document, just come and maybe go to centre or go to GP… If they do it like that, most people will still go [to get their vaccine]" (Undocumented migrant)	Downgraded twice for adequacy and once for relevance	Very low
Information					
2 (Sherman 2021, Deal 2021)	UK population, Refugees, asylum seekers and undocumented migrants	People think they cannot access vaccines because of their visa status or are concerned about immigration checks when accessing vaccines and would like information about vaccinations to provide reassurance that documentation won't be required. People would prefer vaccinations to be given at a walk-in centre or charity that is more anonymous than a GP practice	"The prime minister has said we want everybody to be vaccinated. But he did not say no information will be given to the home office. He did not give that safety blanket and security to people that are afraid to give information away. So, this is my fear" (Undocumented migrant)	Downgraded twice for adequacy and once for risk of bias	Very low

See Appendix D for full GRADE CerQual tables

1.1.7 Economic evidence

No economic evidence was identified in the COVID-19 call for evidence.

1.1.8 Economic model

No economic modelling was undertaken for this review.

1.1.9 The committee's discussion and interpretation of the evidence

1.1.9.1. The outcomes that matter most

The evidence raised some themes that had already emerged in the qualitative review (evidence review B) and the mixed methods acceptability of specific interventions review (evidence review J). The committee thought it was important to highlight where this evidence supported the existing themes but that it was most important to consider any new themes that emerged and could be applicable to routine vaccinations in the UK. Of particular interest were any barriers to vaccination for different groups of people, ways of raising awareness and understanding of the COVID-19 vaccination, and any methods of giving the vaccination that could be transferred to UK routine vaccination programmes.

1.1.9.2 The quality of the evidence

Eight qualitative studies were included. The evidence was very low quality and, with the exception of two papers that were published during the development of this review, from non peer-reviewed papers, either pre-print articles or interim reports from healthcare providers and Public Health England. However, this was considered the most relevant available evidence at the time, given that the COVID-19 vaccine had only recently been introduced and there had not been much time for studies to be carried out, analysed and published. Unpublished evidence was downgraded for risk of bias to reflect the lack of peer review. All papers were also downgraded for applicability to the routine vaccination programme, as they focused on barriers and facilitators to COVID-19 vaccination rather than vaccinations on the UK routine schedule. Although not directly relevant, the committee agreed that it was important to consider this evidence to determine whether there was anything newly emerging from COVID-19 vaccination programmes that could be adapted for use in routine vaccination programmes.

The committee noted that there were no quantitative studies that met the inclusion criteria, despite their awareness of multiple ongoing interventions to try to increase COVID-19 uptake (see below). In addition, although many of the included studies examined the views of people in more vulnerable communities in the UK, there was less of a focus on ethnic minority communities than might be expected from the evidence about lower levels of uptake in these communities (see Razai 2021 for more details). However, the committee thought that it is likely that this research is being carried out and the findings will be available in the future.

The committee also discussed some qualitative evidence that looked directly at the effect of the COVID -19 pandemic on routine vaccinations. This was identified as part of the main barriers and facilitators review (see evidence review B for details of these findings and the discussion).

1.1.9.3 Advantages and disadvantages

Most of the themes identified in the individual studies could be mapped onto existing themes that had been generated using qualitative studies looking at barrier and facilitators to routine vaccinations (see evidence review B and Table 4). The committee agreed that this was not a surprising result because misinformation/ information needs, trusted people and problems with access are not specific to individual vaccinations. In addition, although the many of the included studies focused on more vulnerable groups in society, some of the findings these studies contributed to were applicable to the wider population (such as people wanting more information to make an informed decision), while others were less generalisable (for example, the need to provide information in a language and format that the person can understand).

Four new findings emerged. Each theme was very low quality, reflecting the low number of studies (1-2 per theme) and the thin findings from those studies or reports. The committee agreed that in their experience using community sites for vaccination was likely to increase uptake but noted that this had already been captured in the recommendation developed in the access review (evidence review D) about using sites other than healthcare settings for vaccination clinics. The committee were aware of the use of mobile vaccination units to deliver COVID-19 vaccinations and so they decided to include this as an additional alternative setting.

One new finding highlighted the concerns of some migrants over documentation and immigration checks at vaccination sessions. The committee agreed that this finding was generalisable to routine vaccinations and thought that the availability of vaccinations regardless of immigration status is the type of information that could be shared by community champions. The use of people in the community has already been recommended as part of the access review (review D) and so the committee did not think that an additional recommendation was needed. In addition, the committee had already included a cross reference to NICE's guidance for Community engagement: improving health and wellbeing and reducing health inequalities to facilitate the engagement process (see also the hyperlinked example below).

Two finding covered issues to do with the digitalisation of healthcare services as a result of COVID-19. They highlighted the benefits to some of online consultations, but that other may lack privacy for these sessions and that people who needed help with registration and filing in other forms could be disadvantaged by a move to remote services. The committee agreed with these findings and noted that digitalisation of services could lead to inequalities of access if issues such as the ones raised in the findings were not taken into account and alternative options were not made available. They noted that digitalisation was also occurring in schools as electronic consent systems become more common. However, paper copies of the consent forms are still requested by some parents and others who lack online access can have their consent collected by phone and then entered into the online system.

The committee were aware of a number of local interventions, such as community conversation events, which are ongoing and for which there is currently no evidence available to determine their effectiveness. Alternatively, in some cases there is evidence of the effectiveness of the interventions, not in terms of COVID-19 uptake, but looking at other more intermediate outcomes but these were not included in this evidence review. For example, the Community engagement guideline mentioned above has been used by GP's from Black Women in Health to develop an approach to reduce COVID-19 vaccine hesitancy amongst black, Asian, and minority ethnic (BAME) populations in the UK. The results are reported as survey data looking at changes in intention to be vaccinated.

The committee agreed that is important that these interventions receive appropriate evaluation so that any effective interventions, particularly those that raise vaccination rates in areas of low uptake, can be applied to COVID -19 vaccination programmes in other areas and to routine vaccination programmes where possible. They therefore recommended that initiatives that were introduced during the COVID-19 pandemic should be evaluated to establish whether they were effective at increasing vaccine uptake, and whether a similar intervention could be used for routine vaccinations. These interventions could be aimed at increasing COVID-19 uptake or uptake of routine vaccinations during the pandemic.

1.1.9.4 Cost effectiveness and resource use

Evaluating initiatives used to increase vaccine uptake during the coronavirus pandemic is not expected to need significant additional resources as it is likely the data on vaccine uptake will already be collected, and any costs associated with compiling this evidence are likely to be small. There is likely to be an administrative cost associated with evaluating this evidence, however it is not expected to be significant and this evaluation is likely to be a one-off

activity. It is also expected that many areas may already be planning to carry out retrospective audits of any interventions undertaken.

1.1.9.5 Other factors the committee took into account

Future proofing the recommendations

In the evidence reviews we looked for evidence regarding routine vaccinations for people aged 65 and over because this was the age limit for vaccinations for older people on the NHS routine schedule at the time the work was carried out. Since there was limited evidence for this age group, we also included data from relevant studies including people aged 50 and over, where the majority of participants were in our target age group, or the mean age was 65 or over with committee agreement taken on a review-by-review basis. These studies were downgraded for applicability where the committee deemed it appropriate.

According to the Joint Committee on Vaccination and Immunisation minutes from the meeting on 22 June 2021, shingles vaccination eligibility is changing to include people aged 60 and over and this will be introduced in a phased manner down from the current age of 70 years. It is unclear when this change will be initiated or completed. In order to future proof the guideline recommendations we have therefore changed those mentioning people aged 65 and over to refer to older people instead and defined them as follows: adults who are eligible for routine vaccination on the UK schedule, excluding pregnancy-related vaccinations. We also suggest that people consult the green book for information about current age limits and vaccinations for older people. The content of the recommendations has not been changed otherwise as this was not deemed necessary. The majority of recommendations that apply to older people are also more generally applicable and have not been altered because they do not mention groups of people by age. The committee discussions of the evidence have also been retained in their original form, with the addition of the information about the use of the term older people where the relevant recommendations that specifically mentioned people aged 65 and over are discussed.

1.1.10 Recommendations supported by this call for evidence

This call for evidence supports recommendation 1.1.18.

1.1.11 References – included studies

Bath and Northeast Somerset SAWC; Insights gathered from the boating community around Covid-19 vaccinations. Engagement report: January 2021; 2021; (Interim report)

Bristol NSASGC; Interviews with people who are homeless around Covid 19, vaccinations and the Covid 19 vaccine: Engagement report and implications; 2021; (Engagement report)

Deal A; Hayward SE; Huda M; Knights F; Crawshaw AF; Carter J; Hassan OB; Farah Y; Ciftci Y; Rowland-Pomp M; Rustage K; Goldsmith L; Hartmann M; Mounier-Jack S; Burns R; Miller A; Wurie F; Campos-Matos I; Majeed A; Hargreaves S; ; Strategies and action points to ensure equitable uptake of COVID-19 vaccinations: A national qualitative interview study to explore the views of undocumented migrants, asylum seekers, and refugees.; Journal of migration and health; 2021; vol. 4

Doctors of the World UK and Bevan Healthcare CIC; Qualitative evidence focusing on the barriers and facilitators to COVID-19 vaccination uptake; 2021 (summary of ongoing work prepared for call for evidence)

Knights F., Carter J., Deal A., Crawshaw A., Hayward S., Jones L.; Impact of COVID-19 on Migrants' Access to Primary Care and Implications for Vaccine Roll Out: A National Qualitative Study; 2021; BJGP (online publication June 2021, DOI: https://doi.org/10.3399/BJGP.2021.0028)

NHS Devon CCG; COVID-19 Vaccine Engagement with Gypsy, Roma, Traveller communities; 2021 (summary of engagement work)

Public Health England working in partnership with NHS England, UCL Partners, the Association of Directors of Public Health, Greater London Authority; London School of Hygiene and Tropical Medicine (LSHTM); and NIHR ARC North Thames, UCL. Qualitative evidence from online survey on vaccination barriers and facilitators distributed to directors of public health of 32 London local authorities in addition to emergent analyses of ICS/ local authorities plans for London, responding to NICE's question: "What are the barriers to and facilitators for COVID-19 vaccine uptake?". 2021. (Unpublished early draft manuscript)

Sherman S., Sim J., Cutts M., Dasch H., Amlôt R., Rubin G.J., Sevdalis N. SL; COVID-19 vaccination acceptability in the UK at the start of the vaccination programme: a nationally representative crosssectional survey (CoVAccS – wave 2); 2021 (Preprint)

Skirrow H., Barnett S., Bell S., Riaposova L., Mounier-Jack S.; Women's views on accepting COVID-19 vaccination during and after pregnancy, and for their babies: A multi-methods study in the UK; 2021 (Preprint)

Other references

Razai MS., Osama T., McKechnie DG;, and Majeed A. Covid-19 vaccine hesitancy among ethnic minority groups. BMJ. 2021 2021;372:n513 .

Appendices

Appendix A – Review protocols

Review protocols for the COVID-19 Call for evidence

Qualitative evidence

Review question: What are the barriers to and facilitators for COVID-19 vaccine uptake?	
Sample	• People who are eligible for COVID -19 vaccination and their families and carers (if appropriate). • Staff including, but not limited to, those providing advice about or administering vaccines and those people with relevant administrative or managerial responsibilities.
Phenomenon of Interest	COVID-19 vaccination
Design	Studies using qualitative methods: • Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews • Qualitative studies that collect data from open-ended questions from questionnaires/ surveys • Mixed method study designs (qualitative evidence that matches the above study designs only)
Evaluation	Barriers to, and facilitators for, COVID-19 vaccine uptake including, but not limited to: • Thoughts, views and perceptions of individuals, parents or carers and staff about the vaccination programme and COVID-19 vaccination in general • Issues relating to acceptability • Issues relating to implementation • Issues relating to accessibility • Issues relating to infrastructure • Issues relating to mis-information or a lack of information and communication of information • Issues relating to informed refusal • Issues relating to collective benefit / altruistic motives

Research type	Qualitative and mixed methods
Additional comments	• We are only interested in evidence from OECD countries. • We would like published information and unpublished information meeting the above criteria, including any ongoing research. • We cannot accept promotional material, non-evidence-based assertions of effectiveness or opinion pieces. • We know there have been inequalities in the uptake of COVID-19 vaccination and are interested in research on why and what can be done about them.

Quantitative evidence

Review question: What are the most effective interventions for increasing the uptake of COVID-19 vaccines?	
Population	• People who are eligible for COVID -19 vaccination and their families and carers (if appropriate). • Staff including, but not limited to, those providing advice about or administering vaccines and those people with relevant administrative or managerial responsibilities.

Interventions	Interventions including, but not confined to:
	1. Information, education and methods of communicating them:
	  • Interventions to provide information or education
	  • Different methods of delivering education or information.
	  • Who provides the information and/or advice and how they do so.
	2. Vaccination invitations and reminders aimed at providers or individuals including:
	  • Reminders to individuals/ eligible groups using different delivery methods.
	  • Reminder and recall systems (aimed at providers)
	  • Personal invitations to be vaccinated
	3. Interventions targeting acceptability:
	  • Alternative forms of vaccinations (e.g. injections, different formulations)
	  • Alternative vaccine providers (e.g. doctor administering vaccine instead of nurse)

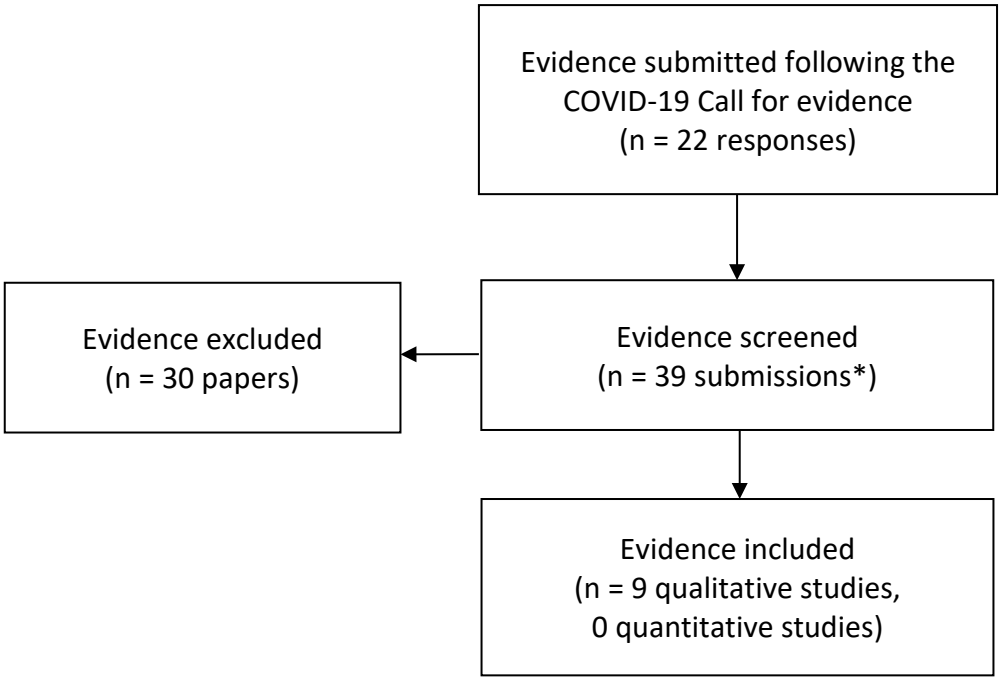
	4. Interventions to improve access including: • Expanding access in healthcare, such as: i. Reducing distance/time to access vaccinations ii. Out of hour or drop-in services iii. Delivering vaccines in different clinical settings • Vaccination clinics in community settings • Dedicated clinics for vaccination • Extended hours clinics • Outreach interventions or mobile services • Parallel clinics (in parallel with regular appointments or other programmes) • Opportunistic vaccinations 5. Interventions to improve infrastructure (targeting processes, staffing and settings): • Dedicated booking systems • Organisation of local provider-based systems i. Local area approaches ii. Systems and processes in place to work with the community iii. Practice level approaches iv. Assigned lead for a specific vaccination programme v. Having staff who are competent to deliver vaccinations available in multiple settings vi. Having staff with responsibilities for training practitioners, answering complex questions, co-ordinating immunisations etc. • Systems involved in the recording and identification of eligibility and status including: i. Integration of identification and/or recording systems ii. Methods of recording iii. Changes to vaccine status coding processes iv. Training of staff to improve the accuracy of recording and coding v. Different methods of data sharing

	vi. Resources/tools to help identify eligibility and missed vaccinations. • Incentives or penalty-based interventions aimed at individuals • Mandatory vaccination • Incentive schemes (for providers) • Audit and feedback on uptake rates for providers
Comparators	• Other interventions aimed at increasing vaccine uptake • Control/ usual practice
Outcomes	1. For all intervention types except interventions at target the recording and identification of eligibility and status: Changes in: • COVID-vaccine uptake (primary outcome) • Offers of vaccination • The numbers of people who develop COVID-19 • Cost/resource use associated with the intervention 2. For interventions that target the recording and identification of eligibility and status: Changes in: • COVID-vaccine uptake • Offers of vaccination • Identification of vaccine eligibility and status • Recording of vaccine eligibility and status • Accuracy and completeness of data records, including administration errors • An individual's knowledge of their own immunisation status • Cost/resource use associated with the intervention
Study types	• Systematic reviews of included study designs • Randomised controlled trials • Non-randomised controlled trials • Controlled before-and-after studies • Interrupted time series • Cohort studies • Before and after studies

	• Mixed method study designs (quantitative evidence that matches the above study designs only)
Additional comments	• We are only interested in evidence from OECD countries. • We would like published information and unpublished information meeting the above criteria, including any ongoing research. • We cannot accept promotional material, non-evidence-based assertions of effectiveness or opinion pieces. • We know there have been inequalities in the uptake of COVID-19 vaccination and are interested in researching why and what can be done about them.

Appendix B – Qualitative evidence study selection

Responses to the COVID-19 Call for evidence



* The number of submissions are greater than the number of responses because some of the responses contained multiple references and, in some cases, the same documents were submitted by more than one respondent

Appendix C – Effectiveness evidence tables

Bath and North East Somerset, Swindon and Wiltshire CCG, 2021

Bibliographic Reference	Bath and North East Somerset SAWC; Insights gathered from the boating community around Covid-19 vaccinations. Engagement report: January 2021; 2021; (Interim report)

Study Characteristics

Study type	Group and individual discussions No further details provided
Aim of study	Explore the attitudes and perception towards Covid-19 vaccination with the boating community
Study location	UK
Study setting	Local authority and community
Study dates	Not reported
Sources of funding	None reported
Data collection	Virtual group discussions with people from the local authority and individual discussions with boaters. No further information reported
Method and process of analysis	Not reported
Population and sample collection	People from the local authority and boaters. No further information provided
Inclusion Criteria	Local authority and people from the boating community in Wiltshire
Exclusion criteria	None reported
Relevant themes	1. Concerns and lack of information: Boaters had concerns about misconceptions about the vaccine and wanted more information to address their concerns 2. Sources of information: Most people in the boating community have some knowledge of the COVID-19 vaccine. Sources of information were local organisations. People preferred information either from these or other trusted practitioners and organisations. 3. Access: Some people were concerned about how they would be invited for vaccination when they had no fixed address. People thought that GP staff should be trained about temporary registration.

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	No *(Brief statement of the aims)*
Appropriateness of methodology	Is a qualitative methodology appropriate?	*Yes*
Research Design	Was the research design appropriate to address the aims of the research?	Can't tell *(Limited information about research design)*
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Can't tell *(No information about recruitment strategies)*
Data collection	Was the data collected in a way that addressed the research issue?	Can't tell *(Limited information about data collection)*
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Can't tell
Data analysis	Was the data analysis sufficiently rigorous?	Can't tell
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research has some value
Overall risk of bias and relevance	Overall risk of bias	High *(Non peer-reviewed report. Limited or no information about recruitment strategies, ethical consideration, data collection and analysis)*
Overall risk of bias and relevance	Relevance	Partially relevant *(Report based on COVID-19 vaccination and not UK routine vaccinations)*

Bristol, North Somerset and South Gloucestershire CCG, 2021

Bibliographic Reference	Bristol NSASGC; Interviews with people who are homeless around Covid 19, vaccinations and the Covid 19 vaccine: Engagement report and implications; 2021; (Engagement report)

Study Characteristics

Study type	Semi structured interviews
Aim of study	Explore the attitudes and perceptions of people who are homeless towards Covid-19, vaccinations and the idea of a vaccination for Covid-19
Study location	UK
Study setting	Community
Study dates	November 2020
Sources of funding	None reported
Data collection	Semi-structured interviews were used to explore the attitudes and perceptions of homeless people towards Covid-19, vaccinations and the idea of a vaccination for Covid-19. Interviews were completed by working with voluntary and community organisations such as Bristol Outreach Services for the Homeless (BOSH) and Somewhere to Go Weston-Super-Mare. No further details about data collection provided.
Method and process of analysis	No information provided
Population and sample collection	22 people were interviewed. Most (19) were male, people were aged between 25 and 74 years and were either previously homeless, living in a hostel or supported housing or had been homeless/sleeping rough for between 6 months and more than 10 years.
Inclusion Criteria	None reported
Exclusion criteria	None reported
Relevant themes	3 relevant themes were identified: 1. Beliefs about vaccination: Some people were in favour of vaccination to stop diseases while others were suspicious of vaccinations, either because of misinformation or a lack of information about them. "I think vaccines are good because they make you feel safer knowing you won't get ill. My doctor normally tells me when I need anything like the flu jab" 2. Information and understanding: Most people had heard something about COVID-19, with information coming from newspapers, TV and word of mouth. Although most people had some awareness of the vaccine, few people had more detailed information. 3. Sources of information: Most people would prefer information to be communicated verbally and from a trusted person, such as a doctor or

		nurse, or volunteers or support workers at local services. "Someone coming somewhere like here (Somewhere to Go) to tell us information would be best. I have problems reading and understanding so would rather be told by someone what to do. I trust the Doctor and staff here for advice."

Risk of bias

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Can't tell *(Very limited information)*
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Can't tell *(No information about recruitment strategy)*
Data collection	Was the data collected in a way that addressed the research issue?	Can't tell *(Very limited information)*
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Can't tell
Data analysis	Was the data analysis sufficiently rigorous?	Can't tell
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research has some value
Overall risk of bias and relevance	Overall risk of bias	High *(Non peer-reviewed report. Limited or no information about recruitment, data collection or analysis.)*
Overall risk of bias and relevance	Relevance	Partially relevant *(Report based on COVID-19 vaccination rather than UK routine vaccinations)*

Deal, 2021

Bibliographic Reference	Deal A; Hayward SE; Huda M; Knights F; Crawshaw AF; Carter J; Hassan OB; Farah Y; Ciftci Y; Rowland-Pomp M; Rustage K; Goldsmith L; Hartmann M; Mounier-Jack S; Burns R; Miller A; Wurie F; Campos-Matos I; Majeed A; Hargreaves S; ; Strategies and action points to ensure equitable uptake of COVID-19 vaccinations: A national qualitative interview study to explore the views of undocumented migrants, asylum seekers, and refugees.; Journal of migration and health; 2021; vol. 4

Study Characteristics

Study type	Semi structured interviews
Aim of study	Explore views on the COVID-19 vaccine, including barriers to access, and developing solutions to strengthen delivery and uptake in marginalised migrant communities
Study location	UK
Study setting	Community
Study dates	September 2020 - March 2021
Sources of funding	NIHR
Data collection	Adverts for the study and participant information sheets were circulated to 20 UK-based migrant support groups and on social media. Those who expressed an interest in taking part were contacted by telephone and the study was explained to them in a separate, pre-interview call with interpreters available on request. Semi-structured interviews were conducted by telephone. Participants were compensated with an online shopping voucher (worth £37). Interviews were audio-recorded then transcribed verbatim; transcripts were checked for accuracy and anonymised. Data collection ended when data saturation was reached, and no novel concepts were arising. Data collection and theme development took place concurrently and continued until the team agreed unanimously that saturation, at a thematic level had been reached.
Method and process of analysis	Data were analysed using an interpretative approach through a thematic framework in NVIVO 12. The ‘Three Cs’ model of vaccine hesitancy was used, which focuses on issues relating to confidence in the vaccine, complacency, and convenience which are considered to influence an individuals’ views on whether to have a vaccine or not. A sub-analysis was conducted which explored views and levels of hesitancy among migrants interviewed before (September and November 2020) and after (between January and March 2021) the beginning of the COVID-19 vaccination roll-out in the UK.
Population and sample collection	32 people were interviewed (19 asylum seekers, 3 refugees, 8 undocumented and 2 with limited leave to remain). Mean time in the UK was 5.6 years (±3.1) and mean age was 37.1 years (±7.6)

Inclusion Criteria	Recently arrived migrants Residing in the UK for less than 10 years
Exclusion criteria	None reported
Relevant themes	1. Access: People raised a number of issues, such as how they could access vaccines from primary care, language barriers and perceived lack of entitlement. “Some of the asylum-seekers and the refugees, they don’t have a GP, so I don’t know how the government will help out with that. If the government can speak with the charities, because a lot of these refugees and asylum- seekers, they use different charities" 2. Trust: Many people had a lack of trust in healthcare and the government. Some did not understand the NHS system and many were concerned about immigration checks if they presented for vaccination. “They don’t need to put the word documents [in Covid vaccine adverts] because.. what if I don’t have it, I’m undocumented. And you said okay come on have your vaccine, we’re not going to check you.. I won’t go because I don’t know to what extent is true. It might be a ploy to get people to come” 3. Misinformation and concerns about side effects: Some people were concerned about potential side effects and some were unsure which sources of information to trust. “For me, I would like to take the vaccine if that will make everything better. But the fake news is scaring me, so I don’t know. That is a problem. I don’t know if it’s real, I don’t know if it’s fake. When you take it, it will change the DNA…it will stop the person not having kids in future. A lot of stories are flying ” 4. Convenience: People indicated that they were more likely to accept a vaccination if they had more information about how to access them. Some also thought they would have to pay for the vaccine but were more likely to accept it if they knew it was free. “If you make it easier for everyone in this country whether registered in GP or you don’t have document, just come and maybe go to centre or go to GP…If they do it like that, most people will still go [to get their vaccine]" 5. Information: Many people wanted more information about the vaccination and were hesitant to accept the vaccine until they were more informed. “What the government or NHS can do to improve, or to facilitate, or to help this lack of knowledge [around COVID-19 vaccines] is to communicate. Communication is very, very, very essential because lack of communication can just lead to disaster ”

Risk of bias

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes

Section	Question	Answer
Research Design	Was the research design appropriate to address the aims of the research?	Yes
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Yes
Data collection	Was the data collected in a way that addressed the research issue?	Yes
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Yes
Data analysis	Was the data analysis sufficiently rigorous?	Yes
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research is valuable
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Partially relevant *(Study is about COVID-19 vaccinations rather than UK routine vaccinations)*

Doctors of the World UK and Bevan Healthcare, 2021

Bibliographic Reference	Doctors of the World UK and Bevan Healthcare CIC; Qualitative evidence focusing on the barriers and facilitators to COVID-19 vaccination uptake; 2021

Study Characteristics

Study type	Focus Groups Semi structured interviews
Aim of study	Exploring vaccine confidence in refugee, asylum seeker and undocumented migrant populations
Study location	UK

Study setting	Community
Study dates	Not reported
Sources of funding	None reported
Data collection	Focus groups and interviews were conducted remotely using an online virtual meeting platform or telephone. Verbal informed consent was obtained for all participants and documented at the time of interview. An interview guide exploring COVID-19 vaccine confidence and drivers and barriers to vaccine uptake was used.
Method and process of analysis	Thematic analysis of the responses was undertaken - no further information provided
Population and sample collection	7 migrants (4 male, 3 female) from Jordan, Laos, The Caribbean, Nigeria, Palestine, South Africa and The Congo. Three people were refugees and 4 were asylum seekers.
Inclusion Criteria	Living in England Aged 18 years or over
Exclusion criteria	None reported
Relevant themes	4 relevant themes were identified: 1. Information and misinformation: Misinformation is often shared in migrant communities, often via social media and family and friend groups. This is a bigger issue in communities that don't have access to other, reliable, sources of information. People want more accessible information “We hear stories that people are dying and being sick after the vaccine so people are scared” 2. Safety concerns: People were concerned about the side effects of vaccination and wanted more information about these. Others were unsure whether the benefits outweighed the risk, particualrly for younger people “We hear on the news about blood clots. We need some medical to back it up to say it’s OK you won’t get blood clots.” 3. Influence for vaccination: Local people and religious leaders were thought to be an important way to promote vaccination “We need to be getting people from the same background to be the ones informing. The same country and speaking the same language. The government should address people from the right platform – start with leaders going down. You’ve got to get the leaders.” 4. Sources of information: People preferred the idea of social media-based information rather than leaflets. This should take into account language and literacy barriers. “A video in different languages as some people don’t like to read or can’t read in any language.”

Risk of bias

Section	Question	Answer

Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Yes
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Can't tell
Data collection	Was the data collected in a way that addressed the research issue?	Can't tell *(Probably but limited information)*
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Yes
Data analysis	Was the data analysis sufficiently rigorous?	Can't tell
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research is valuable
Overall risk of bias and relevance	Overall risk of bias	High *(Non-peer reviewed paper with limited information about recruitment methods, data collection and analysis)*
Overall risk of bias and relevance	Relevance	Partially relevant *(Based on COVID-19 vaccination rather than UK routine vaccinations)*

Knights, 2021

Bibliographic Reference	Felicity Knights, Jessica Carter, Anna Deal, Alison Crawshaw, Sally Hayward, Lucinda Jones SH; Impact of COVID-19 on Migrants' Access to Primary Care and Implications for Vaccine Roll Out: A National Qualitative Study ; 2021; (Published online June 2021)

Study Characteristics

Study type	Semi structured interviews
Aim of study	Explore the specific impact of the pandemic on migrants and their access to primary care, implications for COVID-19 vaccination uptake, and to better understand potential solutions to inform the immediate public health response
Study setting	Community
Study dates	June 2020 - November 2020
Sources of funding	NIHR, Academy of Medical Sciences
Data collection	Semi-structured interviews were used in 3 phases. Phase 1 consisted of interviews with clinical PCPs and informed data collection and analysis for phase 2 (interviews with administrative PCPs). Phase 3 consisted of interviews with recently-arrived migrants. Topic guides were developed and piloted with two GPs, with input from a migrant representative Project Board. Several migrant representatives offered ongoing feedback throughout the study. Separate topic guides were developed for each phase. PCPs were asked about their experience of providing healthcare to migrants (foreign-born individuals), the impact of the COVID-19 pandemic, and implications for COVID-19 vaccine roll-out. Migrants were asked around their experiences during the pandemic, the impact on access to primary healthcare, and their views on the COVID-19 vaccine delivery within their communities. In Phase 1 and 2, PCPs were recruited using purposive sampling across urban, suburban, and rural settings across England. Further participants were identified by means of snowballing, with those recruited asked to contact colleagues. In Phase 3, migrants were recruited using convenience and snowball sampling. Adverts for the study and participant information sheets in English were circulated to 20 migrant support groups, charities providing healthcare-related support to migrants and on social media across England. Further participants, including those who did not speak English, were recruited by word of mouth. Verbal (by phone) explanation with an interpreter was offered to interested individuals, and translators were available for interviews as required. In-depth semi-structured interviews were conducted by telephone. Participants were compensated with shopping vouchers (£20 for PCPs, £37 for migrants, due to longer interviews). Each interview was audio-recorded, transcribed verbatim, checked for accuracy and anonymised.
Method and process of analysis	Data collection ended when data saturation was reached in key themes across participant groups, when new data demonstrated redundancy to existing data, and was analysed inductively, informed by thematic analysis. A comprehensive code list was developed and disagreements were resolved through negotiated consensus; key themes were conceptualised through further discussion with the wider team.
Population and sample collection	48 primary care practitioners (25 General Practitioners, 15 practice nurses, 7 healthcare assistants and 1 clinical pharmacist), 16 administrative staff (11 practice managers and 5 receptionists/other). 17 migrants were interviewed (15 (88%) asylum-seekers and 2 refugees - 64% female, mean age 38 years, mean time in the UK 4 years. Participants originated from 14 countries across 5 WHO Regions

Inclusion Criteria	Migrants who were foreign-born, over 18 years of age and who had lived in the UK for less that 10 years Primary care professionals and administrative staff in England
Exclusion criteria	None reported
Relevant themes	1. Implications of digitalisation: Some people reported that digitalisation restricted some migrant's access to services if they are not able to access technology. Others suggested it could be helpful, such as using online translation services to help sending text messages with information. "They ask you to go onto the website, fill out the form, sign it, scan it, and then send it back to them, so they can register you. I mean, I don't have a scanner, I don't have printers, then how can I kind of download it, scan? Or, if I can do it online, like an electronic signature, most people don't know how to apply that. You need a computer. You can't do that on your phone. So, those forms, for example, are not accessible at all for many people." 2. Access and language barriers: Some people reported that digitalisation had reduced access to services for people with language barriers, such as where face-to-face consultations had been replaced with phone calls. Some providers were concerned about confidentiality with virtual consultations for people who shared accommodation or who shared a computer "I mean confidentiality is another issue in terms of people's living situation and overcrowding and maybe they're sharing computers or obviously rooms and phone calls. We don't know who's in the background when we ring people… there are quite a lot of safeguarding issues." 3. Trust and information: There is a lack of information aimed towards migrants about healthcare access, public health messages and the vaccine. With limited information and a lack of trust in the UK health system, government and science, there is often a lot of misinformation which is a barrier to vaccination "I think the biggest problem [for COVID-19 vaccine uptake] is going to be language and culture…It's been very blustery from politicians. If English wasn't your language and you watched a press conference, it's quite hard to work out what is going on actually. And then the public health messaging, again, it's not always been very simplistic. It has been changing. It's only because organisations like Doctors of the World…The big issue, basically, is language getting out there to people who need it. The people that need it, it probably won't get to them because they're not interacting with their health necessarily in the way that the healthcare system was built to do, if that makes sense. The healthcare system is mainly built for fairly tech literate, English literate people. And they're not always using the same channels." 4. Lack of access: People thought that a one size fits all approach to changes in healthcare do not suit everyone and could restrict access for some people. "So although our registration seems easy, in COVID I expect it's really difficult for people, because they can't just walk in and get forms and do it in the waiting room. At least our receptionists speak a mixture of languages. They could help people fill in the forms."

Risk of bias

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Yes
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Yes
Data collection	Was the data collected in a way that addressed the research issue?	Yes
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Yes
Ethical Issues	Have ethical issues been taken into consideration?	Yes
Data analysis	Was the data analysis sufficiently rigorous?	Yes
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research is valuable
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Partially relevant *(Study is based on COVID-19 vaccination and healthcare during this time rather than UK routine vaccinations)*

NHS Devon, 2021

Bibliographic Reference	NHS Devon CCG; COVID-19 Vaccine Engagement with Gypsy, Roma, Traveller communities; 2021

Study Characteristics

Study type	Group and individual discussions

	Exact methods unclear
Aim of study	To understand barriers to COVID-19 vaccine uptake and potential facilitators of vaccination in the Gypsy, Roma and Traveller communities. Inform future relationships between the CCG and these communities
Study location	UK
Study setting	Community
Study dates	April 2021
Sources of funding	None reported
Data collection	The engagement team worked collaboratively with trusted partner organisations who manage the four authorised Gypsy, Roma and Traveller sites in Devon to understand how best to engage with these communities. Following the advice of these organisations face to face engagement was carried out, observing strict social distancing, to begin a dialogue with communities.
Method and process of analysis	Not reported
Population and sample collection	37 people (12 had been vaccinated)
Inclusion Criteria	Gypsy, Roma and Traveller population in Devon No further information
Exclusion criteria	None reported
Relevant themes	2 relevant themes were identified: 1. Information and misinformation: Some people wanted more information about what is in the vaccine and potential side effects of vaccination 2. Sources of information: Some people wanted their questions to be answered by a doctor before the vaccination, with a suggestion that a doctor should be available to speak to at the site of vaccination.

Risk of bias

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes

Section	Question	Answer
Research Design	Was the research design appropriate to address the aims of the research?	Can't tell *(Very limited information)*
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Can't tell *(Very limited information)*
Data collection	Was the data collected in a way that addressed the research issue?	Can't tell *(Probably but limited information)*
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Can't tell
Data analysis	Was the data analysis sufficiently rigorous?	Can't tell *(Very limited information)*
Findings	Is there a clear statement of findings?	Can't tell
Research value	How valuable is the research?	The research has some value
Overall risk of bias and relevance	Overall risk of bias	High *(Non peer-reviewed report. Very limited information about recruitment, data collection and analysis)*
Overall risk of bias and relevance	Relevance	Partially relevant *(Report is based on COVID-19 vaccination rather than specific to UK routine vaccinations)*

Public Health England, 2021

Bibliographic Reference	Kristoffer Halvorsrud; Public Health England (PHE) with partners' COVID-19 vaccination evaluation; 2021; (no. Interim report)

Study Characteristics

Study type	Survey including open ended questions

Aim of study	To map and examine the activities across London to increase COVID-19 vaccine uptake and tackle vaccine hesitancy and access barriers
Study location	UK
Study setting	local authorities and directors of public health in London.
Study dates	February 2021 - June 2021
Sources of funding	None reported
Data collection	An online survey was developed by an experienced team with relevant policy, practice and academic expertise. The survey was piloted and amended prior to distribution (pilot respondents included public health authorities from London local authorities and NHS England, academic input from LSHTM and patient and public assessment from a Virtual Document Review Panel convened by NIHR ARC North Thames (UCL)). The final survey link was sent via email to be completed by the Directors of Public Health or their nominated representative for each London local authority (n=32). Local authorities who did not complete the survey were sent reminders.
Method and process of analysis	All open-ended questions from the survey were independently and double-coded by academic reviewers (ongoing at the time of submission to the COVID-19 Call for evidence). An inductive approach was used, guided by the original wording of survey respondents to develop themes. Coders discussed their understanding of coded text to justify assignment to specific themes and why it might not be coded into alternate themes. An overall review of the coding was also incorporated as a consistency check before the coding/thematic structure was further checked/amended and reference was made to a third academic reviewer to adjudicate any decisions unresolvable through discussion. London ICS Cohort penetration plans and local authority COVID-19 vaccination plans (including their documented work) were retrieved to check how information contained in these might be incorporated with themes and subthemes from the original language of survey responses.
Population and sample collection	27 Directors of Public Health or their nominated representative from London local authorities. One Director or representative from the Greater London Authority. No further information provided
Inclusion Criteria	Directors of Public Health or their nominated representative for each London local authority
Exclusion criteria	None reported
Relevant themes	4 relevant themes were identified: 1. Trust: Some people reported that undocumented migrants were worried about the risk of deportation if they presented for a vaccine. Other people were reported to have mistrust or resentment towards the NHS because of closures of local services. 2. Information and misinformation: A lack of information on long-term effects and side effects, as well as misinformation about these, led to vaccine hesitancy in some people 3. Sources of information: Interventions targeting specific groups were reported, such as geo-targeting areas with low vaccine uptake or providing videos in a language in which someone had been browsing

	the internet. Some people reported that the use of community champions was a commonly used way to promote the vaccination. 4. Access: People who were not registered with a GP or those who did not have an NHS number found it difficult to book a vaccination. Some people had difficulties accessing the vaccination if the vaccination centre was far from their home and they could not afford the transport costs.

Risk of bias

Section	**Question**	**Answer**
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Yes
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Can't tell *(Limited information about recruitment strategy)*
Data collection	Was the data collected in a way that addressed the research issue?	Yes
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Can't tell
Data analysis	Was the data analysis sufficiently rigorous?	Yes
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research has some value
Overall risk of bias and relevance	Overall risk of bias	High *(Non peer-reviewed report. Limited information about recruitment methods and ethical considerations)*
Overall risk of bias and relevance	Relevance	Partially relevant *(Report is related to COVID-19*

Section	Question	Answer
		vaccinations and not UK routine vaccinations)

Sherman, 2021

Bibliographic Reference	Sherman S., Sim J., Cutts M., Dasch H., Amlôt R., Rubin G.J., Sevdalis N. SL; COVID-19 vaccination acceptability in the UK at the start of the vaccination programme: a nationally representative crosssectional survey (CoVAccS – wave 2); 2021 (Preprint)

Study Characteristics

Study type	Survey including open ended questions
Aim of study	To investigate associations between COVID-19 vaccination intention and sociodemographic, psychological, and contextual factors in a demographically representative sample of the UK adult population at the start of the COVID-19 vaccination programme rollout.
Study location	UK
Study setting	Community
Study dates	January 2021
Sources of funding	Keele University Faculty of Natural Sciences Research Development award, King's Together Rapid COVID-19 award, National Institute for Health Research Health Protection Research Unit, National Institute for Health Research (NIHR) Applied Research Collaboration, King's Health Partners, Guy's and St Thomas' Charity
Data collection	Quota sampling was used, based on age, sex, and ethnicity, to ensure that the sample was broadly representative of the UK general population. Participants were paid £2 for a completed survey.
Method and process of analysis	Participants were asked to report their age, gender, ethnicity, religion, highest educational or professional qualifications, current working situation, and total household income. People were asked what UK region they lived in, how many people lived in their household, whether they or someone else in their household had a long-standing illness, disability or infirmity and whether they had received a letter from the NHS recommending that they should shield against coronavirus, or whether they had a chronic illness that made them clinically vulnerable to serious illness from COVID-19. People were asked whether they or anyone they lived with were classified as obese or were pregnant, and if they were 'key workers'. People were asked on a scale of 1-5 how much of a risk they thought COVID-19 posed, whether they have or had COVID-19 and were asked about their attitudes towards the vaccine. An open ended question was included which asked people why they were or were not likely to have the vaccine. Open-ended responses were analysed using content analysis with an emergent coding approach. Two authors jointly coded a small sample of statements to understand the scope of the data and then independently coded sufficient responses that they achieved a run of 15 statements without

	encountering any new emerging codes. At this point they compared the codes they had generated and discussed any discrepancies. They then independently applied these codes to the rest of the sample of statements, after which they checked that they had applied the same codes across the statements and discussed and resolved any additional codes and any discrepancies. This process was first applied to those participants who were uncertain about whether they would have the vaccine, then to those who were unlikely to have it, and finally to those participants who were likely to have it.
Population and sample collection	1500 people (mean age 45.6 years). 51% were female and 85% were white ethnicity. Only 30 people had received one or both doses of the COVID-19 vaccine at the time of the survey.
Inclusion Criteria	Living in the UK Aged 18 years or over Had not completed a previous survey
Exclusion criteria	Did not meet quality control checks *No further information reported*
Relevant themes	3 relevant themes were identified: 1. Protection - People wanted to have the vaccine to protect themselves or others from COVID-19. 2. Harms and benefits - Some people were confident that the vaccine was effective while others were concerned about the timescales and the timing between doses, or potential side effects. Some also reported that they had a fear of needles. 3. Access - Some people said they did not have access to vaccines due to their visa status.
Additional information	Only the data from the open ended question about barriers and facilitators was relevant to this review.

Risk of bias

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Yes
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Yes
Data collection	Was the data collected in a way that addressed the research issue?	Yes

Section	Question	Answer
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Can't tell
Data analysis	Was the data analysis sufficiently rigorous?	Yes
Findings	Is there a clear statement of findings?	Yes
Research value	How valuable is the research?	The research has some value
Overall risk of bias and relevance	Overall risk of bias	High *(Methods appear low risk of bias but data is from a non peer-reviewed article)*
Overall risk of bias and relevance	Relevance	Highly relevant

Skirrow, 2021

Bibliographic Reference Helen Skirrow, Sara Barnett, Sadie Bell, Lucia Riaposova, Sandra Mounier-Jack BK&BH; Women's views on accepting COVID-19 vaccination during and after pregnancy, and for their babies: A multi-methods study in the UK; 2021 (Preprint)

Study Characteristics

Study type	Semi structured interviews Questionnaire including open ended questions
Aim of study	To investigate the views of pregnant women in the UK on the likely uptake of a future COVID-19 vaccine for themselves and their children
Study location	UK
Study setting	Community
Study dates	Questionnaires: August 2020 - October 2020 Interviews: December 2020
Sources of funding	Imperial College COVID-19 Research Fund, National Institute for Health Research, IMmunising PRegnant women and INfants neTwork, MRC, National Institute for Health Research Health Protection Research Unit in partnership with Public Health England
Data collection	A questionnaire and semi-structured interviews were used to quantify different views on accepting COVID-19 vaccines and to explore the reasons for these views in more depth. The survey was advertised and promoted using

	Facebook. Related organisations on Facebook were contacted individually by study researchers, including pregnancy yoga and birth preparation classes, breastfeeding support groups and toddler groups. The survey was shared and distributed via the research team's personal twitter accounts including linking to other researchers and organisations with maternal and vaccine uptake interests. The survey was also promoted via some Maternity Voices Partnerships, and via a post on the website Mumsnet. The survey was designed with input from midwives, pregnancy vaccine researchers, paediatricians and public health professionals and was based on previous research surveys on pregnancy vaccination and other surveys that had been used to assess COVID-19 vaccine views during the pandemic. This study reports one aspect of the survey - the acceptability of a 'future' COVID-19 vaccination. At the end of the online survey, participants were invited to take part in a follow-up interview by leaving their contact details; they were informed that by leaving their details, their responses would no longer be anonymous. Interview participants were purposively selected to prioritise respondents who; 1) were from ethnic minority backgrounds, due to lower representation among survey respondents; 2) were pregnant at the time of survey completion, due to their proximity to their pregnancy experience compared to those that had already had their babies at the time of survey completion; 3) had not completed the open text survey responses. Informed consent was obtained by telephone or e-mail, depending on participant preference. Interviews used a topic guide and were conducted over the telephone and/or using Microsoft Teams. The topic guide was developed based on the questionnaire.
Method and process of analysis	Free-text responses following the survey questions on COVID-19 vaccine acceptance were analysed thematically using the stages outlined by Braun and Clarke: data familiarisation, coding and theme identification and refinement. Coding approaches and subsequent theme generation and refinement was discussed between the investigators. Interviews were transcribed verbatim and analysed thematically following a similar approach as the free-text survey responses.
Population and sample collection	1181 women, 39% were aged 30-34 years, 92% were White British
Inclusion Criteria	Been pregnant at some point between the start of the UK 2020 lockdown (from 23rd March 2020) and the time of survey completion UK resident Aged 16 years or over
Exclusion criteria	None reported
Relevant themes	One relevant theme was identified: 1. Safety concerns - Some women were worried about the speed at which the vaccine had been developed. Others wanted more information about the potential impact on their baby: "I'd want reassurance that there was absolute confidence that there were no harmful long-term effects on my baby or no chance of it causing any harm in utero"

	2. Trust - Women had trust in the NHS and would accept vaccination if their GP or midwife recommended it. However, some women reported less trust in the pharmaceuticals industry: “I also understand that vaccinations for pregnant women and young babies would not be offered on the NHS if they weren’t safe. So, if they were being offered on the NHS then yes, I would have them."

Risk of bias

Section	Question	Answer
Aims of the research	Was there a clear statement of the aims of the research?	Yes
Appropriateness of methodology	Is a qualitative methodology appropriate?	Yes
Research Design	Was the research design appropriate to address the aims of the research?	Yes
Recruitment Strategy	Was the recruitment strategy appropriate to the aims of the research?	Yes *(Strategy seems generally appropriate but may not have targeted all groups - participants were predominantly White British. Only 10 questionnaire participants were interviewed and 9 of these had accepted Tdap vaccination in pregnancy)*
Data collection	Was the data collected in a way that addressed the research issue?	Yes
Researcher and participant relationship	Has the relationship between researcher and participants been adequately considered?	Can't tell
Ethical Issues	Have ethical issues been taken into consideration?	Yes
Data analysis	Was the data analysis sufficiently rigorous?	Yes
Findings	Is there a clear statement of findings?	Yes

Section	Question	Answer
Research value	How valuable is the research?	The research has some value
Overall risk of bias and relevance	Overall risk of bias	High *(Recruitment strategy resulted in predominantly White British views. Article was pre-print and not yet peer-reviewed.)*
Overall risk of bias and relevance	Relevance	Partially relevant *(Views were specifically about COVID-19 vaccination and not routine vaccinations. The study took place before the COVID-19 vaccination was introduced)*

Appendix D – GRADE-CerQual tables

Barriers and facilitators for COVID-19 vaccinations

Table 6 New themes identified from the COVID-19 call for evidence

Studies	Population	Finding	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Access							
1 (Knights 2021)	Refugees, asylum seekers and undocumented migrants	Digitalisation of services can reduce some people's access to services but may make communication with healthcare practitioners easier for others. Online services can restrict some people's ability to register with a GP or fill in forms. However, there are some benefits as a person could use an online translation service to clarify what they want to say	Not serious	Moderate[3]	High	Low[2]	Very low
1 (Knights 2021)	Refugees, asylum seekers and undocumented migrants	Virtual appointments can raise issues of confidentiality if people are sharing a room or computer.	Not serious	Moderate[3]	High	Low[2]	Very low
2 (Public Health England 2021, Deal 2021)	Refugees, asylum seekers and undocumented migrants London-based vaccination	Using sites such as town halls, places of worship, food banks and supermarkets may help to increase access to vaccination.	Not serious[1]	Moderate[3]	High	Low[2]	Very low
1 (Deal 2021)	Refugees, asylum seekers and	People are concerned about immigration checks when accessing vaccines and would like information about vaccinations to provide reassurance that documentation won't be	Not serious	Moderate[3]	High	Low[2]	Very low

Studies	Population	Finding	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	undocumented migrants	required. People would prefer vaccinations to be given at a walk-in centre or charity that is more anonymous than a GP practice					

1. Outcome from 2 studies, 1 of which is at high risk of bias, but the other at low risk of bias. Quality of the outcome not downgraded.
2. Outcome from small number of studies with thin findings. Quality of the outcome downgraded twice.
3. Outcome from studies which are partially applicable to the research question. Quality of the outcome downgraded once.

Appendix E – Excluded studies

Clinical and qualitative studies

Study	Reason for exclusion
Royal College of Midwives	
Information about a COVID-19 educational video	- Provides information about the video but does not include any of the quantitative outcomes specified in the protocol.
British Islamic Medical Association	
The Community Opinions on Vaccine Issues and Decisions (COVID) Survey: Using a rapid Knowledge, Attitude and Practice (KAP) survey in supporting a community engagement approach to address COVID-19 vaccine uptake initiatives	- Results from a survey that does not include qualitative evidence about barriers and facilitators or any of the quantitative outcomes specified in the protocol.
Royal College of Nursing	
Anecdotal experience	- Anecdotal evidence. The design was not one of those specified in the review protocol.
Migrant Health Research	
What must be done to tackle vaccine hesitancy and barriers to COVID-19 vaccination in migrants? (Crawshaw 2021)	- Report about vaccination programmes that does not include qualitative evidence about barriers and facilitators or any of the quantitative outcomes specified in the protocol.
Healthwatch Rotherham	
Information about Covid Myth Busting Sessions	- Initial information about this engagement work that does not include qualitative evidence about barriers and facilitators or any of the quantitative outcomes specified in the protocol.
National Pharmacy Association	
Information about pharmacy-based COVID-19 vaccination programmes	- A case study of COVID-19 vaccination programmes. The study design was not one of those specified in the review protocol.
Merck Sharp & Dohme (UK) Limited	

Study	Reason for exclusion
Patten D. (2021). Covid-19: Use social media to maximise vaccine confidence and uptake. BMJ, 372, n225	- A letter to a journal. The study design was not one of those specified in the review protocol.
Robertson E. (2021). Predictors of COVID-19 vaccine hesitancy in the UK household longitudinal study	- Paper which addresses vaccine hesitancy but does not include qualitative evidence about barriers and facilitators.
Bachtiger P. (2021). The Impact of the COVID-19 Pandemic on the Uptake of Influenza Vaccine: UK-Wide Observational Study	- Paper does not include information about the COVID-19 vaccine (reports effects on influenza vaccine uptake during the COVID-19 pandemic).
French J. (2020). Key Guidelines in Developing a Pre-Emptive COVID-19 Vaccination Uptake Promotion Strategy	- Paper reports guidelines for promoting COVID-19 vaccinations but the study design was not one of those specified in the review protocol and the paper does not contain the outcomes stated in the protocol.
Hertfordshire Behaviour Change Unit. COVID-19 Vaccination: Reducing vaccine hesitancy Review & Recommendations	- Duplicate of Hertfordshire CC Behaviour Change Unit submission (see below).
Dib F. (2021). Online mis/disinformation and vaccine hesitancy in the era of COVID-19: Why we need an eHealth literacy revolution	- Study design was not one of those specified in the review protocol.
International Longevity Centre UK (ILC). Safeguarding healthy ageing – Potential solutions to improve immunisation coverage rates among older adults in the UK	- Report on potential ways to increase vaccine uptake. Study design was not one of those specified in the review protocol.
Gov.uk. Charities join together to support COVID vaccination coverage in at-risk or key communities	- Press release. Study design was not one of those specified in the review protocol.
NHS Digital. COVID-19 vaccination record queries	- Guidance for vaccination centres. Study design was not one of those specified in the review protocol.
Balzarini F. (2020). Does the use of personal electronic health records increase vaccine uptake? A systematic review	- Systematic review of interventions to increase vaccine uptake. Review does not include information about the COVID-19 vaccine.
McDonald H. (2020). Early impact of the coronavirus disease (COVID-19) pandemic and physical distancing measures on routine childhood vaccinations in England	- Report on the impact of the COVID-19 pandemic on childhood vaccine uptake. Report does not include information about the COVID-19 vaccine.

Study	Reason for exclusion
Public Health England. Guidance on sending screening text message reminders now available - PHE Screening	- Guidance on text message reminders which does not include information about the COVID-19 vaccine.
Frascella, B. (2020). Effectiveness of email-based reminders to increase vaccine uptake: a systematic review.	- Review on the effectiveness of email-based reminders which does not include information about the COVID-19 vaccine.
Venkatesh A. (2020) Efficacy of text message intervention for increasing MMR uptake in light of the recent loss of UK's measles-free status.	- Letter to a journal which does not include information about the COVID-19 vaccine.
Public Health Scotland	
Evaluation of the COVID-19 programme in Scotland	- Relevant quantitative research questions but outcomes are not yet available.
Public Health England	
Briefing on COVID-19 vaccination uptake and equity	- Briefing paper about barriers and facilitators to COVID-19 vaccination. The study design was not one of those specified in the review protocol.
Hertfordshire CC Behaviour Change Unit	
COVID-19 Vaccination: Reducing vaccine hesitancy Review & Recommendations	- A report about COVID-19 vaccination hesitancy. The study design was not one of those specified in the review protocol.
Royal College of General Practitioners	
Increasing COVID-19 vaccination rates amongst vulnerable groups: summary advice for GPs	- A summary of local initiatives to promote COVID-19 vaccination in vulnerable groups. The report did not include any of the outcomes specified in the protocol.
NHS Devon CCG	
Understanding perceptions and support needs for the COVID-19 Vaccination. Engagement and insight highlight report	- A review of people's perceptions of the COVID-19 vaccination but no specific barriers and facilitators reported.
British HIV Association	
British HIV Association Guidelines on Immunisation for Adults with HIV:SARS-CoV-2 (COVID-19) 2021	- Guidelines on the use of SARS-CoV-2 vaccine in people with HIV. The study design

Study	Reason for exclusion
	was not one of those specified in the review protocol.
NHS Calderdale CCG	
Calderdale CCG COVID vaccination programme	- A case study of a COVID-19 vaccination programme. The qualitative information provided came from a mixture of sources including surveys (not on the list of included study types) and the results were not presented separately. The quantitative information about vaccine uptake lacked a comparator group to enable evaluation of the effectiveness of the interventions.
Frimley CCG	
Information about Frimley CCG Covid-19 webinar information sessions	- Information about pharmacist-delivered COVID-19 information sessions. This did not include any of the outcomes specified in the protocol.
ILC-UK	
Qualitative research on barriers and facilitators to increasing immunisation uptake rates among older adults in the UK in the context of the COVID-19 pandemic	- Relevant qualitative research questions but outcomes are not yet available.
Increasing adult vaccination across UK adults with underlying health conditions which place them “at-risk”	- Report and toolkit which is not yet published and does not include information about the COVID-19 vaccine.

Appendix F –Acknowledgements

COVID-19 call for evidence

We would like to thank everyone who responded to the COVID-19 call for evidence, even if we were unable to use their submission at this time.

Peer review of the guideline

Prior to consultation, the draft guideline was peer reviewed by 2 health visitors and 2 practice managers. This approach was taken because we were unable to recruit a health visitor or practice manager to be part of the committee but input from people carrying out these roles was considered to be essential to ensuring that the guideline was implementable.

We would therefore like to thank the following people for their helpful comments:

Health visitors

Sarah Stevenson and Rachel Costis

Practice managers

Paul Ansbro and Karen Cakmak