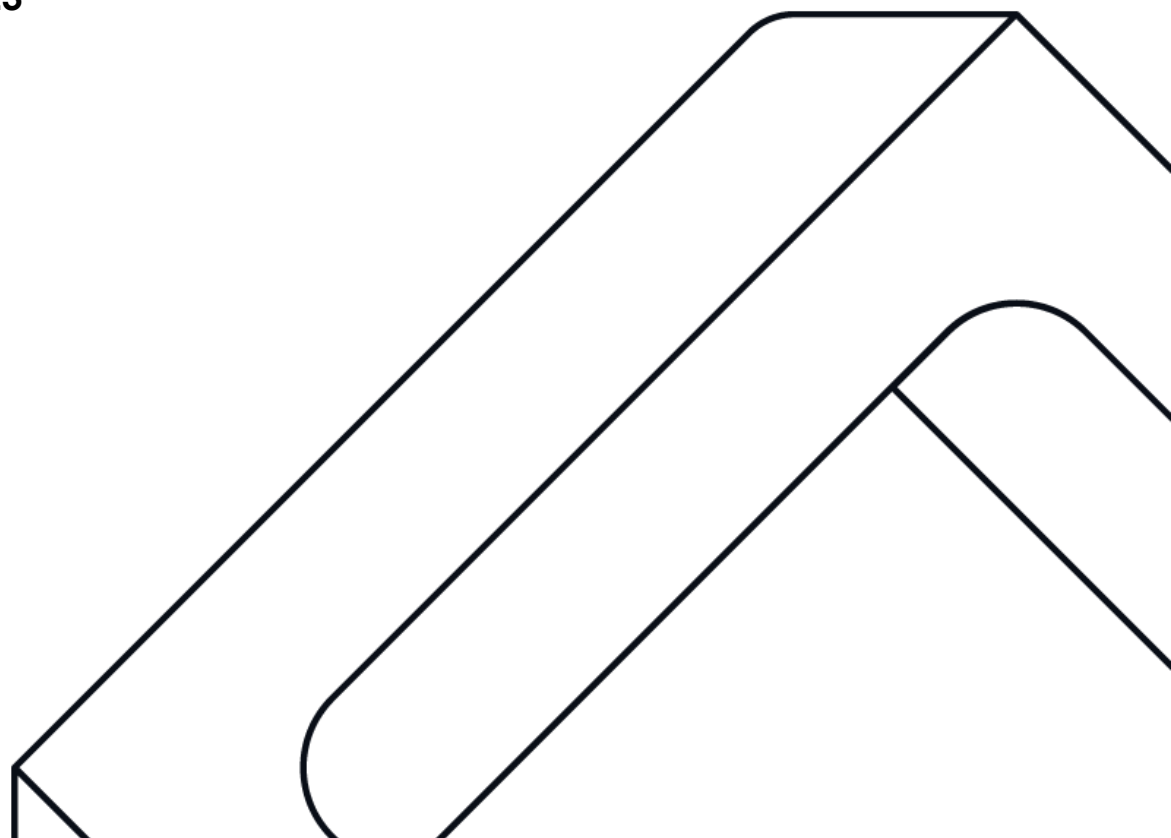
Appendix 2: Air quality qualitative research panel

– Wave 2

December 2023

Version: 1



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1. Topic guide A

Qualitative Research Panel for Air Quality Information System Review – Wave 2

<u>General Population</u> Focus Group – discussion guide

Background

Defra and UKHSA have established the Air Quality Information System (AQIS) review to improve the quality and provision of air quality information to the public. The AQIS review is guided by a multi-disciplinary steering group and is intended to inform the development of communications that will help at-risk groups and the wider population to change their behaviours and reduce their exposure and contribution to air pollution.

The steering group has suggested that communications approaches should be developed in collaboration with members of the public, with insights and materials to test evolving throughout 2023 as the review progresses.

To this end, a qualitative panel has been set up that will take place over three waves of activity in 2023.

The panel is intended to deliver three overarching objectives:

- To gain deeper understanding of the knowledge, attitudes and behaviours of the general population and at-risk groups, with regard to air pollution (avoiding it, and reducing contributions to it)
- To elicit insight into the barriers and facilitators that influence desired behaviours, and other factors relating to communications that seek to change behaviours
- To facilitate co-design communications approaches, taking into account the understanding and insights generated earlier in the project

Wave 2

Wave 2 will be used to explore two main themes:

- Encouraging behaviour change
- Communicating risk

Based on these themes, four high-level research questions will focus on:

Encouraging behaviour change:

- How can air quality information support people to take actions to reduce their personal contribution the air pollution?

- How can air quality information support people to take actions to protect their health from the effects of air pollution?

Communicating risk:

- How does the choice of colour used in air quality risk communication impact how people understand/ interpret the message being conveyed?
- How does the choice of language used in air quality risk communication impact how people understand/ interpret the message being conveyed?

These questions will be explored across:

- Online group discussions
- An online post-task

This document details the planned approach to the online group discussions for the general population.

Discussion guide structure (90 minutes total)

Section	Aim	Time
1. Introduction	Remind about research; reassure about confidentiality; set tone of discussion; reconnect with group. **RECORD**	2 mins (5)
2. Warm up	Warm up participants; find out how they have been since Wave 1, whether air quality has been more top of mind	8 mins (10)
3. Reducing contributions and exposure to air pollution	Explore personal air polluting behaviours • Discuss Defra short-term action lists • **Stim 1a**: Personal air polluting behaviours list o Attitudes and motivations towards actions o Agency and skills o Preferences for actions Explore reducing exposure to air pollution • **Stim 1b:** Reducing exposure to air pollution list o Perceived agency o Facilitators and barriers o Attitudes and motivations o Preferences for actions	25 mins (35)
4. Role of the social realm in facilitating behaviour change	• Discuss role for Defra/government/devolved/local government	10 mins (45)

	• Understand what organisations Defra should be working with and how	

5. Impact of different elements of risk communication on understanding/ interpretation of messages	**Stim 2:** Recommended actions and health advice
	• Usefulness of information
	• Conveying risk
	  o Alternative terms
	  o Consequences of 'at risk of air pollution' term
	  o Colour coding
	  o Language choices
		20 mins (65)

6. Daily Air Quality Index advice	Explain Defra's proposed approach to delivering tailored air quality information • Explore overall views to this approach • **Stim 2:** Recommended actions and health advice • Understanding of terms • Responses to advice	15 mins (80)
7. Final comments & wrap up	Summary, reminder of next steps and close session	10 mins (90)

Stimulus:

PowerPoint slides showing:

- **Stim 1a:** Actions to reduce personal contribution to air pollution
- **Stim 1b:** Behaviour changing actions: reducing exposure to air pollution
- **Stim 2:** Recommended actions and health advice

The final slide Stim 3 is only needed for the respiratory group in this Wave.

Please note, this guide is not a script and is intended to be used flexibly, with participant responses guiding the flow of the conversation, topics covered in the order that they naturally arise, and probes used only when needed.

1. Introduction (2 mins)

AIM: Remind about research; reassure about confidentiality; set tone of discussion; reconnect with group.

Research introduction

- Remind who you and Kantar (Public Division) are – an independent social research agency
- Kantar is conducting this research on behalf of Defra to help Defra decide how best to inform the public about air quality
- The purpose of the research is to understand your perspectives on air quality and your information needs
- Group length – 90 minutes
- Participation is voluntary and confidential – no quotes or details will be attributed to named individuals or to any business you have worked for
- Kantar's privacy policy can be accessed on the website: https://www.kantar.com/uki/surveys
- Reassurances – there are no right or wrong answers, we are seeking different views and perspectives
- Thank you for continued involved in the project
- Remind that the discussion will be video recorded

House rules

- We ask that you switch your phones off/on silent and do not use them during the session
- We expect to hear from everyone during today's discussion, so please do listen and respond to what others say
- Try to avoid interrupting or speaking over each other to ensure everyone can be heard; please respect people's answers
- We know there is a lot to say on this topic, but we only have a limited amount of time so we may need to move on the conversation to ensure we stay on time and on topic
- What you say today will not be shared with or viewed by anyone outside of the research team at Kantar Public
- This is a safe space – can we please agree amongst ourselves now that everything that is discussed in this room remains confidential and is not shared or discussed outside of this group today
- Remind participation is voluntary and confidential and if there is a question you do not want to answer, for whatever reason, that is OK
- Any questions/concerns

Recording

- Ask participants for permission to record: recording is purely so as not to miss any comments and help with note taking and the recording may be shared with other members of the Kantar Public research team – but will not be shared any further than this
- Start recording and confirm consent on recording

2. Warm up (8 mins)

AIM: Warm up participants; reintroduce themselves, find out how they have been since Wave 1, whether air quality has been more top of mind

Participant introduction

Each participant to re-introduce themselves to the group:

- Name, where you live and who you live with
- Whether air quality/pollution has been more top of mind, if so, in what ways

3. Reducing contributions/exposure to air pollution (25 mins)

AIM: Actions to reduce contributions and exposure to air pollution

<u>Reducing contributions to air pollution</u>

Moderator: Aim to understand participants' current behaviours that may contribute to air pollution

Personal air polluting behaviours

- Thinking about an average week, what kind of activities or actions do you, and people you live with, do that you feel may contribute towards air pollution
- And how do these activities/actions contribute towards air pollution
- Which ones do you feel contribute the most to air pollution
- And are there any behaviours/activities that are more common at certain times of the year
    - PROMPT: Seasonal activities such as wood burning in winter, increased car use when cold/wet, BBQs/burning garden waste in summer months, flying for holidays
- Are there any actions you take regularly to try to reduce your personal contribution to air pollution
    - PROBE: ascertain main drivers of this i.e. air pollution or other factor/s
- Do you encourage others you know or live with to reduce any of their air polluting behaviours; if so how do you go about this

    - And how do they respond to this
- What impact to you feel these actions have on local/national/global air quality

Moderator: Share screen and show Stim 1a: Reducing personal contribution to air pollution

Explain to participants this is a list of short-term actions that Defra might like to encourage people to adopt to reduce their personal contribution to air pollution. If asked, explain this is not a full list of actions and these actions have been selected to prompt for this research

Highlight any behaviours/actions that may not have been mentioned before

- What are your immediate thoughts about this list of actions
- What about the behaviours/actions not mentioned before by participants
- And what about action/behaviours mentioned by participants but that are not on the Defra list. Do they think Defra should be considering these, why

Attitudes and motivations towards actions

- Looking at the list, what impact do you feel these actions will have on air pollution levels
- And at what scale
- In general, do you think these are the types of things we should all be doing to improve air quality: why, why not
- Do you think you and others have a responsibility to try to reduce your contribution to air pollution through actions like these: why, why not
- To what extent do you feel any sense of social responsibility to reduce any polluting behaviours, i.e. to help vulnerable people like younger or older people, people with lung conditions
- To what extent do you feel a sense of environmental responsibility: if so, in what ways
- To what extent do you feel the benefits of these actions on air quality outweigh any potential inconvenience, cost or effort to implement
- And to what extent do you feel personally that you want to do these kind of activities: why, why not

Agency and skills

- Which actions would you say are most relevant to you, and your circumstances; why
- And the least relevant; why
- Which are more realistic or achievable; why
- And the least realistic; why

- To what extent do you feel you have any real choice in trying to make these changes; why, why not
- Is there anything stopping you from taking any of these actions
    - Which ones, and why
- Do you feel you need to know more about why these actions are important; if so, what would you want to know
- And do you think you understand enough about how to go about implementing these actions
    - What would be useful to help you put these into action
- Are there any other things that may stop you from trying to implement some of these actions
    - PROMPT: lack of skills, time; habit; cost; inconvenience
- Is there anything that needs to change to make it more likely for you to adopt these behaviours/actions into your everyday life
    - PROMPT: more people around them doing similar actions, more support, better infrastructure, more information
- What role, if any, do you feel other people or organisations have in helping people or communities to adopt these behaviours
    - PROMPT: local/national decision-makers, health service, other support services

Identify preferences for actions

- In general, which activities would you be more likely to try to implement in the short-term
- And in the long-term
- If we asked you to try to adopt a behaviour this week, which one do you feel would be most doable, or you would you like to try out and why

Moderator: Ask participants to type their preference in the chat

<u>Reducing exposure to air pollution</u>

Moderator: Explain that now we want to think about reducing your own exposure to air pollution, so trying to minimise any risks to your health and wellbeing

- Are there any steps that you take on a regular basis to reduce or limit the effect air pollution might have on you
- Does reducing exposure to air pollution feel relevant to you
- And on people you live with/care for
- Do you find these actions easy or difficult to do; why is that
- And do you feel these actions make a difference
    - If so, in what ways

- Are there any examples where you have really noticed a difference

Moderator: Show Stim 1b: Reducing exposure to air pollution
Explain to participants this is a list of short-term actions that Defra might like to advise people to consider to reduce their exposure to air pollution
Highlight any actions that may not have been mentioned before

- What are your immediate thoughts about this list of actions
- What about the behaviours/actions not mentioned before by participants
- And what about action/behaviours mentioned by participants but that are not on the Defra list. Do they think Defra should be considering these, why

Perceived agency

- Looking at the list, which actions would you say are most relevant to you, and your own circumstances; why is that
- And which ones are the least relevant; why
- Which are more realistic or easier to do; why
- And less realistic or more difficult; why
- To what extent do you feel you have any real choice in trying to make these changes; why, why not

Facilitators and barriers

- To what extent do you feel you need to know more about why these actions are important, before implementing them – what else would you need to understand
- Is there anything else stopping you from taking any of these actions
    - PROMPT: lack of skills, time; habit; cost; inconvenience
- Is there anything that needs to change to make it more likely for you to adopt these behaviours/actions into your everyday life
    - PROMPT: more people around them doing similar actions, more support, better infrastructure
- Do you feel there is a role for other people or organisations in helping people or communities to adopt these behaviours
    - PROMPT: local/national decision-makers, health service, other support services

Attitudes and motivations towards actions

- Looking at the list, what impact do you feel these actions would have on your health and wellbeing
- And on others you may care for, or know

- In general, to what extent do you think these are the types of things people should be doing to limit the potential effects of poor air quality; why so
- And to what extent do you feel you would really want to make such changes in your day-to-day life; why so
- To what extent do you feel the potential benefits on your health and wellbeing of performing these activities would outweigh any potential inconvenience, cost or effort to implement them regularly

Identify preferences for actions

- In general, which activities would you say you would be more likely to try to implement in the short-term
- And in the long-term
- If we asked you to try to adopt a behaviour this week, which one do you feel would be most doable or would you like to try out

Moderator: Ask participants to type their preference in the chat

4. Role of the social realm (10 mins)

AIM: Explore what needs to change at a societal level for more people to reduce their air polluting behaviours

Moderator: We now want to discuss in more detail what else needs to change for more people to reduce their air polluting behaviours. Defra is the Department for Environment, Food and Rural Affairs. It is the government department responsible for improving and protecting the environment as well as growing the green economy, sustaining thriving rural communities and supporting our food, farming and fishing industries. Its Air Quality Team is responsible for delivering the Government's Clean Air Strategy and aims to make our air purer by driving down air pollutions as well as supporting local authorities to deliver improvements

- What role do you feel Defra or government has in supporting people to reduce individuals' contribution to air pollution
- And specifically, what should Defra/the government be doing
    - Moderator: after spontaneous response, probe around rules/regulations, education, infrastructure, technologies
- Which organisations should Defra/government be working with to help and support people to adapt their behaviours to improve air quality
- What roles do these organisations have in influencing people's behaviours
    - PROBE: Ascertain importance of perceived joint effort or of others leading by example
- And in what ways should they be working together

5. Impact of different elements of risk communication (20 mins)

AIM: To explore the impact of different elements of risk communications on understanding and interpretation of messages

Moderator: Share screen and show Stim 2: Recommended Actions and Health Advice

Explain this is the current Recommended Actions and Health Advice in England that aims to support people to make decisions based on air quality

Usefulness of information

- Looking at this table, what are your first impressions of this information
- Can you explain what it is telling you
- How would you go about finding this information if you knew it existed – where would you expect to find it
- How would you go about reading and interpreting this information (probing which column they would look at)
- Overall, how easy is it to understand the advice and to what extent is it helpful and relevant to you
- Is there any information that you feel is missing that would help you to better understand it (including which column is most relevant to you)
    - **Moderator: note that we will be discussing later the actual content of the advice – at this point I want to understand which advice is relevant to you at the moment**
- Could anything be changed, i.e. how the information looks or is presented, to make it easier to understand
    - **Moderator: listen out for any suggestions about finding personalised advice i.e. receiving tailored advice to individual circumstances (as discussed in section 6)**

Conveying risk

Moderator: Explain that we now want to look at some of the language used in a bit more detail

- What do you feel about the term 'at-risk individuals' that is used in the table
- What does this mean to you and who would you associate with this term and why
- To what extent does the way 'at-risk' is described vary from your assumptions at all; if so, how
- Would you say you like this term; why is that
- Can you think of any alternative terms that may better describe the groups of people referred to in the advice

Alternative terms

Moderator: Explain that other countries use different terms to convey 'at-risk' to air pollution including 'sensitive', 'vulnerable' and 'susceptible' to air pollution. Taking each term in turn:

- What does this mean to you
- What associations does it have for you
- How does it differ, if at all, from the term 'at-risk'
- Thinking about the four terms, do you have an overall preference at all and why is this

Consequences of using term 'at-risk individuals'

- Do you think it is useful or important to have two categories in the health and advice information (i.e. 'at risk' and 'general population')
- Are there any benefits of this
- And are there any potential negative consequences or dangers of having two categories
    - PROMPT: downplaying longer-term risk, affecting perceived relevance of advice

Colour coding

Moderator: Explain that very quickly we want to gather thoughts on colour coding of information

If time is short, de-prioritise the following three questions

- Thinking about colour coding of information into red, amber and green categories (as on stim 2), how useful is that for reading and understanding this information
- How would they feel about the colour being gradients of all one colour (e.g. brown), rather than red, amber, green and why
- To what extent does there need to be further information (e.g. numbers or initials) to help support colour coding

Explain that there will be some online tasks that explore this in more detail.

6. Daily Air Quality Index Advice(15 mins)

AIM: Explore responses to advice

Moderator: explain that we now know that there are other factors that can make some people more at risk from air pollution. People with heart and lung problems and being pregnant, overweight, older or diabetic can increase an individual's risk, as well as living in an area of high pollution. With this in mind, Defra would like

to understand whether you would be interested in registering and sharing information about yourself so that you can receive tailored advice about your own risk

- What are your overall thoughts about this approach
- Does this appeal to you, or not; why so
- What do you feel the benefits of this would be
- And any downsides
- What types of information do you feel you would need to share so as to receive tailored information
    - Elicit spontaneous responses first and then PROBE: address/area where you live, profession, asthma status, respiratory status, diabetes, pregnancy, age, obesity
- Do you have any thoughts about sharing this type of information
- Why might people not want to share such information
- Personally, would you say you would be happy to share this type of information about yourself or people you care for; why is that
- And how would you prefer to provide this information and any tailored advice, i.e. on a website, on an app, or some other way

Moderator: Share screen and show Stim 2 again

Explain that we would now like to look at the recommended actions and health advice again. There is advice to reduce and consider reducing 'activity', 'strenuous physical activity' and 'physical exertion' depending on the level of air pollutions and individuals' risk levels

Understanding of terms

- Within the context of reducing exposure to air pollution, what do you think these terms refer to:
    - Activity
    - Strenuous physical activity
    - Physical exertion
- Can you give examples of what you would do yourself to reduce each of these
- Is there anything that you find confusing about these terms
- Can you think of any ways to improve or make this advice clearer

Responses to advice

Looking at the advice as a whole:

- Do you feel this advice is relevant to you; if so, in what ways
- And if it is not relevant, why do you say that

- How easy do you think it is to action this advice
- Can you talk me through what you would actually do to implement it
- Can you think of any potential barriers to any of these actions
- Or any negative consequences of carrying these out
    - **Moderator: listen out for any reference to avoiding exercise, anxiety around exercise, wider mental or physical health implications**
- Do you think you have enough information to understand why these actions are important and the differences they could make; if not, what would you like to know more about

7. Wrap up (10 mins)

AIM: Summary, reminder of next steps and close session

Final comments

- Does anyone have anything else they would like to add, which they haven't had the chance to say today

Next steps

- The online task for this wave, starts next week (Monday 26 June). The focus of this activity will be to try to implement an action over the week and report back on your experiences of doing this. We will assign you a task (either to try to reduce your personal contribution to air quality or to reduce your exposure to air quality) based on our discussion in today's session. We will ask you to log on to the online platform on Monday and complete the initial questions about your actions. We will then ask you to try and perform this action over the next few days. Afterwards, we would like you to come back to the online platform and tell us about how you found implementing the action. If you are happy to do so, we would like you to upload short videos, photos and/or audio description of you doing the action or any barriers you encounter on the way. However, this is not essential. There will also be some questions to tell us about how it went. You will need to complete these questions and upload any content by Friday 30 June.
- Any initial thoughts or questions about this?

Payments

- Incentive payment for focus group (£50 – transferred within 10 days)
- Incentive payment for the Recollective task (£30) – transferred within 10 days of the end of the task

Thank and close

SYSTEM CERTIFICATION
ISO 9001
SGS
UKAS
MANAGEMENT
SYSTEMS
0005
PRODUCT CERTIFICATION
ISO 20252
SGS
UKAS
PRODUCT
CERTIFICATION
0005
SYSTEM CERTIFICATION
ISO 27001
SGS
UKAS
MANAGEMENT
SYSTEMS
0005

2. Topic guide B

Qualitative Research Panel for Air Quality Information System Review – Wave 2

'At risk' Groups – discussion guide

Background

Defra and UKHSA have established the Air Quality Information System (AQIS) review to improve the quality and provision of air quality information to the public. The AQIS review is guided by a multi-disciplinary steering group and is intended to inform the development of communications that will help at-risk groups and the wider population to change their behaviours and reduce their exposure and contribution to air pollution.

The steering group has suggested that communications approaches should be developed in collaboration with members of the public, with insights and materials to test evolving throughout 2023 as the review progresses.

To this end, a qualitative panel has been set up that will take place over three waves of activity in 2023.

The panel is intended to deliver three overarching objectives:

- To gain deeper understanding of the knowledge, attitudes and behaviours of the general population and at-risk groups, with regard to air pollution (avoiding it, and reducing contributions to it)
- To elicit insight into the barriers and facilitators that influence desired behaviours, and other factors relating to communications that seek to change behaviours
- To facilitate co-design communications approaches, taking into account the understanding and insights generated earlier in the project

Wave 2

Wave 2 will be used to explore two main themes:

- Encouraging behaviour change
- Communicating risk

Based on these themes, four high-level research questions will focus on:

Encouraging behaviour change:

- How can air quality information support people to take actions to reduce their personal contribution the air pollution?
- How can air quality information support people to take actions to protect their health from the effects of air pollution?

Communicating risk:

- How does the choice of colour used in air quality risk communication impact how people understand/ interpret the message being conveyed?
- How does the choice of language used in air quality risk communication impact how people understand/ interpret the message being conveyed?

These questions will be explored across:

- Online group discussions
- An online post-task

This document details the planned approach to the online group discussion for the 'at risk' groups.

Discussion guide structure (90 minutes total)

Section	Aim	Time
8. Introduction	Remind about research; reassure about confidentiality; set tone of discussion; reconnect with group. **RECORD**	2 mins (5)
9. Warm up	Warm up participants; find out how they have been since Wave 1, whether air quality has been more top of mind	8 mins (10)

10. Reducing contributions and exposure to air pollution	Explore personal air polluting behaviours
	• Discuss Defra short-term action lists
	• **Stim 1a**: Personal air polluting behaviours list
	  o Attitudes and motivations towards actions
	  o Agency and skills
	  o Preferences for actions
	Explore reducing exposure to air pollution
	• **Stim 1b:** Reducing exposure to air pollution list
	  o Perceived agency
	  o Facilitators and barriers
	  o Attitudes and motivations
	  o Preferences for actions
		25 mins
		(35)
		For respiratory group:
		20 mins
		(30)

11. Protecting from effects of air quality	Discuss experiences of reported symptoms from air pollution exposure • Sharing experiences • Actions and driver to mitigate risk	10 mins (45) For respiratory group: 5 mins (35)
12. Impact of different elements	**Stim 2:** Recommended Actions and Health Advice	20 mins (65)

of risk communication on understanding/ interpretation of messages	• Usefulness of information
	• Conveying risk
	  o Alternative terms
	  o Consequences of 'at risk of air pollution' term
	  o Colour coding
	  o Language use
		For respiratory group:
		15 mins
		(50)

13. Daily Air Quality Index advice	Explain Defra's possible approach to delivering tailored air quality information • Explore overall views to this approach • **Stim 2:** Recommended Actions and Health Advice • Understanding of terms • Responses to advice	15 mins (80) For respiratory group: 15 mins (65)
14. FOR RESPIRATORY GROUP ONLY: Test draft advice for people with asthma	Stim 3: Recommended action and advice for people with asthma • Overall responses • Comparison to existing advice (Stim 2) • Implementation of advice	15 mins (80)
15. Final comments & wrap up	Summary, reminder of next steps and close session	10 mins (90)

Stimulus:

PowerPoint slides showing:

- **Stim 1a:** Actions to reduce personal contribution to air pollution
- **Stim 1b:** Behaviour changing actions: reducing exposure to air pollution
- **Stim 2:** Recommended actions and health advice
- **(Respiratory group only) Stim 3:** Recommended action and health advice for people with asthma

Please note, this guide is not a script and is intended to be used flexibly, with participant responses guiding the flow of the conversation, topics covered in the order that they naturally arise, and probes used only when needed.

1. Introduction (5 mins)

AIM: Remind about research; reassure about confidentiality; set tone of discussion; reconnect with group

Research introduction

- Remind who you and Kantar (Public Division) are – an independent social research agency
- Kantar is conducting this research on behalf of Defra to help Defra decide how best to inform the public about air quality
- The purpose of the research is to understand your perspectives on air quality and your information needs
- Group length – 90 minutes
- Participation is voluntary and confidential – no quotes or details will be attributed to named individuals or to any business you have worked for
- Kantar's privacy policy can be accessed on the website: https://www.kantar.com/uki/surveys
- Reassurances – there are no right or wrong answers, we are seeking different views and perspectives
- Thank you for continued involved in the project
- Remind that the discussion will be video recorded

House rules

- We ask that you switch your phones off/on silent and do not use them during the session
- We expect to hear from everyone during today's discussion, so please do listen and respond to what others say
- Try to avoid interrupting or speaking over each other to ensure everyone can be heard; please respect people's answers
- We know there is a lot to say on this topic, but we only have a limited amount of time so we may need to move on the conversation to ensure we stay on time and on topic
- What you say today will not be shared with or viewed by anyone outside of the research team at Kantar Public
- This is a safe space – can we please agree amongst ourselves now that everything that is discussed in this room remains confidential and is not shared or discussed outside of this group today
- Remind participation is voluntary and confidential and if there is a question you do not want to answer, for whatever reason, that is OK
- Any questions/concerns

Recording

- Ask participants for permission to record: recording is purely so as not to miss any comments and help with note taking and the recording may be shared with other members of the Kantar Public research team – but will not be shared any further than this
- Start recording and confirm consent on recording

2. Warm up (8 mins)

AIM: Warm up participants; reintroduce themselves, find out how they have been since Wave 1, whether air quality has been more top of mind

Participant introduction

Each participant to re-introduce themselves to the group:

- Name, where you live and who you live with
- Whether air quality/pollution has been more top of mind, if so, in what ways

3. Reducing contributions/exposure to air pollution (20-25 mins)

AIM: Actions to reduce contributions and exposure to air pollution

<u>Reducing contributions to air pollution</u>

Moderator: Aim to understand participants' current behaviours that may contribute to air pollution

Personal air polluting behaviours

- Thinking about an average week, what kind of activities or actions do you, and people you live with, do that you feel may contribute towards air pollution
- And how do these activities/actions contribute towards air pollution
- Which ones do you feel contribute the most to air pollution
- And are there any behaviours/activities that are more common at certain times of the year
    - PROMPT: Seasonal activities such as wood burning in winter, increased car use when cold/wet, BBQs/burning garden waste in summer months, flying for holidays
- Are there any actions you take regularly to try to reduce your personal contribution to air pollution
    - PROBE: ascertain main drivers of this i.e. air pollution or other factor/s
- Do you encourage others you know or live with to reduce any of their air polluting behaviours; if so, how do you go about this

    - And how do they respond to this
- What impact to you feel these actions have on local/national/global air quality

Moderator: Share screen and show Stim 1a: Reducing personal contribution to air pollution

Explain to participants this is a list of short-term actions that Defra might like to encourage people to adopt to reduce their personal contribution to air pollution. If asked, explain this is not a full list of actions and these actions have been selected to prompt for this research

Highlight any behaviours/actions that may not have been mentioned before

- What are your immediate thoughts about this list of actions
- What about the behaviours/actions not mentioned before by participants
- And what about action/behaviours mentioned by participants but that are not on the Defra list. Do they think Defra should be considering these, why

Attitudes and motivations towards actions

- Looking at the list, what impact do you feel these actions will have on air pollution levels
- In general, do you think these are the types of things we should all be doing to improve air quality: why, why not
- Do you think you and others have a responsibility to try to reduce your contribution to air pollution through actions like these: why, why not
- To what extent do you feel any sense of social responsibility to reduce any polluting behaviours, i.e. to help vulnerable people like younger or older people, people with lung conditions
- To what extent do you feel a sense of environmental responsibility: if so, in what ways
- To what extent do you feel the benefits of these actions on air quality outweigh any potential inconvenience, cost or effort to implement
- And to what extent do you feel personally that you want to do these kinds of activities: why, why not

Agency and skills

- Which actions would you say are most relevant to you, and your circumstances; why
- And the least relevant; why
- Which are more realistic or achievable; why
- And the least realistic; why
- To what extent do you feel you have any real choice in trying to make these changes; why, why not

- Is there anything stopping you from taking any of these actions
    - Which ones, and why
- Do you feel you need to know more about why these actions are important; if so, what would you want to know
- And do you think you understand enough about how to go about implementing these actions
    - What would be useful to help you put these into action
- Are there any other things that may stop you from trying to implement some of these actions
    - PROMPT: lack of skills, time; habit; cost; inconvenience
- Is there anything that needs to change to make it more likely for you to adopt these behaviours/actions into your everyday life
    - PROMPT: more people around them doing similar actions, more support, better infrastructure, more information
- What role, if any, do you feel other people or organisations have in helping people or communities to adopt these behaviours
    - PROMPT: local/national decision-makers, health service, other support services

Identify preferences for actions

- In general, which activities would you be more likely to try to implement in the short-term
- And in the long-term
- If we asked you to try to adopt a behaviour this week, which one do you feel would be most doable, or you would you like to try out and why

Moderator: Ask participants to type their preference in the chat

<u>Reducing exposure to air pollution</u>

Moderator: Explain that now we want to think about reducing your own exposure to air pollution, so trying to minimise any risks to your health and wellbeing

- Are there any steps that you take on a regular basis to reduce or limit the effect air pollution might have on you
- And on people you live with/care for
- Do you find these actions easy or difficult to do; why is that
- And do you feel these actions make a difference
    - If so, in what ways
    - Are there any examples where you have really noticed a difference

Moderator: Show Stim 1b: Reducing exposure to air pollution

Explain to participants this is a list of short-term actions that Defra might like to advise people to consider to reduce their exposure to air pollution

Highlight any actions that may not have been mentioned before

- What are your immediate thoughts about this list of actions
- What about the behaviours/actions not mentioned before by participants
- And what about action/behaviours mentioned by participants but that are not on the Defra list. Do they think Defra should be considering these, why

Perceived agency

- Looking at the list, which actions would you say are most relevant to you, and your own circumstances; why is that
- And which ones are the least relevant; why
- Which are more realistic or easier to do; why
- And less realistic or more difficult; why
- To what extent do you feel you have any real choice in trying to make these changes; why, why not

Facilitators and barriers

- To what extent do you feel you need to know more about why these actions are important, before implementing them – what else would you need to understand
- Is there anything else stopping you from taking any of these actions
    - PROMPT: lack of skills, time; habit; cost; inconvenience
- Is there anything that needs to change to make it more likely for you to adopt these behaviours/actions into your everyday life
    - PROMPT: more people around them doing similar actions, more support, better infrastructure
- Do you feel there is a role for other people or organisations in helping people or communities to adopt these behaviours
    - PROMPT: local/national decision-makers, health service, other support services

Attitudes and motivations towards actions

- Looking at the list, what impact do you feel these actions would have on your health and wellbeing
- And on others you may care for, or know
- In general, to what extent do you think these are the types of things people should be doing to limit the potential effects of poor air quality; why so

- And to what extent do you feel you would really want to make such changes in your day-to-day life; why so
- To what extent do you feel the potential benefits on your health and wellbeing of performing these activities would outweigh any potential inconvenience, cost or effort to implement them regularly

Identify preferences for actions

- In general, which activities would you say you would be more likely to try to implement in the short-term
- And in the long-term
- If we asked you to try to adopt a behaviour this week, which one do you feel would be most doable or would you like to try out

Moderator: Ask participants to type their preference in the chat

4. Protecting from the effects of air quality (5-10 mins)

AIM: Explore experiences of reported symptoms from air pollution exposure

Moderator: We know that some of you experience the negative effects of air pollution so we'd like to talk through these in a bit more detail

- What have your experiences of air pollution been like and how have they affected you
- How have you felt about the impact that air pollution has on you
- What actions have you taken to reduce the impact of air pollution on you and how successful have these been
- Is there anything that you think Defra/government (whether alone or in partnership with other agencies) could be doing to help you to protect yourself from the negative impacts of air pollution

5. Impact of different elements of risk communication (15-20 mins)

AIM: To explore the impact of different elements of risk communications on understanding and interpretation of messages

Moderator: Share screen and show Stim 2: Recommended Actions and Health Advice

Explain this is the current Recommended Actions and Health Advice in England that aims to support people to make decisions based on air quality

Usefulness of information

- Looking at this table, what are your first impressions of this information

- Can you explain what it is telling you
- How would you go about finding this information if you knew it existed – where would you expect to find it
- How would you go about reading and interpreting this information (probing which column they would look at)
- Overall, how easy is it to understand the advice and to what extent is it helpful and relevant to you
- Is there any information that you feel is missing that would help you to better understand it (including which column is most relevant to you)
    - **Moderator: note that we will be discussing later the actual content of the advice – at this point I want to understand which advice is relevant to you at the moment**
- Could anything be changed, i.e. how the information looks or is presented, to make it easier to understand
    - **Moderator: listen out for any suggestions about finding personalised advice i.e. receiving tailored advice to individual circumstances (as discussed in section 6)**

Conveying risk

Moderator: Explain that we now want to look at some of the language used in a bit more detail

- What do you feel about the term 'at-risk individuals' that is used in the table
- What does this mean to you and who would you associate with this term and why (listening out for whether they would associate with this themselves and their feelings about this)
- To what extent does the way 'at-risk' is described vary from your assumptions at all; if so, how
- Would you say you like this term; why is that
- Can you think of any alternative terms that may better describe the groups of people referred to in the advice – or resonate with you, if this is intended to relate to you

Alternative terms

Moderator: Explain that other countries use different terms to convey 'at-risk' to air pollution including 'sensitive', 'vulnerable' and 'susceptible' to air pollution. Taking each term in turn:

- What does this mean to you
- What associations does it have for you
- How does it differ, if at all, from the term 'at-risk'

- Thinking about the four terms, do you have an overall preference at all and why is this

Consequences of using term 'at-risk individuals'

- Do you think it is useful or important to have two categories in the health and advice information (i.e. 'at risk' and 'general population')
    - PROBE: FOR RESPIRATORY GROUP: Would they expect to take different actions to people without a respiratory condition. Expectation for more tailored advice.
- Are there any benefits of this
- And are there any potential negative consequences or dangers of having two categories
    - PROMPT: downplaying longer-term risk, affecting perceived relevance of advice

Colour coding

Moderator: Explain that very quickly we want to gather thoughts on colour coding of information

If time is short, de-prioritise the following three questions

- Thinking about colour coding of information into red, amber and green categories (as on stim 2), how useful is that for reading and understanding this information
- How would they feel about the colour being gradients of all one colour (e.g. brown), rather than red, amber, green and why
- To what extent does there need to be further information (e.g. numbers or initials) to help support colouration

Explain that there will be some online tasks that explore this in more detail

6. Daily Air Quality Index Advice (15 mins)

AIM: Explore responses to advice

Moderator: explain that we now know that there are other factors that can make some people more at risk from air pollution. People with heart and lung problems and being pregnant, overweight, older or diabetic can increase an individual's risk, as well as living in an area of high pollution. With this in mind, Defra would like to understand whether you would be interested in registering and sharing information about yourself so that you can receive tailored advice about your own risk.

- What are your overall thoughts about this approach

- Does this appeal to you, or not; why so
- What do you feel the benefits of this would be
- And any downsides
- What types of information do you feel you would need to share so as to receive tailored information
    - Elicit spontaneous responses first and then PROBE: address/area where you live, profession, asthma status, respiratory status, diabetes, pregnancy, age, obesity
- Do you have any thoughts about sharing this type of information
- Why might people not want to share such information
- Personally, would you say you would be happy to share this type of information about yourself or people you care for; why is that
- And how would you prefer to provide this information and any tailored advice, i.e. on a website, on an app, or some other way

Moderator: Share screen and show Stim 2 again

Explain that we would now like to look at the recommended actions and health advice again. There is advice to reduce and consider reducing 'activity', 'strenuous physical activity' and 'physical exertion' depending on the level of air pollutions and individuals' risk levels

Understanding of terms

- Within the context of reducing exposure to air pollution, what do you think these terms refer to:
    - Activity
    - Strenuous physical activity
    - Physical exertion
- Can you give examples of what you would do yourself to reduce each of these
- Is there anything that you find confusing about these terms
- Can you think of any ways to improve or make this advice clearer

Responses to advice

Looking at the advice as a whole:

- Do you feel this advice is relevant to you; if so, in what ways
- And if it is not relevant, why do you say that
- How easy do you think it is to action this advice
- Can you talk me through what you would actually do to implement it
- Can you think of any potential barriers to any of these actions

- Or any negative consequences of carrying these out
    - **Moderator: listen out for any reference to avoiding exercise, anxiety around exercise, wider mental or physical health implications**
- Do you think you have enough information to understand why these actions are important and the differences they could make; if not, what would you like to know more about

7. FOR RESPIRATORY GROUP ONLY (15 mins)

Test draft advice for people with asthma

AIM: To explore responses to advice and understand relevance and usability

Moderator: Explain that UK health security agency has been working with health professionals to develop additional air pollution guidance for people with asthma
Share screen and show Stim 3, giving participants a minute or two to read advice

Overall responses

- What are you overall thoughts about this advice as a whole
- How clear and easy to understand is the advice
- Is there anything confusing about the advice; if so what
    - How could the advice be improved to address this
- Do you have any other suggestions as to how this information could be improved
- Which bits are most interesting and useful to you; why
- Is there anything there that you feel is not useful; why

Perceived agency

- Looking at the recommendations, how realistic would they be to follow; why
- And how easy would they to be to follow; why

Facilitators and barriers

- To what extent do you feel you would need to know more about why these actions are important, before trying to implement them
- And to what extent do you feel you understand enough about the recommendations and terminology used; if not, what would you like to understand better
- Would there be anything that could stop you from following any of these recommendations and reasons for this
    - PROMPT: lack of skills, time; habit; cost; inconvenience

- Is there anything that needs to change to make it more likely for you to follow these recommendations
    - PROMPT: more people around them doing similar actions, more support, better infrastructure, policies i.e. in the workplace
- How can people with asthma be better supported
- Do you feel there is a role for other people or organisations in helping people with asthma to understand and follow these behaviours
    - PROMPT: local/national decision-makers, NHS/health care workers, other support services

Attitudes and motivations towards actions

- Looking at the table, what impact do you feel these actions could have on your health
    - Moderator: listen out for positive/negative, physical/psychological impact
- In general, do you think these are the types of things people with asthma should consider doing to limit the potential effects of poor air quality on themselves; why so
- Do you feel there is anything missing
- And do you feel you would be willing to make such changes in your day-to-day life; why so
- Do you feel the potential benefits on your health and wellbeing of doing these benefits would outweigh any potential inconvenience, cost or effort to implement them regularly

Comparison with existing advice (Stim 2)

Moderator: Thinking about the general 'at risk' advice discussed earlier:

- Which approach do you prefer; why
- Are there any features of either that you really like or you feel are particularly useful
- Any suggested edits or improvements
- Which would you say is clearer, more relevant, and more actionable; why

8. Wrap up (12 mins)

AIM: Summary, reminder of next steps and close session

Final comments

- Does anyone have anything else they would like to add, which they haven't had the chance to say today

Next steps

- The online task for this wave, starts next week (Monday 26 June). The focus of this activity will be to try to implement an action over the week and report back on your experiences of doing this. We will assign you a task (either to try to reduce your personal contribution to air quality or to reduce your exposure to air quality) based on our discussion in today's session. We will ask you to log on to the online platform on Monday and complete the initial questions about your actions. We will then ask you to try and perform this action over the next few days. Afterwards, we would like you to come back to the online platform and tell us about how you found implementing the action. If you are happy to do so, we would like you to upload short videos, photos and/or audio description of you doing the action or any barriers you encounter on the way. However, this is not essential. There will also be some questions to tell us about how it went. You will need to complete these questions and upload any content by Friday 30 June.
- Any initial thoughts or questions about this?

Payments

- Incentive payment for focus group (£50 – transferred within 10 days)
- Incentive payment for the Recollective task (£30) – transferred within 10 days of the end of the task

Thank and close

3. Stimulus

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Qualitative Research Panel for Air Quality Information System Review

Clean Air & Me
WAVE 2
Online group discussion stimulus

Stim 1a: Actions to reduce personal contribution to air pollution

Area	Behaviour	Actions
Transport	**Using public transport or active travel for short journeys**	Leave the car at home for journeys shorter than 2 miles, and walk, cycle, scoot or take public transport instead
		Replace driving on one commute / school run this week for active travel or public transport
		Leave the car at home for one full day, and use public transport or active travel instead
	Car sharing	Arrange to carpool for one of your commutes / school runs this week
	Work from home	Work from home an extra day this week to avoid commuting in your car
	Changes to how you drive	Turn your engine of when your vehicle is stationary and it is safe to do so
	Changes to when you drive	Reschedule travel times (eg the time you arrive at work or shop) to avoid driving during rush hour traffic
Shopping	**Reduce or combine online deliveries or order to local pick up points**	Change the delivery location for your online shop to a local pick up point rather than your home address

Stim 1b: Behaviour changing actions: reducing exposure to air pollution

Area	Behaviour	Actions
Physical activity	**Change where you walk, cycle, scoot**	Use quieter side streets to make a journey on foot that you would normally make on a main road
		Consciously keep to the side of the pavement that is furthest away from the road when out walking this week.
	Change where you exercise	Plan your exercise / child plays in green spaces away from busy roads
		Try exercising indoors in a well ventilated room (e.g. in your home or at a gym)
	Change when you exercise outdoors	Alter the time that you exercise / take your child to play to avoid rush hour times

Stim 2:

Recommended Actions and Health Advice

Air Pollution Banding	Value	Accompanying health messages for at-risk individuals*	Accompanying health messages for the general population
Low	1-3	**Enjoy** your usual outdoor activities.	**Enjoy** your usual outdoor activities.
Moderate	4-6	Adults and children with lung problems, and adults with heart problems, **who experience symptoms**, should **consider reducing** strenuous physical activity, particularly outdoors.	**Enjoy** your usual outdoor activities.
High	7-9	Adults and children with lung problems, and adults with heart problems, should **reduce** strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also **reduce** physical exertion.	Anyone experiencing discomfort such as sore eyes, cough or sore throat should **consider reducing** activity, particularly outdoors.
Very High	10	Adults and children with lung problems, adults with heart problems, and older people, should **avoid** strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.	**Reduce** physical exertion, particularly outdoors, especially if you experience symptoms such as cough or sore throat.

*Adults and children with heart or lung problems are at greater risk of symptoms. Follow your doctor's usual advice about exercising and managing your condition. It is possible that very sensitive individuals may experience health effects even on Low air pollution days. Anyone experiencing symptoms should follow the guidance provided below.

Stim 3: For respiratory group only
Recommended action and health advice for people with asthma

Low	Moderate	High	Very High
Enjoy your usual outdoor activities.	People with asthma, **who experience symptoms**, should **consider reducing** outdoor moderate to vigorous physical activity^.	People with asthma, **who experience symptoms**, should **reduce** outdoor moderate to vigorous physical activity^.	People with asthma should undertake moderate to vigorous physical activity^ **indoors, rather than outdoors**.
Where possible, consider changing your: • Travel route (e.g., take quieter back streets or routes through green spaces such as parks) • Exercise location (e.g., in green spaces such as parks or indoors in a well-ventilated room or gym) and/or • Time of travel or exercise (e.g., avoid 'rush hour')			
		Preventative inhalers can reduce the adverse effects of air pollution. Take your preventative inhaler even if your asthma is OK. Reliever inhalers can be used when symptoms occur. If symptoms persist, or you want more advice, talk to your healthcare professional. Currently, there is little evidence to recommend the use of facemasks.	

4. Recollective tasks

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Qualitative Research Panel for Air Quality Information System Review

Clean Air & Me
WAVE 2

Online Community
Post focus group task

1. Gradient Key - Single Colour

Hello and welcome to your first task!

Imagine the key below was on an air quality map telling you about the air pollution levels in the UK.

Firstly, please label the key to tell us what each gradient of colour means to you.

Next, please use the scale below to give us your first impression of this key, in terms of how easy it is to understand.

Please label the key to explain what each colour tells you about air pollution

Please label the 1st part of the key

Please label the 2nd part of the key

Please label the 3rd part of the key

Please label the 4th part of the key

How easy or difficult is it to understand this key?

Scale: 1: Very difficult, 2: Difficult, 3: Neutral, 4: Easy, 5: Very easy

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2

2. Gradient Map - Single Colour

Here is the same key used alongside a map to tell you about the levels of air pollution in the UK. We want to understand your impressions of this map.

1. Firstly, please use the slider to rate how easy you find the map to use on a scale of 1-5. Press "Rate" to confirm your choice.
2. 2. Next, please tell us at least 1 thing you like ( ) and 1 thing you dislike ( ) about the map by placing markers directly on the parts of the image that stand out for you. You're welcome to add more if you want!
3. 3. Please explain your reasoning in the comment box. In your response, you may want to consider what you find clear or confusing, or what is easy or difficult to understand.
4. 4. Finally, please tell us your overall impressions of this map in showing air pollution levels.

3. Gradient Key - Multicolour - INCLUDE SCALE p33

Thank you! Now, here is a different key that can also be used together with a map to show air pollution levels in England.

Firstly, please label this key to tell us what each gradient of colour means to you.

Next, please use the scale below to give us your first impressions of this key, in terms of how easy it is to understand.

Please label the key to explain what each colour tells you about air pollution

Please label the 1st part of the key

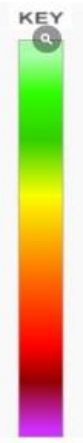
Please label the 2nd part of the key

Please label the 3rd part of the key

Please label the 4th part of the key

How easy or difficult is it to understand this key?

Scale: 1: Very difficult, 2: Difficult, 3: Neutral, 4: Easy, 5: Very easy



4. Gradient Map – Multicolour

Now, here is an image of the same key together with an air quality map telling you about the levels of air pollution in the UK.

1. 1. As before, please use the slider to rate how easy you find the map to use on a scale of 1-5. Press "Rate" to confirm your choice.
2. 2. Next, please tell us at least 1 thing you like ( ) and 1 thing you dislike ( ) about the map by placing markers directly on the parts of the image that stand out for you. You're welcome to add more if you want!
3. 3. Please explain your reasoning in the comment box. In your response, you may want to consider what you find clear or confusing and what is easy or difficult to understand.
4. 4. Finally, please tell us your overall impressions of this map in showing air pollution levels

5. Both Maps

Now, here are both versions of the maps side-by-side showing different approaches to communicating air pollution levels in the UK as you saw in the previous tasks.

Please answer the questions below about these approaches and explain your reasoning.

Which of the two is easier to understand / less confusing?

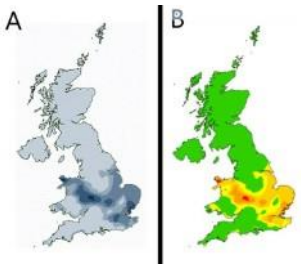
Map & Key A Map & Key B

Please explain why

Which of the two is more relevant to you and your needs?

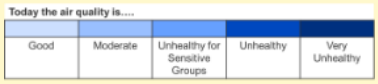
Map & Key A Map & Key B

Please explain why



6. Language - Approach 1

The next two tasks show two different approaches used to communicate the level of risk associated with air quality in other countries. Please fill in the blanks below to tell us what you would think, feel and do if you came across the different readings below where you live.



Please complete the following sentences:

If the reading for my area was showing Good:

If the reading for my area was showing Moderate:

If the reading for my area was showing Unhealthy for sensitive groups

If the reading for my area was showing Unhealthy

If the reading for my area was showing Very Unhealthy

I would assume this means…

I expect that I might feel…

I think I would take the following action…

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7. Language - Approach 2

Here is the second approach used to communicate the level of risk associated with air quality in another country.

Please fill in the blanks below to tell us what you would think, feel and do if you came across the reading below where you live.

Please complete the following sentences:

If the reading for my area was showing Good:

If the reading for my area was showing Lightly Polluted:

If the reading for my area was showing Moderately Polluted

If the reading for my area was showing Heavily Polluted

If the reading for my area was showing Severely Polluted

I would assume this means…

I expect that I might feel…

I think I would take the following action…

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8. Preferred Approach

Finally, please tell us which approach you prefer and why.

Which of the two approaches do you prefer?

Approach A

Approach B

Please explain why

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9. Thank you!

Thank you for completing Activity 1!

Now click on 'Activity 2: Behavioural Task - Introduction' to find out about your next activity and what you need to do

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Behavioural Task - Introduction

Thank you for completing the first activity!

For your main activity, your task is to try out a behaviour that either reduces your exposure to air pollution or reduces your personal contribution to it.

We would like you to take some photos or record a short video or voice note of you doing your activities and of any barriers you may encounter on the way.

If you are not comfortable uploading content, then there will be some questions for you to complete in writing.

The behaviours we would like you to adopt can be one of the following OR a behaviour you choose yourself:

1. Using public transport or active travel for short journeys
   - Leave the car at home for journeys shorter than 2 miles, and walk, cycle, scoot or take public transport instead
   - Replace driving on one commute/school run this week for active travel or public transport
   - Leave the care at home for one full day and use public transport or active travel instead
2. Car sharing - arrange to carpool for one of your commutes/school runs this week
3. Working from home - work from home an extra day this week to avoid commuting in your car
4. Changes to how you drive - turn your engine off when your vehicle is stationary and it is safe to do so.
5. Changes to when you drive - reschedule travel times e.g. the time you arrive at work or shop to avoid driving during rush hour traffic
6. Reducing or combining online shopping deliveries or order to local pick up points - change the delivery location for your online shop to a local pick up point rather than your home address
7. Change where you walk, cycle or scoot
   - Use quieter side streets to make a journey on foot
   - Keep to the side of the pavement that is furthest away from the road when walking
8. Change where you exercise
   - Plan your exercise/child plays in green spaces away from busy roads
   - Try exercising indoors in a well ventilated room e.g. in your home or at a gym
9. Change when you exercise outdoors - alter the time you exercise/take your child to play to avoid rush hour times

Behavioural Task - Introduction

Below is a summary of the things we will ask you to report back on about your experience.

Please keep these in mind and feel free to revisit these instructions whenever you need.

Don't worry about remembering all of these off by heart!

You can see all of these instructions on the left side of the Home page

1. Share a short video clip (no more than 2 minutes), some images and/or some short voice notes before, during or after you complete your task. If you are unable or prefer not to do this, you can simply write about your experience
2. In your video/voice note/text response, we would like you to:
   - Rate the success of your experience out of 5, and tell us
   - What did you think went well, if anything?
   - What didn't go so well or was difficult, if anything?
   - How could your experience have been better?
   - What would need to change to make it easier for you to do your task? Think about what you, other people or organisations could do.
   - Anything else you think is important about your experience?

You must upload your content and/or tell us about your experience by midnight on Friday 30 June. If you have any questions or experience any difficulties, please get in touch with Maine on Maine.Charlton@kantar.com

Before you start your Behavioural Task, we would like you to check the air quality in your area (more details on the next page). If you plan on doing your behavioural task now, please proceed. Otherwise please exit this activity now and return when you're ready.

1. Air Quality Reading

Before starting your behavioural task, we would like you find out what the air quality level is in your local area.

1. Upload a screenshot / photo of the reading (here is a guide on how to take a screenshot: https://www.take-ascreenshot.org/android.html)
2. Share the link or the name of the website/app/source of where you found out your local air quality reading in the photo description
3. Then tell us a little bit about the reading:
    1. What was the air quality reading?
    2. What were your initial thoughts when you saw the reading?
    3. What actions, if any, would you usually take if you saw this reading?

2. Continue on to the Behavioural Task

Now that you've taken the air quality reading in your area, you are all set to start your behavioural task. We look forward to hearing all about your experience!

When you're ready, please select 'Continue' and move on to 'Activity 2: Behavioural Task'.

3. Behavioural Task Reporting

Welcome back! We are looking forward to hearing about your behavioural activity!

Firstly, please tell us which task you selected for this week (from the drop down menu).

Which Behavioural Task you have selected for this week?

If "Other": Please tell us why you have chosen your own task instead of a listed task?

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4. Overall Success Rating

Now, please rate the overall success of your experience on a scale from 1 (Very unsuccessful) to 5 (Very successful)

Please rate the success of your experience

Scale: 1: Very unsuccessful, 2: Unsuccessful, 3: Neutral, 4: Successful, 5: Very successful

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5. Behavioural Task - Media

Now we would love you to upload some of the following media before, during and/or after you complete your task.

- Images
- short videos
- short voice notes (upload via 'Add Video' button)
- and/or video record yourself (use the 'Add Video' button)

In your video/voice note, we would like you to answer the following questions:

1. What did you think went well, if anything?
2. What didn't go so well or was difficult, if anything?
3. How could your experience have been better?
4. What would need to change to make it easier for you to do your task? Think about what you, other people or organisations could do.
5. Anything else you think is important about your experience?

NOTE: If you prefer to answer these questions in writing, please select "Skip" and move to the next task.

PLEASE REFRAIN FROM UPLOADING IMAGES/VIDEOS OF ANYONE ELSE OTHER THAN YOURSELF AND YOUR ENVIRONMENT

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6. Behavioural Task - Text only

We would like you to answer the following questions in relation to your behavioural task:

If you feel you have sufficiently answered all these questions through your videos and/or voice notes then please feel free to skip this task.

What did you think went well, if anything?

What didn't go so well or was difficult, if anything?

How could your experience have been better?

What would need to change to make it easier for you to do your task? Think about what you, other people or organisations could do.

Anything else you think is important about your experience?

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7. Future Action

Now, please let us know if you think you would take this action again in the future and why.

Would you take this action again?

Please let us know why / why not?

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8. Thank you!

That's it! Thank you for completing all of the Wave 2 activities.

We hope you enjoyed the tasks and trying out one of the behaviours .

You will receive your thank you payment within 15 days of completing this task.

We will now take another break until September when Clean Air & Me Wave 3 will launch. We will be in touch nearer the time with full details of your discussion group and the online activities.

Enjoy the rest of your summer and we look forward to seeing you again in September!

From Penny, Rachael, Louise, Marios and Maine (Kantar Public Research Team)

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5. Presentation

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Qualitative Research Panel for Air Quality Information System Review

Wave 2 briefing presentation

Penny Stothard and Louise Skowron

July 2023

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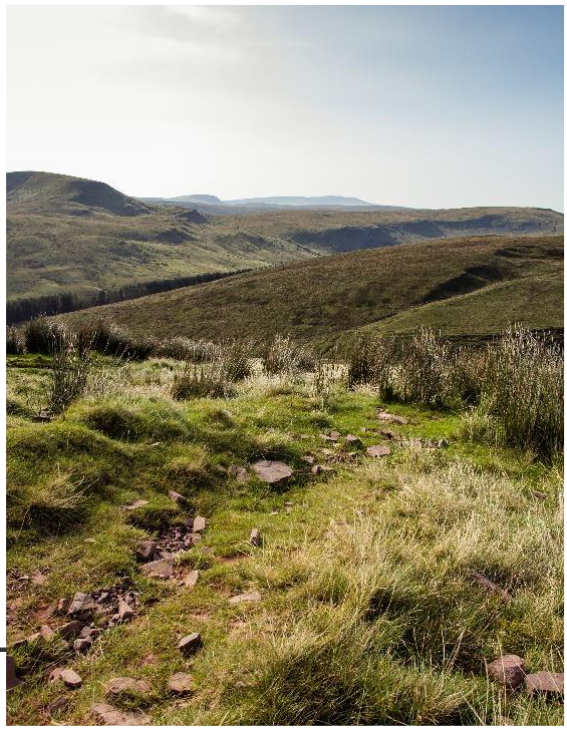
   - I. Colourand language
   - II. Recommended actions and health advice
5. **Discussion**
6. **Sample**



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1 Background and introduction

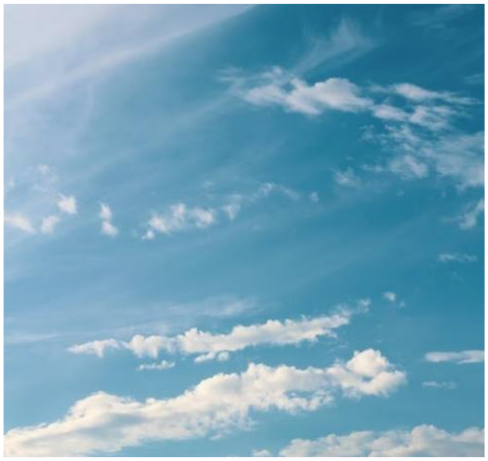
Defra has set up a qualitative panel to inform air quality communication development, focusing on how the public can reduce their exposure and contribution to air pollution

Defra and UKHSA have established the Air Quality Information System (AQIS) review to improve the quality and provision of air quality information to the public, which is guided by a multidisciplinary steering group

The steering group has recommended that communication approaches are developed in collaboration with members of the public

With this in mind, **a qualitative panel was commissioned** that aims to:

- Develop a deeper understanding of the knowledge, attitudes and behaviours of the general population and 'at-risk' groups, with regard to air pollution (avoiding it, and reducing contributions to it)
- Elicit insight into the barriers and facilitators that influence desired behaviours, and other factors relating to communications that seek to change behaviours
- Co-design communication approaches, taking into account the understanding and insights generated earlier in the project



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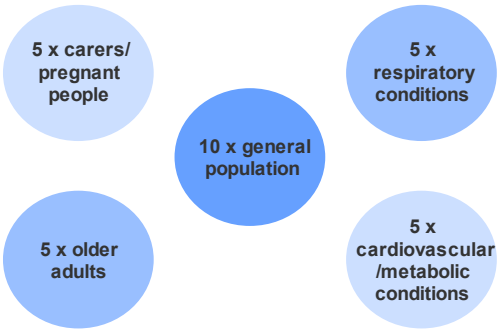
The research has set up a 30-participant panel and two waves of research have taken place so far

Clean Air + Me panel consists of 30 participants



3 waves of activity – each wave involves:

6 x 90 minute online group discussions
(5 participants per group)

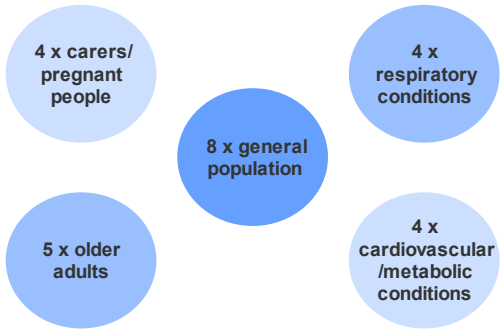
2 x 15 minute online task sessions
via the Recollective platform

Recap of headline findings from Wave 1

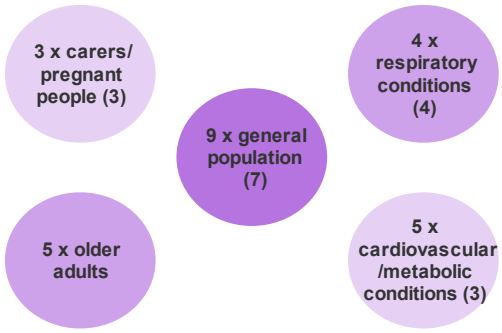
1. **Air quality was not top of mind** for most people and there was a lack of awareness of and clarity on: the causes of air pollution, and how to reduce it; and its impact on people and nature, and how to mitigate the risks. It was noticeable that participants tended to feel powerless in the context of air quality
2. **Beyond this, there was variation** in people's perceptions of the risk poor air quality poses for health and their perceived agency in responding to this, mainly for the cardiovascular/ metabolic group and to some degree carers: this means that in the context of air quality information different people have different feelings about it, information needs, channel preferences, motivations/barriers and propensity to change their behaviour
3. **Expectations of air quality information fell into three main categories** awareness raising/educational information, localised daily air quality reporting information and health related information (the latter focused on 'at risk' groups)
4. **Key trusted sources of information quoted in the research varied** although key to this were sources that prioritised usability and were impartial, apolitical and accurate, while 'government' was not trusted, social sector bodies (such as the NHS) did have high levels of trust
5. **The DAQI was generally well received and well understood** although developments could include: simplifying and scaling index back; providing forecasts at a local or ideally street level; giving more detail about how readings are measured; and helping people understand what the readings mean and how people can respond (ideally this being easily accessed, i.e. by clicking or hovering over readings)

Wave 2 recalled 25 participants to the online discussion groups and 26 participants to the online tasks

Wave 2 online discussion groups (x6) - 25 participants



Wave 2 online interaction– 26 participants (22 completed behavioural task)



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This report details the findings from Wave 2 of the research (both the group discussions and online tasks), which explored two main themes with two high -level research questions in each

Encouraging Behaviour Change

1. How can air quality information support people to take actions to reduce their personal contribution to air pollution?
2. How can air quality information support people to take actions to protect their health from the effects of air pollution?

Communicating Risk

1. How does the choice of colour and language used in air quality risk communication impact how people understand/interpret the message being conveyed?
2. How do participants respond to air quality health advice?

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Wave 2 involved participants taking part in an online group discussion and then conducting two online activities, including carrying out a behavioural action to report back on

Online group discussion	Online activity	Behavioural action
Explored attitudes to different actions based on possible localised air quality conditions, and any perceived barriers/facilitators to making changes including:	**Participants answered questions on how language and colour impacts their understanding of risk**, e.g.	**Participants were asked to take an air quality reading for their local area and then perform a behavioural action** e.g.
• Personal air polluting behaviour- attitudes, motivations, agency and skills • Reducing expose to air pollution • Role of social realm in facilitating change (general population) • Views on Defra actions and health advice • Respiratory vulnerability- views on draft advice for people with asthma	• What do gradients of colour mean to them on an air pollution level index • First impressions and ease of understanding of single colour vs multicoloured indices • Testing different approaches in use of language (USA and China) to communicate level of risk	• Share where participants located their air quality reading (website, app) and thoughts about this • Carry out a behavioural task (either from Defra list, or one of their own) • Report back on the success of their action and how their experience could be improved • Participants were invited to upload content (videos, photos, voice notes) or write about their experience

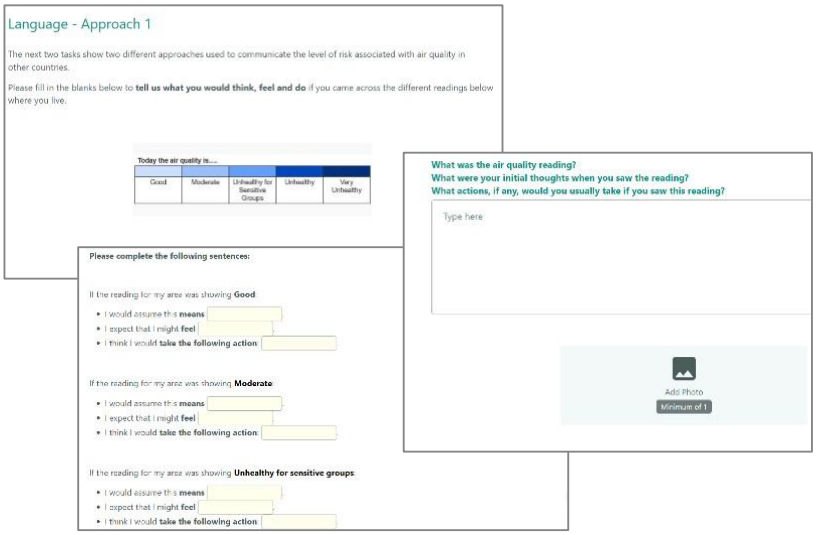
The online tasks were conducted via an interactive market research platform called Recollective

Participants were asked to conduct a range of activities including:

- Image review of air quality map
- Sentence completion
- Fill in the blanks
- Upload content/open text box to report on behavioral action

The platform was available for 24 hours a day for seven days

User support was offered to participants where it was needed, although it is a relatively easy-to-use platform



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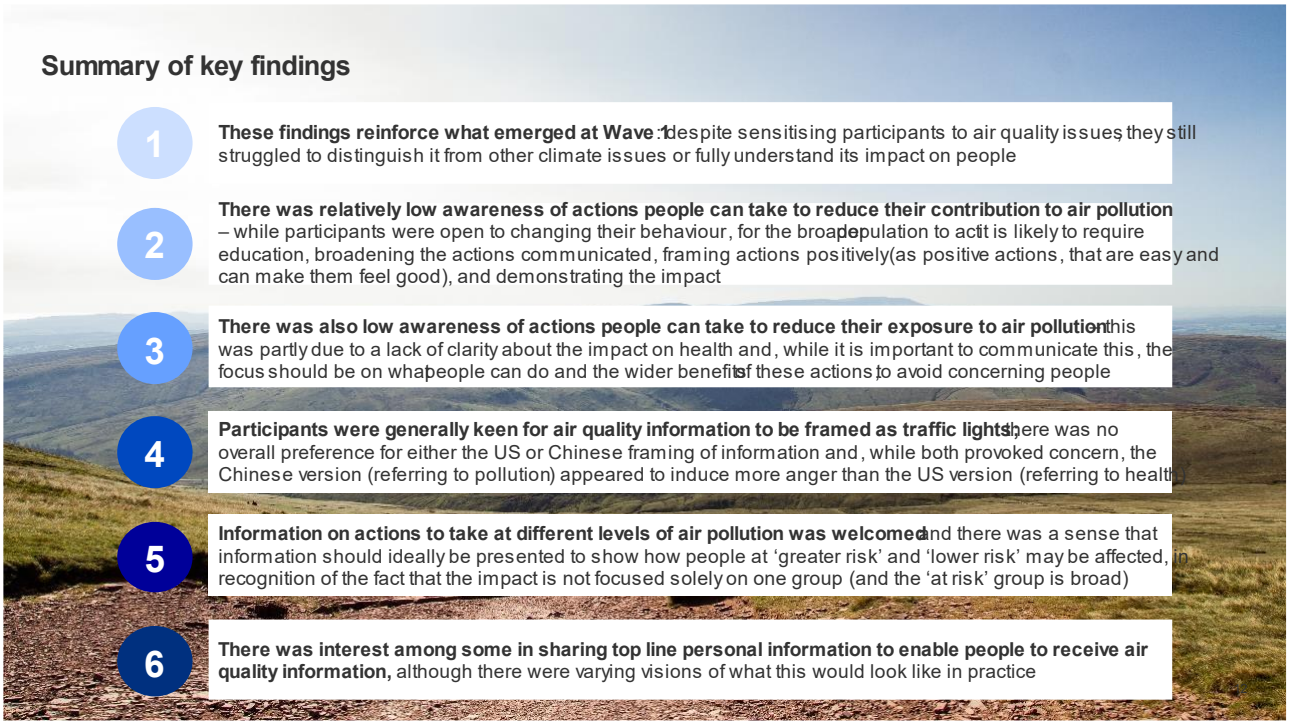
Key Wave 2 findings



Summary of key findings

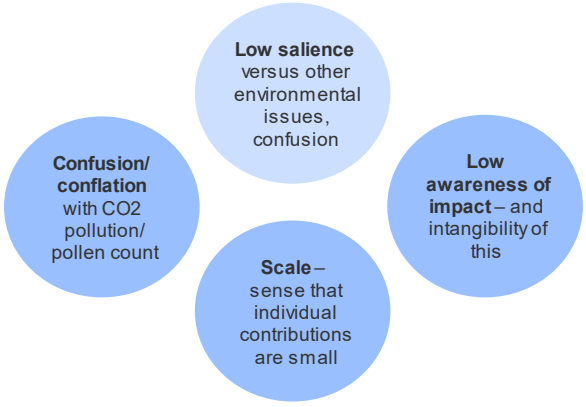
1. **These findings reinforce what emerged at Wave 1:** despite sensitising participants to air quality issues, they still struggled to distinguish it from other climate issues or fully understand its impact on people
2. **There was relatively low awareness of actions people can take to reduce their contribution to air pollution** – while participants were open to changing their behaviour, for the broad population to act it is likely to require education, broadening the actions communicated, framing actions positively (as positive actions, that are easy and can make them feel good), and demonstrating the impact
3. **There was also low awareness of actions people can take to reduce their exposure to air pollution** – this was partly due to a lack of clarity about the impact on health and, while it is important to communicate this, the focus should be on what people can do and the wider benefits of these actions, to avoid concerning people
4. **Participants were generally keen for air quality information to be framed as traffic lights;** there was no overall preference for either the US or Chinese framing of information and, while both provoked concern, the Chinese version (referring to pollution) appeared to induce more anger than the US version (referring to health)
5. **Information on actions to take at different levels of air pollution was welcomed** and there was a sense that information should ideally be presented to show how people at 'greater risk' and 'lower risk' may be affected, in recognition of the fact that the impact is not focused solely on one group (and the 'at risk' group is broad)
6. **There was interest among some in sharing top line personal information to enable people to receive air quality information,** although there were varying visions of what this would look like in practice

3
Encouraging behaviour change (I)

Reducing polluting behaviours

How can air quality information support people to take actions to **reduce their personal contribution to air pollution?**

Despite sensitisation by the previous research, air pollution was still not a top -of-mind priority and was not fully understood by participants



Key knowledge gaps

1. How air quality is distinct from climate change

2. Mitigation

- The health impacts
- How this varies (e.g., health conditions, age, weight, pregnancy)
- How to reduce risk

3. Contribution

- How to reduce personal contribution
- What impact personal actions can make
- What is being done to improve and address air quality beyond individuals (government, business, other organisations)

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Car usage was identified as the main personal behaviour to contribute towards air pollution; beyond that, participants were less certain of other behaviours affecting air quality

Most frequently mentioned behaviours

Driving the car: commuting to work, driving to shops, getting to hospital, short journeys

Seasonal activities: BBQs, wood burners, using petrol fuelled gardening tools such as lawnmowers and strimmers

Lack of understanding of other actions

Participants lacked certainty over some activities: home energy use, how councils dispose of waste including recycled materials

Likewise, when asked about actions to reduce contribution to air pollution, beyond limiting car use, participants struggled to identify many other behaviours

Actions to limit contribution

Driving-related: driving less, switching to a hybrid/electric car, not idling (e.g., at traffic lights, outside school)

Alternative modes of transport: walking more, cycling/scooting, taking bus or train, train to Europe rather than flying

Limiting the frequency of supermarket visits and doing 'big shops' once a week

Off-setting behaviours

A few participants highlighted local initiatives to off-set air polluting behaviours: free trees to plant (Cardiff and Hertfordshire) or clicking app

- Fellow participants in these groups were interested in the positive framing of these actions

Some groups perceived themselves as polluting less

Older people, as they consumed less and were less mobile (hip, knee, back issues, not working)

Participants living in London: lower car use due to better public transport infrastructure

This list of actions to reduce personal contribution to air pollution was shown to participants

Area	Behaviour	Actions
Transport	Using public transport or active travel for short journeys	Leave the car at home for journeys shorter than 2 miles, and walk, cycle, scoot or take public transport instead
		Replace driving on one commute / school run this week for active travel or public transport
		Leave the car at home for one full day, and use public transport or active travel instead
	Car sharing	Arrange to carpool for one of your commutes / school runs this week
	Work from home	Work from home an extra day this week to avoid commuting in your car
	Changes to how you drive	Turn your engine of when your vehicle is stationary and it is safe to do so
	Changes to when you drive	Reschedule travel times(g the time you arrive at work or shop) to avoid driving during rush hour traffic
Shopping	Reduce or combine online deliveries or order to local pick up points	Change the delivery location for your online shop to a local pick up point rather than your home address

While the Defra list of actions was broadly accepted, they were often perceived as limited, which prompted participants to think that their impact would be limited too

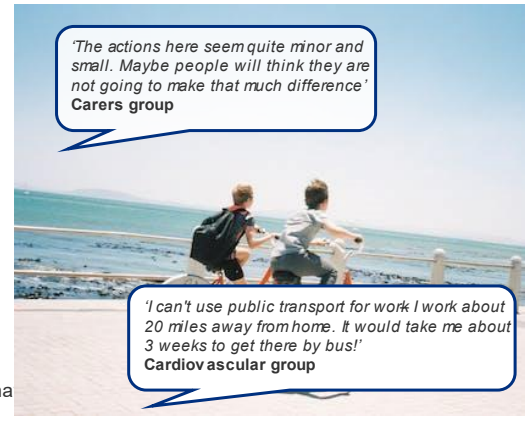
The list of actions were seen as relevant, achievable and thought provoking: combining package deliveries had not been considered

However, overall it was viewed as too car-focused

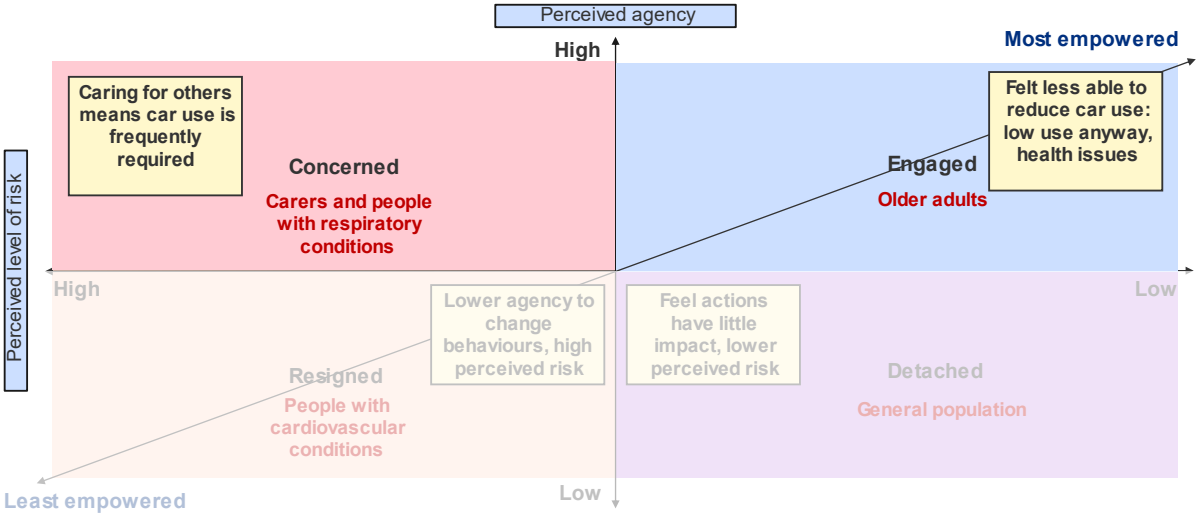
- Frequent car drivers often reported barriers to lower use
- Less helpful for non-/infrequent drivers
- Poor public transport infrastructure limits options

And relatively 'negative' as:

- Minor actions: will this really make a difference?
- Inconvenient and negatively framed: what you can't do rather than wha you can do



It was interesting that, although the Engaged and Concerned groups expressed more perceived agency overall, the car -related focus of the actions shown to them reduced this



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Beyond the difficulties associated with reducing car use, a number of other actions were also perceived as being less actionable

Car sharing

Perceived as not being particularly well accepted in the UK and a cultural shift or financial incentives from companies would be needed to change this

Working from home (WFH)

Does not suit many roles or jobs, many employees do not have WFH policies

WFH may be discouraged for other reasons

- Working in the office perceived as more productive/accountable/collaborative; contributes to vitality of city and town centres

Central pick-up points

The benefit of central pick-up points was unclear for some

- Would this not mean more people having to drive to a location in their own (and potentially more polluting) vehicles than the low emission vehicles that some delivery companies use?

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More broadly, while participants had good intentions around reducing contribution to air pollution, attitudes and perceived agency could overcome these

Positive motivations

Sense of collaboration between government, big business and individuals

Environment responsibility was a key driver for reducing personal contribution to air pollution

Social responsibility was more top of mind for 'at risk' groups, less so for the general population

Attitudes

General low awareness of this issue, intangibility of problem and impact of actions

Cynicism regarding business, who were viewed as major polluters that can cancel out smaller scale impact

Competing daily priorities: busy lives, health issues, cost-of-living crisis

Lack of understanding of the health impact: which limits motivation to act

Agency

Individual circumstances limited or reduced options for alternative actions:

- Reduced mobility, health conditions, being pregnant
- Lack of money for specific actions (buy electric car, take train, use broadband, don't burn wood)
- Lack of infrastructure (public transport)

Although some actions were felt to be fairly easy to adopt

In this context, participants suggested considering other actions that they felt had greater impact, worked at a broader level and linked up with the actions of others

Individual/local impact

Selecting **shopping deliveries for after 8pm** to reduce air pollution at peak times

Limiting shops to a **monthly online delivery** (for non-perishables)

Switching to low emissions cars (electric or hybrid)

Shopping locally

Reducing home energy use, if relevant, using petrol-fuelled garden tools

And how actions link to those of others in communities

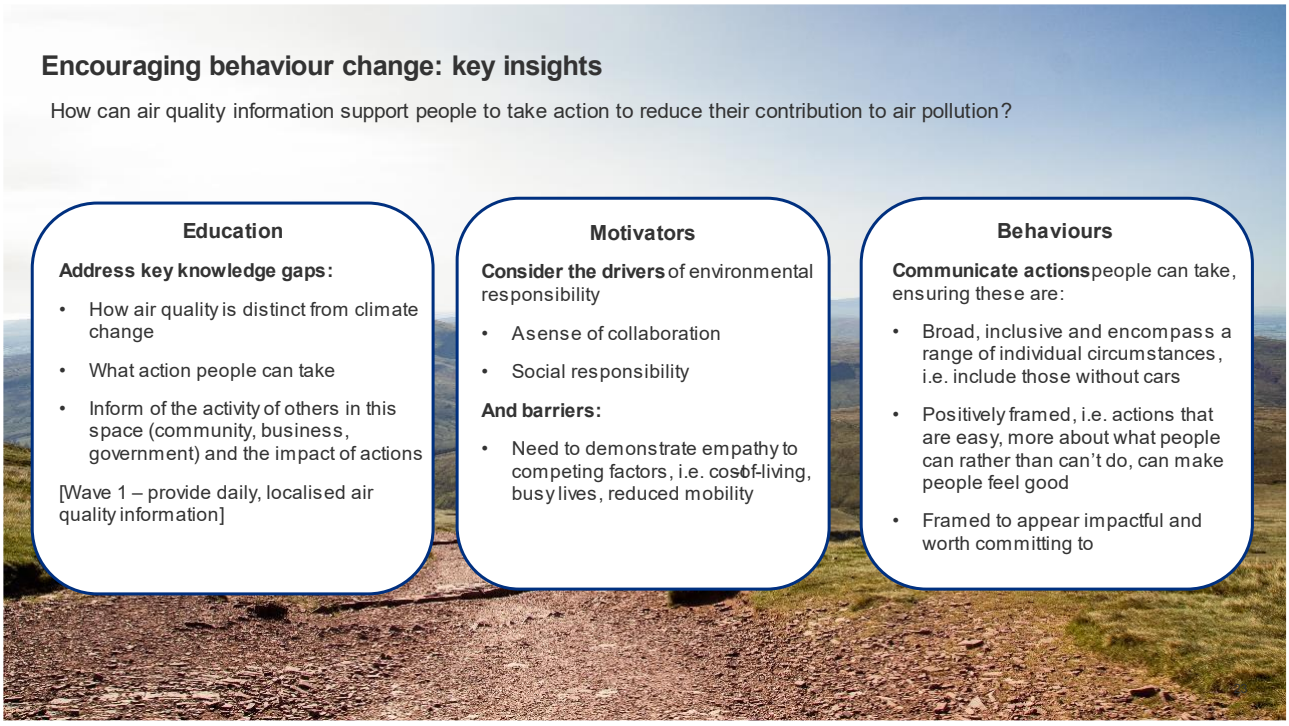
National/global impact

Choosing a staycation over travelling abroad for holidays

Reducing food miles

Changing international travel mode (e.g., to rail rather than air)

And how actions relate to those of business and government



4 Encouraging behaviour change (II)

Reducing exposure to air pollution

How can air quality information support people to take actions to **protect their health from the effects of air pollution?**

Actions to reduce exposure to air pollution had low salience, even for many 'at risk' participants

Common actions to reduce exposure

While participants struggled to identify behaviours, on probing mentioned: finding quieter, alternative routes to walk to places (parks, back streets)

'I wouldn't consciously do anything to reduce air pollution for me'
Carers group

Less common actions

Closing windows to reduce air pollution from busy road in house

Avoiding rush hour

WFH, choosing when to go outside

It is noticeable that participants in this context related air pollution to pollen (as this is something that 'at risk' groups knew to avoid)

However, some participants had experienced serious negative impacts of air pollution, which had led them to change their behaviour

Experiences

Feelings of **tightness of chest**

Asthma attacks

Hospitalisation after a particularly bad asthma attack

'I'm more subject to air pollution than other people. I'm on the 14th floor of a high rise building and air pollution rises. I think it had a severe impact on my own conditions. Some days I can walk a lot further than other days it depends on the quality of the air'
Respiratory group

Actions

Avoiding going out when air pollution is high

Restricting timing of when go out

Trying to **take less air polluted routes**

Moving house

'Every time I'm walking around London streets I can feel the tightness in my chest but as soon as I'm back in Somerset [where family lives], no problem, everything's great'
Cardiovascular group

This list of actions to reduce health risks from exposure to air pollution was shown to participants

Area	Behaviour	Actions
Physical activity	Change where you walk, cycle, scoot	Use quieter side streets to make a journey on foot that you would normally make on a main road
		Consciously keep to the side of the pavement that is furthest away from the road when out walking this week.
	Change where you exercise	Plan your exercise / child plays in green spaces away from busy roads
		Try exercising indoors in a well ventilated room (e.g. in your home or at a gym)
	Change when you exercise outdoors	Alter the time that you exercise / take your child to play to avoid rush hour times

This list was broadly accepted, with greater perceived control over these behaviours compared to the list to reduce contribution, although once again it was perceived as limited

Actionable and relevant for some of those who see themselves as at risk

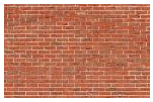
- Particularly those in good health with options for where to exercise

Some felt they were already putting these actions into practice, although not necessarily due to a concern for air pollution

The general population did not particularly feel that this is relevant to them – relevance is low (given the lack of understanding of the impact on them)

Once again, the list was perceived as limited and too focussed on physical activity, especially by older people with restricted mobility

Here again, barriers to implementing the desired behaviours were identified



Barriers

Low knowledge, awareness and engagement

Personal safety: not wanting to walk on back streets alone

Disbelief of some actions (e.g., walking on other side of the pavement)

Limited access to green spaces

Reduced flexibility and options to exercise where and when

Low relevance of actions (especially for those with limited mobility)

'It would be good to understand the science or reasons for this if you walk X metres away from traffic your air is X% better'
General population group

Facilitators

More information on the impact of air pollution on the human body

Linking behaviours with wider health and wellbeing benefits: e.g., outdoor exercise

Details of why certain actions make a difference

Safer cycle lanes and streets

Organised community outdoor exercise activities in local parks/green spaces: e.g., personal trainers, community exercise classes, outdoor gyms

Risk assessments in schools: currently assess for heat, sun and pollen but not air pollution

Encouraging behaviour change to protect from effects of air pollution: key insights

How can air quality information support people to take actions to protect their health from the effects of air pollution?

Education

Address key knowledge gaps

- Understanding of health impacts
- Awareness of variation of impact on different people
- Actions to take to mitigate risk

[Wave 1 – provide daily, localised air quality information]

Motivators

Tap into what can motivate people

- Understanding how actions can make a difference
- Promote the health and wider benefits of actions

And be mindful of what can hinder…

- Avoid concerning people
- Safety concerns, i.e. safe cycling lanes and streets

Behaviours

Promote actions, ensuring these are:

- Broader, more inclusive and relevant, i.e. less focus on physical activity
- Framed to appear impactful and worth committing to

Encouraging behaviour change to protect from effects of air pollution: key insights

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[Wave 1 – provide daily, localised air quality information]

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Behaviours

Promote actions, ensuring these are:

- Broader, more inclusive and relevant, i.e. less focus on physical activity
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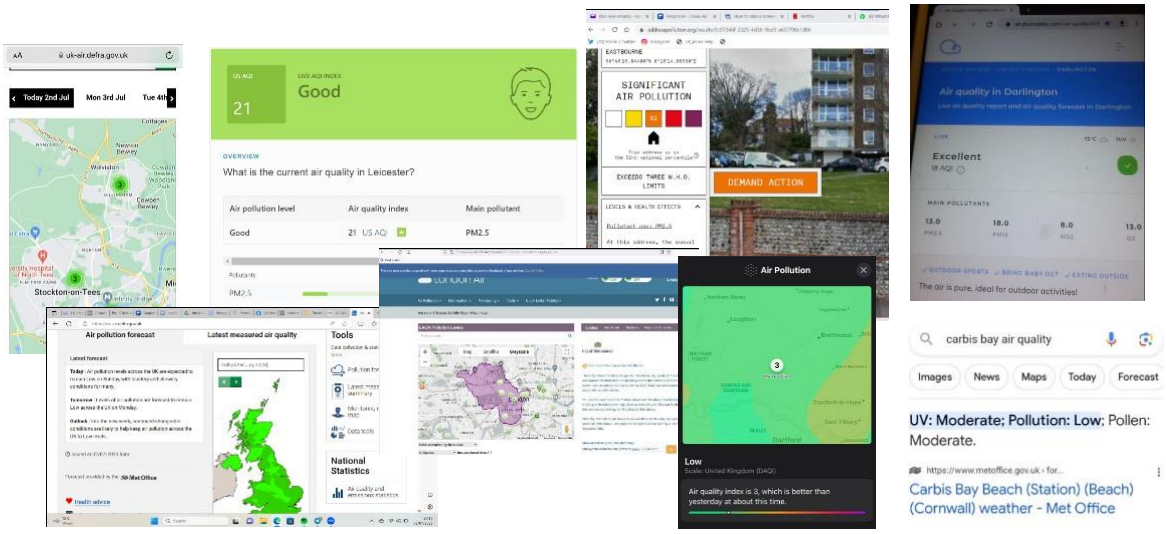
We asked participants to find out about the air quality in their area



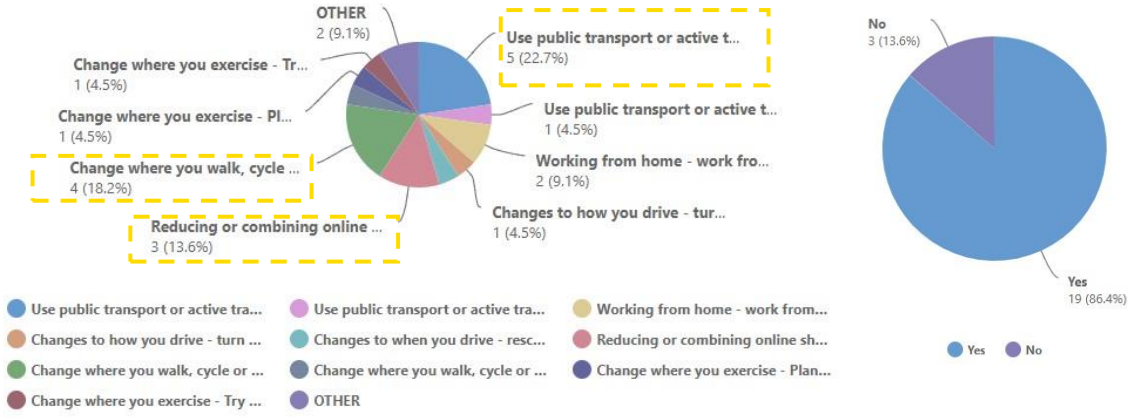
Participants accessed a range of sites and apps to find out their local air quality reading

The most commonly -accessed site was uk.air.defra.gov.uk (10 participants). Salience of the site may have increased because participants had been signposted to this site in Wave 1.

This was followed by the following sites/apps
- iqair.com (3 participants)
- Iphone weather app (2 participants)
- londonair.org.uk (2 participants)
- accuweather.com (2 participants)

The following sites were accessed by 1 participant each:
- clearnairgm.com
- Google search
- cleanairhub.org.uk
- addresspollution.org

When asked to conduct an activity to reduce contribution or exposure to air pollution, participants chose a range of activities and 19/22 said they would repeat the task



Some of the positive experiences

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And some of the negative experiences…

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Positive comments focused on ease/convenience and health and wellbeing benefits

Easy, convenient, practical

"It didn't require much effort which made it easy to implement" – ***Change where you walk, cycle or scoot, General Population***

"I think this is an easy action that most of us could take to reduce our time spent driving on the roads and help air quality" – ***Use public transport or active travel for short journeys, Carers***

"It was very quick and easy to do (probably easier than being sat at home waiting for the shopping to turn up before I can go out) and only cost 50p. I didn't have to go out of my way because I drive by the supermarket on my way home from work" – ***Reducing or combining online shopping deliveries, Carers***

"I like that it gives me a reason to go on a short walk to the shop, it is cheaper than home delivery and helps lower air pollution as I do not need to drive to collect my parcel and in turn it saves the delivery driver from having to stop parcels to multiple homes" – ***Reducing or combining online shopping deliveries, General Population***

"It is great to use public transport when it is reliable and affordable instead of driving" – ***Using local bus services to travel, Older group (66+)***

Health and wellbeing

"It made me think about all the extra driving made through deliveries. It was also nice to have a reason to go to a local shop and have a conversation with the person there- I appreciated the human connection" – ***Reducing or combining online shopping deliveries, General Population***

"The alternate walking routes I found are away from traffic and more pleasant altogether" – ***Change where you exercise, General Population***

"I breathed in much cleaner air, the peace and quiet was lovely and overall my mental wellbeing was very good when I arrived at work" – ***Change where you walk, cycle or scoot, Respiratory Vulnerabilities***

"The extra time taken is probably worth it in the end, less air pollution and not too much in terms of time difference" – ***Use public transport or active travel for short journeys, General Population***

"I tend to try and take the quieter roads sometimes but more when I am cycling due to time considerations. It gets you away from noise and pollution. It gives you a bit of space and allows you to think better or simply enjoy the quiet. In terms of safety, I think it's 50/50 because if there's a lot of people around that ups the chance of an incident but if there is not you are more isolated" – ***Change where you walk, cycle or scoot, General Population***

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However, for some the new behaviour raised the systemic issues that participants had mentioned in the group discussions

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There were fewer negative comments overall and these tended to focus on the practicalities of the actions

Inconvenient, impractical

The downside is the mud in poor weather, the fact that I still need to visit the road to collect papers etc and not meeting people to chat to as much- Change where you exercise, General Population

Not convenient enough for me. Too many obstacles, e.g. no toilets as this would really affect me. Time is massively less when travelling by car. I would rather travel in the car to a green space and get fresh air on the areas I chose to travel to- Use public transport or active travel for short journeys, Carers

As said previously I live in a little village which does not have any public transport facilities.Also being disabled I need to have a car to get me from A to B- Combination of changing the time when travelling and picking up shopping from more than one place, Older group (66+)

Time is the main consideration though when walking as it is often longer to go the quiet ways rather than the main- Change where you walk, cycle or scoot, General Population

So while participants were open to action, they felt that this needs to be enabled at a number of different levels

Individual

Being made aware of the impact of the issue on people and nature, and of the behaviour to make a difference

Ensuring there are actions that all people in all situations can put into practice (e.g., not just focusing on reducing car use/active travel)

Showing that the actions are easy, convenient, practical and may improve people's health and wellbeing

Local/national

Knowing that others are taking action locally and nationally (e.g., government and big business)

Knowing the local impact of actions: if we all reduce car journeys in a week would this help those who have asthma locally?

Infrastructure/policy

Reliable, joined up transport infrastructure: convenience (bus to train station, no parking fees, train to London quicker than driving)

Technological nudges: engines automatically switching off, option to combine online deliveries

Financial incentives: government supporting with lower energy prices/broadband fee to encourage WFH; incentives for employees to promote car sharing, cycling schemes

In this context, participants had lots of ideas regarding who Defra should be working with

Local councils: show the impact of air pollution on local residents, what is being done/could be done and what the impact could be

Local initiatives: better and safer cycles lanes off busy roads, free buses, priority to cycling and pedestrians over cars, outdoor gyms

Public transport infrastructure: subsidies to reduce costs, support for electric car charging

Health educators/charities: facts and figures to educate about the impact of actions, make people aware of what they can do in tangible terms

Government: set a good example, communicate what is being done and who is collaborating, show leadership, show polluters are being held to account

Participants were particularly focused on what businesses could be doing to facilitate them reducing their contribution to air pollution

Employer incentives schemes: WFH (support with heating and broadband costs), car sharing, cycle to work

Supermarkets promote local producers to reduce food miles and make their fleets electric

Energy companies: communication and focus on green energy

Car manufacturers: scrappage schemes (trade in old car for electric car)

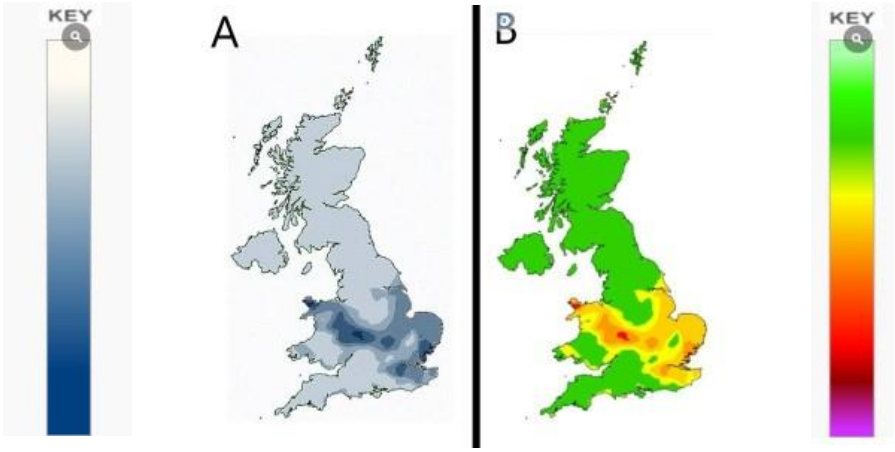
Local businesses: sponsorship, promotion of collective action, delivering local initiatives

6
Communicating risk (I)

Colour and language

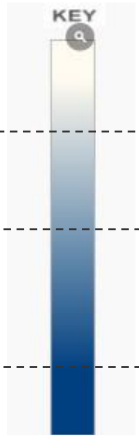
Views on different approaches to colour and language

Participants were shown two different approaches using colour to communicating air pollution levels - a single colour (with gradients) and a multicolour approach



Most participants interpreted approach A correctly however there was uncertainty in some responses and 4 participants misinterpreted the key completely

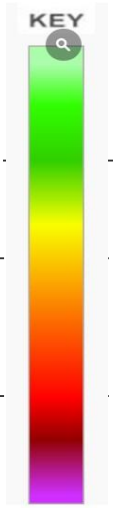
A



Correct understanding	Some uncertainty	Misunderstanding
Clean air, good quality, lowest pollution, excellent/very good air quality, air pollution is not an issue for anyone	It looks like much cleaner air to me, clean air I assume?	High density, it is extremely foggy and cloudy, grey unclean dirty, warm
Mildly polluted, medium quality, medium pollution, good/acceptable air quality, air pollution is still fairly low	It sounds a bit polluted to me, TBH I really don't know– I associate white and blue with clean so???	A medium density fairly foggy and cloudy so take care, slightly poor conditions, cool
Heavily polluted, poor quality, high pollution, acceptable/below average air quality, air pollution has increased so one needs to be careful when outside	It seems this is too much polluted, Who knows?	Overcast, very little smog or cloud and it should be good air quality, average pollution, cold
Dangerously polluted air, dangerous, highest pollution, bad/very bad air quality, air pollution is very bad and those of you who have medical issue should not go out	This is the worst condition to me, This could be very good or very bad– difference colours would be much better – red is bad	Very clean, this means that air quality is excellent and the air is clean, good pollution and air is clean, freezing

In comparison, there was no confusion or uncertainty in the interpretation of the multicoloured key/map, including the participants who had misinterpreted approach A

B



Clean air, clean air no risk, no/low level of pollution, green for safety

Slightly polluted air, some mild pollution with minimal risk, medium level of pollution, changing to slightly worst,

Heavily polluted air, moderate pollution take care, high level of pollution, very bad

Dangerously polluted air, severe air pollution with immediate risk to health, extreme level of pollution, DANGER LEVEL

Participants in the groups preferred RAG colour coding: this was supported by the responses to the online tasks

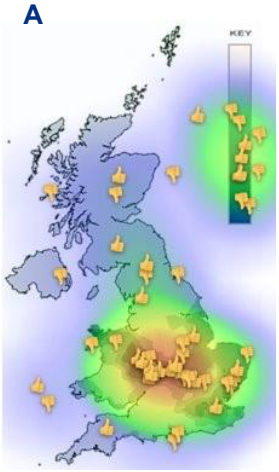
A

4/26 felt it was easier to understand and less confusing

5/26 felt it was more relevant to them and their needs

Reasons for preference

- Colour chosen associated with pollution
- Gradient clearly signals different levels of pollution
- Less over-stimulating than B



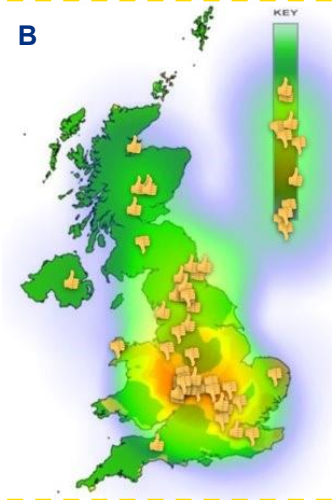
B

22/26 felt it was easier to understand and less confusing

21/26 felt it was more relevant to them and their needs

Reasons for preference

- Visually striking
- Familiar rating system – easy to 'decode'
- Clear contrast
- Easy to differentiate between different 'bands' of pollution



Here are some illustrative comments about the different maps

A

'I find it more intuitive. B is also a bit jarring – all those colours over stimulate me a bit and make me just want to look away'

'I'd find both equally relevant in terms of air pollution, but in terms of personal needs I'd much rather A because I find B jarring – it feels like more information to digest and my impulse is to feel overwhelmed and simply ignore it'

'Immediately think of pollution. Can easily see the different levels in different areas due to the gradient of colours'

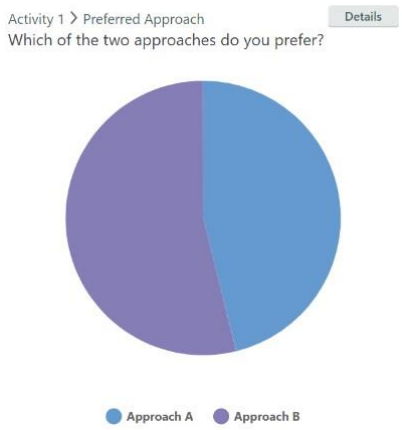
B

'Clearer difference in colours and more visually striking. Also uses colours commonly associated with 'bad' and 'good'

'The brighter colours make it easier to differentiate at a glance the different levels of pollution and is visually more appealing'

'It is also easier for me to see where I do not have 100% strong eyesight'

There was no clear 'favourite' approach when we asked participants about their language preferences referring to levels of risk



Approach A (US):

- Good
- Moderate
- Unhealthy for sensitive groups
- Unhealthy
- Very unhealthy

Approach B (China):

- Good
- Lightly polluted
- Moderately polluted
- Heavily polluted
- Severely polluted

However, a few interesting insights emerged from participants' responses

'**Lightly polluted**' did not seem to elicit as negative a response as 'moderate'

The different framing of air quality appeared to evoke different feelings

- Framing with health provoked concern and anxiety
- Framing with pollution induced more anger (as well as anxiety)

Approach A

GOOD

Assumed meaning	Feeling	Action
Not a problem for anyone	Fine	None
Low level of pollution	Safe outdoors	I might go for a walk
Good to me either way	Better	Not drive my car as much as possible to maintain this quality
It is safe to go outdoors	Relaxed	None
I don't need to take any action to limit my exposure and I can carry on as normal	Happy– one less thing to worry about	Nothing
The level of pollution is low and it is safe to continue as normal	Safe, relaxed, happy	None

Approach A

MODERATE

Assumed meaning	Feeling	Action
Higher levels of pollution in the air	Worried that I may be at risk	Try to limit being outdoors if I can
Risk of medium pollution	Disappointed	Try to avoid walking on busy roads
Not good to me at all	Bad and Sad	Not to go out 'til it gets better
Some noticeable pollution in the air	Fine if well	More aware, but nothing
Ok for most, except if asthmatic	Cautious	Take asthma inhalers with me
There is noticeable pollution	Some level of worry	Awareness and limiting of outdoor activities

Approach B

LIGHTLY POLLUTED

Assumed meaning	Feeling	Action
The air has a little pollution	Normal	Resume my normal activities
Pollution levels are not concerning	Relatively unconcerned	Do my normal outdoor activities
May or may not notice anything	Fine	None other than noticing it
Still okay to go out and about	Okay, but mindful	Keep a watch to see if map changes
Low levels of pollution	Okay	Avoid high traffic areas
Pollution levels are low	No change, some awareness	Nothing out of the ordinary, a little caution

Approach A

UNHEALTHY FOR SENSITIVE GROUPS

Assumed meaning	Feeling	Action
People with respiratory conditions etc are at greater risk if they go outside	Angry with a desire to improve things for these people	Speak to others about the issue
Do not go out	Badly affected health	Not go out
That there is a higher than medium air pollution	That the air is slightly “heavy”	Avoid doing cardio outside
Pollution is bad	Nervous	Advise sensitive groups to stay at home
Abit concerning	More apprehensive	Avoid physical exertion. Take a mask with me, but I may not wear it
Worrying levels of pollution	Nervous, upset, physical implications	Avoid going out, communicate to others

Approach A

UNHEALTHY

Assumed meaning	Feeling	Action
It is a health risk to breathe the air	Angry that things have got to this stage	Ask the local council what is being done to address this
High level of pollution	Anxious	Wear a mask when outside
Could cause health risk	Nervous	Move far away
If I must go out, then I should wear a mask	Very aware that the air quality is not good	Stay indoors, shut windows and doors and advise others, particularly if in the sensitive group, to do the same
There was a fair bit of air pollution in my area today	Annoyed	Play with the dog inside instead of taking her for a walk, not spending time in my garden
Health risks, high levels of pollution	Negative overall	Avoid going outside, look into taking precautions

Approach A

VERY UNHEALTHY

Assumed meaning	Feeling	Action
Critically dangerous	Scared	Stay indoors
Smog levels of pollution	Panicky	Stay indoors and close windows
Dangerous	Like I cannot breathe as easily	Stay inside where possible and use a fan
It is very harmful to breathe in	Worried, sad and scared	Try to stay in where I can- e.g., work from home
Don't go out	Worried	Make alternative plans
Danger, harm	Worried, scared	Staying indoors, keeping windows closed

Approach B

SEVERELY POLLUTED

Assumed meaning	Feeling	Action
Hazardous to health with severe risk of health issues	Scared, worried	Not to go outside, avoid the area
Extremely unhealthy levels of pollution	Scared	Not to leave home or open windows
There is very highpollutionand it is harmful to health	That it is affecting my breathing	Avoid going out and doing exercise
Serious problem	Alarmed	Stay indoors
My life is in danger	Extremely angry	Work from home and keep all windows shut
Health/life risks	Scared, angry	Staying indoors

Approach B

GOOD

Assumed meaning

Feeling

Action

No air pollution	Very safe	No caution
Very clean	Happy	Go out and about
The air is clean	Please	Act normally
The air quality is good	Happy	Nothing
The air is very clean	Happy and reassured	Go outside more
The air is clean with no pollution	Happy, safe	Nothing unusual, go outside

Approach B

MODERATELY POLLUTED

Assumed meaning

Feeling

Action

Pollution levels are medium, but could be harmful for high risk people	Concerned	Try to avoid busy roads
There is an above average amount of air pollution	That the air is slightly heavy	Avoid intense cardio
Could be an issue for some	Okay, but a bit concerned	Heed the warning
Noticeable pollution	Slightly congested	Not stay out long
Some risk of harm	Slightly concerned	Reduce outdoor activities if possible
There is risk of harm, pollution is noticeable	Concern	Limit outdoor activities

Approach B

HEAVILY POLLUTED

Assumed meaning

Feeling

Action

Assumed meaning	Feeling	Action
Risk of harm to my health	Concerned	Reduce outdoor activities to a minimum
Dangerous	Worried	Stay at home
Unhealthy	Sick if outside	Mask if out
The air quality is dangerously polluted	Very concerned	Not go outside unless absolutely necessary
The air is a health risk	Angry and powerless	Speak with others to see if they share my concerns
Danger and likely health risk	Negative, upset, unwell	Limit outdoor activities and wear a mask

Communicating risk – language and colour: key insights

How does the choice of colour and language used in air quality risk communication impact how people understand/interpret the message being conveyed?

Colour

Strong preference for RAG-rating

- Clear and easy to understand- familiar system
- Visually striking
- Clear contrast and easy to differentiate between levels

All respondents interpreted RAG-rating correctly (in comparison to single colour)

Language

No overall preference for either the US or Chinese framing of information

- Chinese version (referring to pollution) appeared to induce more anger versus the US version (referring to health)

7
Communicating risk (II)

Recommended actions and health advice

Views on Defra recommended actions and health advice

Participants in principle welcomed an overall recommendation for how air pollution levels could impact on health but this was felt to be more relevant for 'at risk' groups

Recommended Actions and Health Advice

Air Pollution Banding	Value	Accompanying health messages for at-risk individuals*	Accompanying health messages for the general population
Low	1-3	**Enjoy** your usual outdoor activities.	**Enjoy** your usual outdoor activities.
Moderate	4-6	Adults and children with lung problems, and adults with heart problems, **who experience symptoms**, should **consider reducing** strenuous physical activity, particularly outdoors.	**Enjoy** your usual outdoor activities.
High	7-9	Adults and children with lung problems, and adults with heart problems, should **reduce** strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also **reduce** physical exertion.	Anyone experiencing discomfort such as sore eyes, cough or sore throat should **consider reducing** activity, particularly outdoors.
Very High	10	Adults and children with lung problems, adults with heart problems, and older people, should **avoid** strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.	**Reduce** physical exertion, particularly outdoors, especially if you experience symptoms such as cough or sore throat.

*Adults and children with heart or lung problems are at greater risk of symptoms. Follow your doctor's usual advice about exercising and managing your condition. It is possible that very sensitive individuals may experience health effects even on Low air pollution days. Anyone experiencing symptoms should follow the guidance provided below.

Positive attributes included:

- Tonally appropriate, helps/encourage people to take responsibility for their own health
- Provides 'new' information that people with cardiovascular issues and who are overweight may be affected
- Clearly laid out, traffic light system familiar

Negative attributes included:

- Long, wordy– could be punchier
- Lack of clarity about wording in bold
- Confusion about colour coding (purple)
- Seems slightly worrying leap from 6 to 7?

Participants felt that there was potential to develop the communication of 'at risk'

'At risk'	'Susceptible'	'Vulnerable'	'Sensitive'
Associated with people with **existing health conditions**, COPD, asthma, respiratory conditions, older people, very young Relatively **well established during Covid** However, **perceived as an 'absolute'/'exclusive' term**	**Complicated word**, lacks some force **Less scary than 'at risk'** to some	Mostly not liked: **associated with danger, weakness and victimhood** However, **preferred overall by the cardiovascular group,** as this reflected their own self-perceptions	**Lacks strength/force**, not associated with medical diagnosis, ambiguous

Participants felt that 'at risk' versus 'general population' implies there is a 'safe' group and so felt it may be more relevant to indicate a spectrum, i.e., **'at greater/higher risk'; 'at lower risk'**

Participants did not really distinguish between different wording for physical activity and felt that ideally one term would be used

Physical activity

Associated with actions (e.g. walking but also running)

Strenuous physical activity

Associated with active exercise **getting out of breath** (e.g. running, lifting weights)

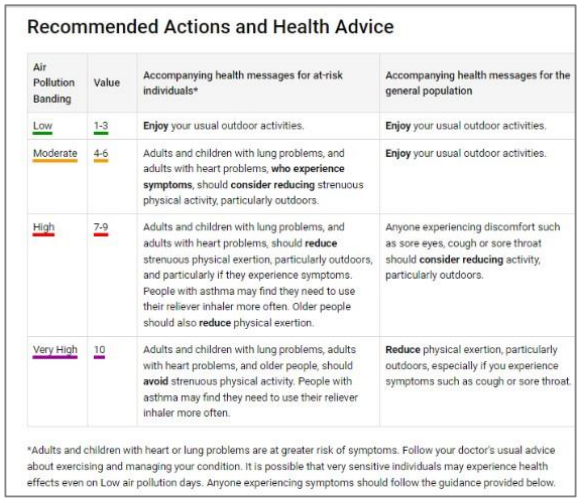
Physical exertion

Not necessarily associated with exercise - something that puts body under pressure (e.g. cycling, walking for older people)

'There's quite a lot of terms…I do think that's quite a lot. That's not a good thing - it's not extremely confusing but it could lead to some confusion'
General population

Some suggested that, as the impact of exercise varies depending on the activity and person to person, the focus should be on individuals checking in with their own feelings: e.g., 'activities that make you feel out of breath'

Some improvements were suggested to the table



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*Adults and children with heart or lung problems are at greater risk of symptoms. Follow your doctor's usual advice about exercising and managing your condition. It is possible that very sensitive individuals may experience health effects even on Low air pollution days. Anyone experiencing symptoms should follow the guidance provided below.

Set out 'at greater risk' groups at the top (including all who are relevant, e.g., babies)

Greater use of bullet pointing

Use wording such as 'activity that makes you feel out of breath' – and try to use this consistently

Spell out signs and risks to a greater extent (e.g., harder to breathe, coughs, sore throat/eyes)

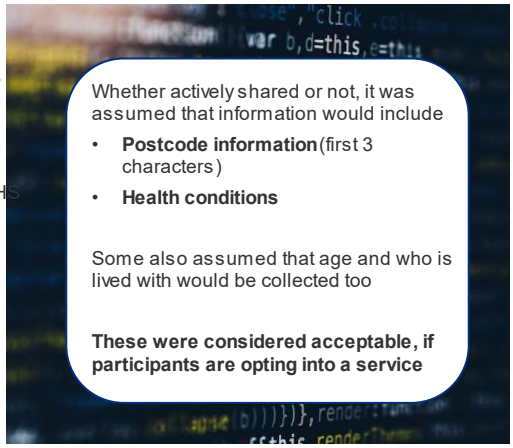
There were a range of responses to the idea of information sharing in this context: while it was generally more interesting to those in the 'at risk' groups overall, views varied

More positive about information sharing (older/'at risk')

- More interested in health and wanted greater tailoring of messages
- More trusting of government
- Assumed information will be shared to improve health
- Assumed existing information/relationships could be used, e.g., NHS app, local council (active information sharing would be limited)

Less positive about information sharing (younger/general population)

- Less interested in health per se
- Less trusting of government overall
- Assumed might have to share lots of personal details (e.g., blood pressure, height, weight etc)



Whether actively shared or not, it was assumed that information would include

- **Postcode information** (first 3 characters)
- **Health conditions**

Some also assumed that age and who is lived with would be collected too

These were considered acceptable, if participants are opting into a service

Participants came up with a range of ideas for delivery models

Opt-out system from local council

- Based on postcode area
- Reduces need to share information
- Information could be tailored by individual according to preference

Facility to opt-in via NHS app

- Many already using this anyway
- Assumed this holds current health information on conditions and could be further tailored, depending on need

Development of a new healthy living app

- Sign up to set targets for outdoor exercise etc
- Air pollution information

Key requests included

- Alert messaging (via app notifications or texts)
- The facility to choose message frequency and level at which alert is sent (e.g., every day, when air quality is 4+)
- The facility to access different layers of information: top level, able to click through to more detailed information
- Information on reasons for air pollution (e.g., traffic on the M25)
- Ability to link to background information on air pollution (causes/impacts), including symptoms to look out for
- Ensuring that information is provided showing choices and not presented too negatively to scare people

Participant were keen for asthma advice that is created collaboratively, provided consistently and shared with schools/employers to promote understanding of the condition

Positive attributes included:

- Positive about the provision of tailored/ detailed information for asthma
- Clearly set out, concise, visually striking
- Realistic actions, easy to follow
- Like relationship with Asthma UK

Negative attributes included:

- May not feel this adds any 'new' information
- A little unclear regarding structure (prefer Defra approach overall)
- May face barriers to advice in middle row
- Limit to RAG?

Low	Moderate	High	Very High
Enjoy your usual outdoor activities.	People with asthma, **who experience symptoms**, should **consider reducing** outdoor moderate to vigorous physical activity^.	People with asthma, **who experience symptoms**, should **reduce** outdoor moderate to vigorous physical activity^.	People with asthma should undertake moderate to vigorous physical activity^ **indoors, rather than outdoors**.
Where possible, consider changing your: • Travel route (e.g., take quieter back streets or routes through green spaces such as parks) • Exercise location (e.g., in green spaces such as parks or indoors in a well-ventilated room or gym) and/or • Time of travel or exercise (e.g., avoid 'rush hour')			
		Preventative inhalers can reduce the adverse effects of air pollution. Take your preventative inhaler even if your asthma is OK. Reliever inhalers can be used when symptoms occur. If symptoms persist, or you want more advice, talk to your healthcare professional. Currently, there is little evidence to recommend the use of facemasks.	

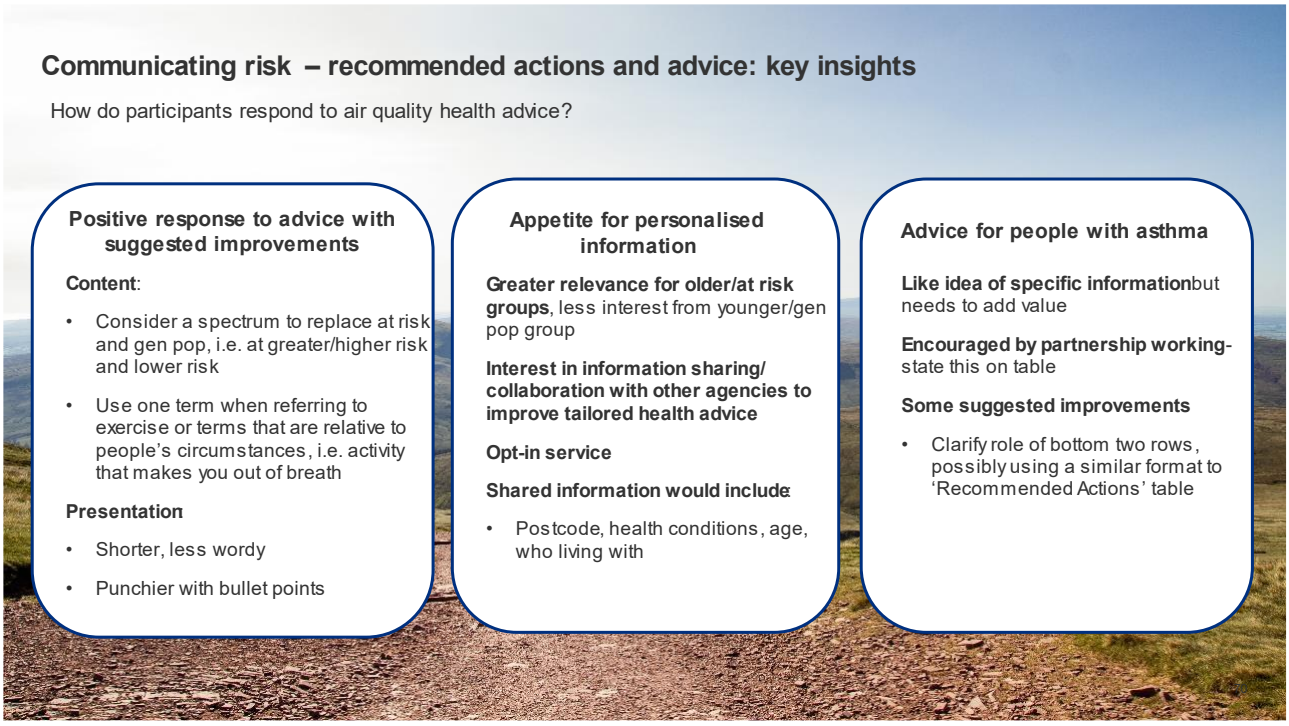
Middle row

Clarify role: 'Where possible, depending on how you feel, **always** consider changing your…'?

Include 'limit time outside'?

Bottom row

Clarify role, e.g.: **When air pollution is high** consider:'


Communicating risk – recommended actions and advice: key insights
How do participants respond to air quality health advice?
Positive response to advice with suggested improvements
Content:
• Consider a spectrum to replace at risk and gen pop, i.e. at greater/higher risk and lower risk
• Use one term when referring to exercise or terms that are relative to people's circumstances, i.e. activity that makes you out of breath
Presentation
• Shorter, less wordy
• Punchier with bullet points
Appetite for personalised information
Greater relevance for older/at risk groups, less interest from younger/gen pop group
Interest in information sharing/ collaboration with other agencies to improve tailored health advice
Opt-in service
Shared information would include:
• Postcode, health conditions, age, who living with
Advice for people with asthma
Like idea of specific information but needs to add value
Encouraged by partnership working- state this on table
Some suggested improvements
• Clarify role of bottom two rows, possibly using a similar format to 'Recommended Actions' table

8
Sample

Makeup of the panel in detail

30 participants convening in 6 group discussions(5 participants per group)

Group no	Group type	Further group-based criteria	Other criteria
1	General population	1 person living in an area within decile 1 of the most deprived geographical areas and 1 person within decile 2 (total for both groups) Excluding pregnant people, parents of children under 5, people with respiratory or cardiovascular health vulnerabilities and those over 65	All aged 18-65 (excluding group 6) 14 men, 16 women 8 people from minority ethnic backgrounds 28 from England, 2 from Wales 11 living in urban settings, 12 in suburban, 7 in rural Mix of household incomes, with 13 having incomes of less than £30,000 pa
2	General population		
3	Pregnant people/parent or guardians of children under 5	1 pregnant person, 4 parents/guardians of under 5s 1 person living in an area within decile 1 of the most deprived geographical areas and 1 person within decile 2	
4	People diagnosed with respiratory health vulnerabilities	4 people with diagnosed asthma (2 mild impact, 2 moderate impact), 1 person with COPD 1 person living in an area within decile 1 of the most deprived geographical areas	
5	People diagnosed with cardiovascular health vulnerabilities	3 people with cardiovascular conditions, 2 people with type 2 diabetes 1 person living in an area within decile 1 of the most deprived geographical areas	
6	Older adults	All aged at least 66 years old 1 person living in an area within decile 1 of the most deprived geographical areas	