Protecting Children from Air Pollution

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Applying the social and behaviour change message guidance in the REACH Framework



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1 Introduction

Air pollution is the single biggest environmental threat to child health.[1] Around 930 million children, 4 in 10 worldwide, breathe outdoor air with a level of fine particles seven times that considered safe by the World Health Organization.[2] Every day, almost 2,000 children under 5 years of age die from air-pollution-related causes, accounting for more than one in four of all deaths in this age group.[3] Three quarters of these deaths are linked to air pollution inside the home.[4] Despite the scale of the threat, air pollution is one of the hardest risks to communicate.



Part of the challenge is that air pollution rarely behaves like other, more visible dangers. A dust storm or passing diesel truck is visible for a moment, then the air appears to clear, even though the smallest and most harmful particles remain. Much of the harm is cumulative rather than instant. For example, a child does not collapse while playing in polluted air, but every polluted breath affects the body. The damage shows up years later in forms such as asthma, weaker lungs, slower learning or a weaker heart. In many communities, the air quality has been poor for so long that people have stopped registering it as a problem. Residents of one Nairobi settlement put it plainly, "We have got used to this; we forgot it is a problem."[5] And, where the threat is expressed as an air quality index number on a screen, the number can feel abstract and remote from the decision a parent faces before they step outside with their child each morning.

1 World Health Organization, 'Recommendations on Classical Air Pollutants', ch. 3 in *WHO Global Air Quality Guidelines: Particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide,* WHO, Geneva, 2021, <www.ncbi.nlm.nih.gov/books/n/who345329/ch3/>, accessed 27 August 2026.

2 World Health Organization, 'Launch of the Joint WHO/UNICEF Report: Clean air, healthy children', WHO, 30 October 2025, <https://knowledge-action-portal.com/en/content/launch-joint-whounicef-report-clean-air-healthy-children>, accessed 27 August 2026.

3 Health Effects Institute and Institute for Health Metrics and Evaluation, *State of Global Air 2025: A report on air pollution and its role in the world's leading causes of death,* Health Effects Institute, Boston, MA, 2025, <www.stateofglobalair.org/resources/report/state-global-air-report-2025>, accessed 27 August 2026.

4 Ibid.

5 Muindi, Kanyiva, et al., '"We Are Used to This": A qualitative assessment of the perceptions of and attitudes towards air pollution amongst slum residents in Nairobi', *BMC Public Health*, vol. 14, no. 226, 5 March 2014, <https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-226>, accessed 27 August 2026.

The challenge is that air pollution comes from many different sources, and the protective behaviour needed to mitigate and avoid the risks can vary greatly. Communicating and driving behaviour change on air pollution is challenging because it is often normalized. If it is seasonal, people see it as temporary and wait it out. If it is chronic, they get accustomed to it and do not understand the urgency. Either way, people's health is being damaged now, but it may take years for the effects to become serious enough for them to finally act. Children are at greater risk than adults. Young children breathe more rapidly than adults and take in more air relative to their body weight, and they live and play closer to the ground, where some pollutants reach peak concentrations.[6] The finest particles cross from the lungs into the blood, and some pollutants cross the placenta and reach the baby during pregnancy.[7]

This guide provides a framework to develop messages that shift families and decision makers from awareness to sustained protective action related to air pollution. It is organized around the REACH (recognize, engage, act, context, habit) framework, and the guidance is designed to be adapted. The messages, examples and priorities here are global. Before use, they should be localized to the relevant pollution sources, languages, trusted messengers and daily context of the specific setting. Localization is far more effective when it is informed by formative research such as knowledge, attitudes and practices studies; social listening; and interviews with caregivers, health workers and community leaders. Chapter 5 presents the practical details on how to apply the principles.

Resources

- State of Global Air 2024
- Clean Air, Healthy Children: An agenda for action
- Environmental Determinants of Respiratory Disease in Children



6 United Nations Children's Fund Children's Environmental Health Collaborative, 'Air Pollution', UNICEF, n.d., <https://ceh.unicef.org/spotlight-risk/air-pollution>, accessed 27 August 2026; United Nations Children's Fund Children's Environmental Health Collaborative, 'Air Pollution: A threat to children's rights – How air pollution impacts children's lives and the action we need', UNICEF, n.d., <www.unicef.org/stories/air-pollution-threat-childrens-rights>, accessed 27 August 2026.

7 'Air Pollution'; 'Air Pollution: A threat to children's rights'.

1.1. The REACH framework

The REACH framework is a behaviour change tool with five components that each addresses a distinct point where the response to environmental health threats typically breaks down. Interventions can be designed to address the part of the problem most needing to be solved. The five components are as follows:

Recognize: helping people perceive a threat that is often invisible and establishing the causal link between an exposure and the harm it does.

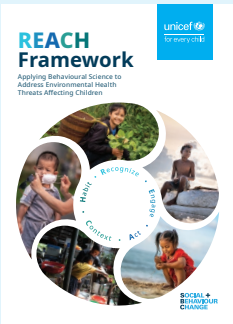
Engage: creating the personal relevance and emotional connection that drives motivation and helps families prioritize protective behaviours.

Act: building the capability, skills and support that turn motivation into protective actions that work in real-life conditions.

Context: understanding the structural conditions, including economic, infrastructural, regulatory and cultural factors, that determine whether interventions can drive behaviour change in a given context.

Habit: establishing the routines, cues and reinforcement that keep protective actions going after the initial effort fades.

These components work together rather than in sequence. Recognize, engage and act influence one another, while barriers related to context and habit can prevent action even when motivation is high. Most interventions and campaigns will need to address several components at once.



Scan to explore the REACH framework



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2 Core principles for air pollution messaging

Four principles underpin every effective air pollution message, whatever the pollution source or the audience:

1. **Make the intermittent and invisible threat visible:**
    - Give the invisible a concrete form: The most harmful particles cannot be seen, smelled or tasted, so messages have to supply the missing sensory detail through comparison, imagery and simple explanations of where the pollution comes from and where it goes.
    - Interpret sensory cues wisely: A burning smell or a visible haze are clear warnings, but the absence of these does not mean there is no danger. The finest particles often remain in the air after the smoke has cleared. Teach people to use the cues available to them while knowing their limitations.
    - Connect the exposure to the outcome: Draw the link between the cooking fire, the traffic on the road or the seasonal smoke with the cough that will not settle, the child who tires faster than others or a baby born prematurely.

2. **Balance the threat with what a family can actually do:**
    - Pair every risk with a protective action that is achievable: A vivid account of harm without an achievable response produces fear and paralysis, not action.
    - Never attach a frightening message to an action a family cannot take: The households most exposed to air pollution are often the least able to change their structural conditions, and a message that implies they are failing their children adds guilt to a burden they did not create. The sources of the highest levels of indoor and outdoor pollution are frequently located in the poorest communities;[8] the messaging must not imply that the families living there are to blame for the air quality.
    - Keep hope in view: Air pollution is one of the few threats to a child's future that a family can act on, in small ways, day after day. Breathing cleaner air also lets a child recover some of the lung growth that pollution has cost them. When London cut traffic emissions across the city, children's lung growth sped up, closing the gap with children in less polluted places within four years.[9]

8 Air Pollution'; 'Air Pollution: A threat to children's rights'.
9 Wood, Helen E., et al., 'Impact of the Ultra Low Emission Zone on Lung Function Growth in Children in London, UK: A prospective parallel cohort study', *The Lancet Public Health,* vol. 11, 2026, pp. E733–E743, <www.thelancet.com/journals/lanpub/article/PIIS2468-2667(26)00163-5/fulltext>, accessed 27 August 2026.

3. **Adapt to the local culture, livelihoods and context:**
    - Deliver messages through trusted messengers: A community health worker speaking with a family in their kitchen reaches them in a way a poster or a visiting official cannot.
    - Respect the practices and livelihoods that involve exposure: Cooking on a traditional fire, heating a cold home in winter using coal, burning crop residue to clear a field or working a job next to traffic are woven into culture and survival, and are not simply bad habits. Messages that honour the practices and offer a safer way to maintain them succeed where prohibition fails.
    - Localize the relevant pollution sources: The dominant sources differ sharply between a rural village that cooks with biomass, a city crowded with traffic and a region that experiences a seasonal burning or dust cycle. The chapters on application and context offer guidance on profiling the local pollution source mix and on protecting families where live air quality data and monitoring technology are absent.

4. **Emphasize prevention and early action:**
    - Lead with what can be done, not with the permanent nature of the damage: The aim is to empower people to take a concrete first step, not to dwell on harm that cannot be reversed.
    - Frame protection as cumulative: A day of cleaner air is a day the lungs do not have to recover from, and small changes repeated across the years that matter most during childhood add up to real protection.
    - Protect the periods of time that matter most: The first thousand days, from conception to a child's second birthday, are when the lungs, brain and heart develop the fastest and when clean air matters most.[10]



10 'Air Pollution'; 'Air Pollution: A threat to children's rights'.

3 Using REACH components for message development

The three components that are used for most message development work are recognize, engage and act. They can be used as separate focus areas for a campaign, combined within a single message or used in sequenced over time as a campaign matures. Each is presented below with its objective, the behavioural strategies that serve it, the mechanism behind each strategy and examples that show the strategy in operation.

Two principles underpin the development of messages under all three components:

1. A message that changes behaviour usually specifies five things. Identifying them turns a general concern into a protective action a family can take. A strong air pollution message should feature:
    - a specific time;
    - a specific place;
    - a specific person (the person whose lungs are most at risk – often the child nearest the smoke or the road, or the pregnant woman and her unborn child);
    - a specific source; and
    - a specific action.

2. The five components are not necessarily sequential and also can carry different weight based on need. Identify the dominant barrier to REACH. Formative research, even a few group conversations, clinic exit interviews or social listening, usually shows that one barrier is greater than the others in each community, and the campaign should lead with the component that addresses it. What communities say is the clearest indicator of which barrier is greatest. Some examples are given in the following table.

What people say	REACH component
The air looks fine today.	**Recognize** Air pollution is not identified or perceived as a hazard.
I don't think air pollution affects my child.	**Recognize** The health risk is not acknowledged at the personal level.
I know pollution is a problem, but it's just part of life here.	**Engage** The issue is recognized but not considered personally meaningful or urgent.
Everyone breathes this air; there's nothing I can do about it.	**Engage** There is a low sense of agency or efficacy.
I worry about pollution, but I don't know what actions to take.	**Act** There is a lack of clear, actionable guidance.
I checked the air quality, but I wasn't sure what it meant for my child.	**Act** There is difficulty translating information into decisions.
I want to protect my child, but I can't keep them indoors or change our route.	**Context** Structural or resource barriers prevent action.
Cleaner fuel is too expensive for us.	**Context** Economic constraints limit options.
I only remember to check air quality when someone reminds me.	**Habit** Protective behaviours are not yet routine.
We used to avoid outdoor play on bad air days, but we stopped paying attention.	**Habit** Protective routines are not sustained.

Most communities demonstrate several of these perspectives at once. The task is to identify the primary barrier and start there.

3.1. Recognize: Making an intermittent, invisible threat visible

Objective: The recognize component does two things regarding air pollution. It helps a family perceive a threat that is often invisible and easily normalized, and it establishes the causal link between exposure and the harm that follows. The most damaging particles are too small to see, smell or taste,[11] the harm they cause can be delayed, and, in many places, the pollution, such as cooking smoke, has become part of the background of daily life. A message applying this component restores the visibility of the threat and connects it to something a family already cares about: the child's cough, the missed school days, the developing lungs. It works against a specific misperception at each level of awareness, for example that clean-looking air is safe, that the smell being no longer there means the danger has passed or that being inside the home is automatically safer than being outside in the street.

Strategy: Give the invisible a concrete form

Why and how it works
People are more able to understand what they can picture. When a message pairs an abstract hazard with a concrete image, a comparison or a physical description, it gives the mind something to grasp, and the hazard becomes real enough to act on.

Examples

Ambient air pollution	Traffic-related air pollution
$PM_{2.5}$ consists of very small and harmful particles. These particles are 30 times smaller than the width of a human hair and too small to see, taste or smell. They slip past the nose, past the throat and deep into the smallest branches of a child's lungs. From there they cross into the blood and travel to the brain and the heart. In pregnant women, they cross to the baby growing inside the mother. Air can look clean and still carry this poison.	The black puff of smoke at the back of the bus is the part you can see. The plume that hangs in the air for the next several minutes is mostly invisible. A child standing on a footpath as the bus passes breathes in the visible smoke and continues to breathe in the particles and gases that cannot be seen.

11 World Health Organization, 'Ambient (Outdoor) Air Pollution', Fact sheet, WHO, 24 October 2024, <www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health>, accessed 27 August 2026.

Strategy: Turn the air quality index number into a decision

Why and how it works

A measurement only changes behaviour once it is attached to an action. An index value on its own is abstract and might not mean much to someone, but the same value tied to a clear instruction on what to do today becomes a practical trigger. General information about indoor air pollution leaves a household better informed but behaving no differently. Showing a household its own readings has been proven to change behaviour to the extent that $PM_{2.5}$ levels are cut by a fifth.[12] Framing air quality data in a similar way to the weather forecast capitalizes on an existing habit rather than asking people to form a new one.

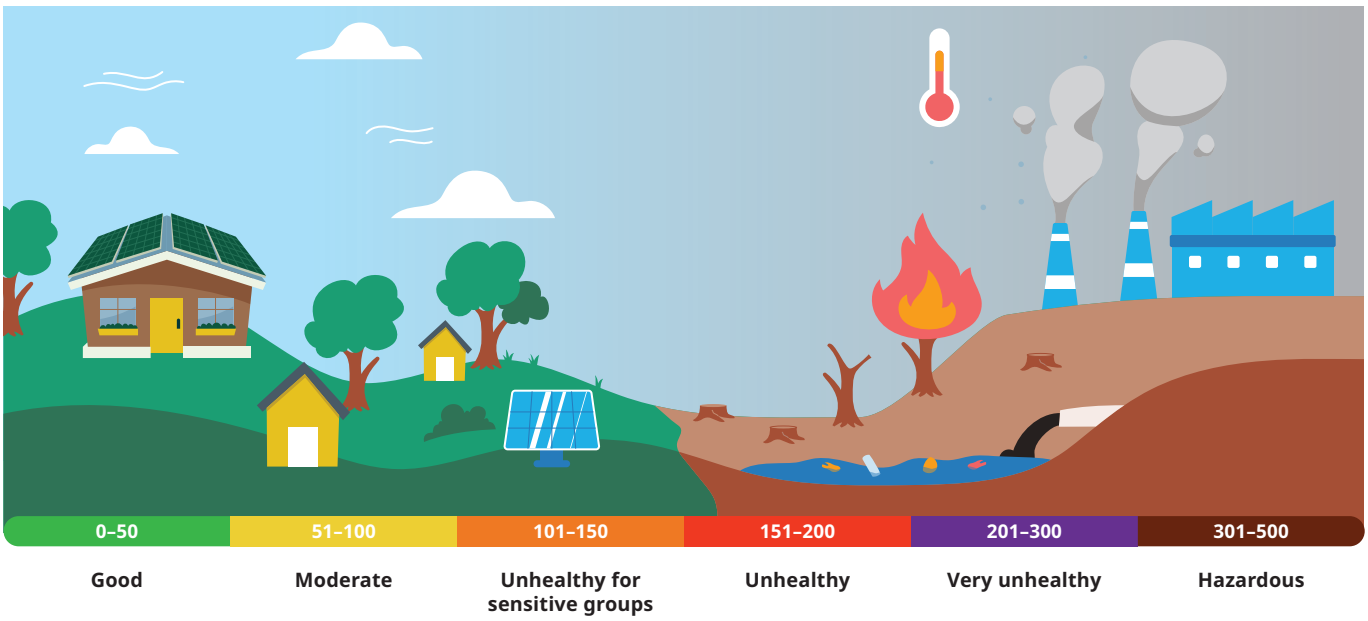
Explain the air quality index in plain words the first time it appears in a campaign. It turns invisible pollution into a single number that falls along a colour scale that can be read like the weather forecast (Figure 1). It represents average air quality across a region. Because thresholds, colour bands and even the availability of an up-to-date number differ by country, teach the rule of thumb for interpreting the air quality index, and always provide a low-technology fallback for families without a reliable number to check. If data on specific main pollutants are available for your region, ensure that the recommended action is relevant for that pollutant.

Examples

All pollution sources

Green and yellow mean the air is acceptable for most people. Orange means children, pregnant women and people with asthma or heart conditions should reduce time spent outdoors. Red and purple mean everyone should stay indoors and keep windows closed. Read the index the way you read the weather forecast before planning your day.

Figure 1. Examples of air quality index colour bands



12 Abdel Sater, Rita, et al., 'The Power of Personalised Feedback: Evidence from an indoor air quality experiment', *Behavioural Public Policy,* vol. 10, no. 3, 2024, pp. 632–669, <https://doi.org/10.1017/bpp.2024.46>.

Strategy: Bring the distant near and make the abstract concrete

Why and how it works

Pollution described in general terms is easy to dismiss, because nothing in the description tells a family what to do about it or when. Providing people with a concrete action gives them a sense of agency and spurs them to action. Describing the same pollution, present at a specific hour, on a specific street, near a specific child, turns it into a specific problem that calls for an immediate decision. Link the threat to the moments and places where it is concentrated.

Examples

Traffic-related air pollution	Wildfire smoke
Traffic pollution does not stay at the same level all day. It builds during the morning commute, eases through the middle of the day, and rises again during the afternoon school run and the evening commute. Pollution can be three or four times higher during peak traffic times than during the quieter hours in between. Knowing the pattern allows a family to take protective actions against the worst of the pollution.	In many parts of the world, the wildfire season occurs at a particular time each year. Wildfires are sometimes generated near communities, and other times at a faraway location, with smoke travelling to communities downwind. Treat the wildfire season the way you treat the rainy season, and mark it on the family calendar if possible. The smoke comes back every year; so does the chance to be ready before it does.

Strategy: Correct the reassuring misconceptions

Why and how it works

Some of the most common beliefs about air pollution are both comforting and wrong: that closing a door keeps the indoor air clean, that only the visible smoke is harmful, that switching on a fan or opening a window clears it. Correcting a misconception works best when it is replaced with an accurate mental model the person can apply in practice. State the misconception plainly, explain why it is incorrect and state the reality in the same message. Explain the correction in practical terms, so it points to what to do rather than only what to stop believing.

Examples

Household (indoor) air pollution

Many families assume that once they close the door, the air inside is clean. Sometimes it is, and sometimes it is not. Different household air pollutants include the following: cooking smoke, fumes from kerosene lamps, smoke from indoor heating sources during winter, smoke from burning mosquito coils and incense, second-hand tobacco smoke, cleaning chemicals, mould and dust. All of these can build up in closed rooms. Without ventilation, indoor air can contain more harmful particles than the air on a busy street.

Strategy: Identify who is affected first

Why and how it works
Attaching risk to a single identifiable person moves people far more than providing a population statistic. Identifying the specific person most at risk – the baby at face level with the cooking smoke, the child at the roadside, the pregnant woman – converts a general hazard into one that threatens a particular person, who a caregiver is already motivated to protect. Explain why air pollution affects certain people more than others: Children breathe more air relative to their body weight than adults and they breathe closer to the ground, while fine particles reach a baby in the womb through the mother's blood.[13] Let the person's vulnerability be the reason to act, without tipping into a level of alarm that leaves the family feeling helpless.

Examples

Second-hand smoke	Waste burning
A child breathes faster and deeper relative to their size than an adult does, so for a child and an adult in the same room with the same lit cigarette, the child takes in several times the amount of harmful cigarette smoke that the adult does.	Waste burning happens close to the ground. The resulting smoke drifts at the height of a child's face and settles on the surfaces where children sit and play.

Across a recognize campaign, the same tactics should be used no matter what the air pollution source is locally, so a family fully recognizes the threat in the smoke of their own fire, the traffic fumes in the road outside their home and the seasonal haze they experience, and not only in abstract terms.



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13 'Air Pollution'; 'Air Pollution: A threat to children's rights'.

3.2. Engage: Moving clean air up a crowded list of priorities

Objective: A family that recognizes the threat may still not act on it, because air pollution competes for attention and resources against needs that feel more urgent: income, food, safety and childcare. Engage is the component that drives motivation. It works by changing the family's emotional and psychological relationship with the threat, making clean air feel relevant to them and worth prioritizing, rather than by supplying more information. The particular task of the engage component regarding air pollution is to address the helplessness that being faced with a large, structural, seemingly unfixable problem produces, and to give a family a reason to believe that the small actions they are able to take are worth taking.

Strategy: Frame protection as a way to build children's potential

Why and how it works
For a threat whose harm is slow to materialize and whose remedy is preventive, a message framed as a gain works well by presenting each protective action as an investment in the child the family is raising, rather than as a defence against a loss that has not yet happened and may feel abstract. Tie clean air to the outcomes a caregiver already wants for their child, such as stronger lungs, clearer thinking and better days at school, and present protection as something that is built up over time. Keep the promise honest and modest; the point is to frame it as a realistic gain, not a miracle.

Examples

All pollution sources
Treating asthma, repeated infections and the long-term effects of air pollution costs more than preventing them. Wearing appropriate masks, ventilating when cooking or switching to a cleaner stove, and taking a less polluted route to school are investments a family can make depending on their circumstances.

Strategy: Make one identifiable child the reason to act

Why and how it works
Motivation is prompted by the face of a specific individual, not a statistic. A message built around one identifiable child, such as the one closest to the fire or the one waiting at the gate, engages the caregiver's existing protective instinct far more reliably than a statistic about a population. Put a single, recognizable child at the centre of the scene and be explicit about that child's exposure. Draw on the actual geometry of the household or the street: who stands closest to the smoke or who waits longest at the roadside for the school bus.

Examples

Household air pollution
When a meal is cooked over an open flame, the person standing closest to the smoke is usually the cook. The person next closest is often a small child. A baby strapped to the mother's back is at face level with the smoke. The smoke that drifts past the cook affects the baby more than they may realize.

Strategy: Show that other families are already acting

Why and how it works

People take their cue from those around them when it comes to what is normal and sensible. When a message shows that families like the audience's own are already acting, it establishes the behaviour as an ordinary choice rather than an unusual or aspirational one, and it lowers the sense that the family would be acting alone. Use this message alongside another message rather than on its own, and where possible show a family how their own household compares with others instead of telling them what most people do. Describe real, achievable changes that neighbours are making, and keep them modest and varied, so the audience sees several entry points and recognizes their own circumstances in at least one.

Examples

Household air pollution	Respiratory protection
In your community, many families are changing the way they cook or heat their homes. Some are switching to gas cylinders or biogas. Some have added a chimney or a window to remove smoke and emissions from stoves and fireplaces. Some have built an outdoor cooking space. These households are not waiting for everything to be solved at once. They are starting with the change they can afford.	Many families are starting to wear respiratory protection to reduce their exposure to particles in the air. People are choosing to wear them in the most polluted environments, such as when walking along busy roads (or on open transport like a bicycle or motorbike). If you buy respiratory protection (a certified respirator or face mask) for your child of an appropriate age, you may need to try a few until you find one that fits well.

Strategy: Define the window of vulnerability

Why and how it works

Motivation increases when a message shows that timing changes the stakes. Compared with other life phases, pregnancy and the first years of life are periods when the same exposure does more harm and the same protection does more good. Explain the significance of the first thousand days in plain terms, and connect this window to the specific, achievable protections available during it.

Examples

All pollution sources
From the day a child is conceived to the day they turn 2 years old, the brain, lungs, heart and immune system are developing at the fastest rate they ever will. A protected first thousand days gives a child a foundation that supports every year that follows.

Strategy: Address helplessness with a first step

Why and how it works

A family who believes nothing they do will matter has no reason to act, and air pollution invites that belief because so much of it is beyond a household's control. Creating a sense that one's own actions make a difference is what converts concern into behaviour. Acknowledge honestly what the family cannot change, then identify the smaller things they can, and show how these add up. Do not overpromise by suggesting, that household action can solve a structural problem; instead, position the achievable action as a complement to longer-term efforts at the pollution source level.

Examples

All pollution sources

Many parents read about air pollution and feel there is too much to fix. Most families cannot move house, change the road outside or shut down a nearby factory. They can do other things. Cook with the windows open. Keep the child away from cooking smoke. Take the route via the quieter street away from traffic. Wear respiratory protection. Each protective action is small, but together they add up over time to create a healthier childhood.



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Navigating cultural and livelihood practices with respect

For many families, the source of exposure is bound up with culture, identity or survival. Cooking over a traditional fire carries meaning and is part of the daily routine. In one study in rural India, women described a fixed, twice-daily cooking pattern on a single traditional stove that anchored the household's day, and older women framed concern about the smoke as a complaint of the younger generation.[14] Burning crop residue is, for many farmers, the fastest and cheapest way to clear a field to permit timely sowing amid labour shortages.[15] For an informal waste worker or a roadside vendor, pollution exposure is inseparable from securing the day's income. In each case, a message that simply prohibits the practice tends to fail, and can alienate the family from every other protective message that follows.[16]

The more effective message focuses on harm reduction. Honour the significance of the practice and frame the safer option as a way to maintain what matters rather than abandoning it, such as keeping the cooking routine but directing the smoke outside, or continuing to protect the harvest but switching to a residue method that also preserves the soil. Where a family has adopted a cleaner cooking tool but has also kept the old one, gently explain the reason they should stop using the old one: cooking on both at once produces much of the smoke the new stove was meant to remove. Partner with the cultural, religious and community leaders who endorse the particular practice, so the message comes from inside the tradition rather than from outside it.

Where no alternative is yet affordable or available, the effective message is risk management, not prohibition. Keep the youngest children and pregnant women away from the smoke, and ventilate the home and protect the most vulnerable people (potentially with respiratory protection) while the wider system works on the larger change. This messaging, offering support rather than assigning blame, applies equally to the household member who smokes. The most effective means of protection is quitting, but, where quitting is not yet possible, the achievable step is restricting smoking to outside the home and car, and away from children.

14 Alam, Ashraful, et al., 'Household Air Pollution Intervention Implications: Findings from qualitative studies and a field trial of clean cookstoves in two rural villages in India', *International Journal of Environmental Research and Public Health,* vol. 13, no. 9, 2016, p. 893, <www.mdpi.com/1660-4601/13/9/893>, accessed 27 August 2026.

15 Urban Cordeiro, Emily, et al., 'Transitions to Crop Residue Burning Have Multiple Antecedents in Eastern India', *Agronomy for Sustainable Development,* vol. 44, no. 59, 2024, <https://link.springer.com/article/10.1007/s13593-024-00983-3>, accessed 27 August 2026.

16 Miller, Rob, et al., 'Facilitators and Barriers to Compliance with a Raw Coal Ban amongst Pregnant Women and Mothers of Young Children in Ulaanbaatar, Mongolia: A mixed-methods study', *PLOS One,* vol. 21, no. 4, 2025, e0323149, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0323149>, accessed 27 August 2026.

3.3. Act: Turning intention into a protective routine

Objective: A caregiver can recognize air pollution and be strongly motivated to protect against it, and still not act, because they do not know exactly what to do, do not believe they can do it or have no plan for when the moment to act arrives. Act is the component that drives capability. For air pollution messaging, applying this is particularly challenging for several reasons. First, what the right action is will be different depending on the pollution source. Second, several of the actions are technical enough to get wrong. And, third, some widely trusted actions do not work. A message applying the act component should supply the specific skill, the confidence to use it and the trigger that ties it to a specific moment in the day.

Strategy: Anchor the action to a specific moment

Why and how it works
An intention becomes a behaviour far more reliably when it is tied in advance to a concrete cue: a time, a place or an event that is bound to occur. The cue eliminates the need to remember, so the action does not depend on deciding to act each time. Build each action around a cue the family already has. Attach the behaviour to an existing daily marker, such as waking up, leaving for school or sitting down for the evening meal, so it becomes a habit rather than competing with one.

Examples

All pollution sources
When you wake up, check the air quality index on your phone or via local radio, in the same way you would check your messages or the news. If the air quality is classified as green or yellow, outdoor play is safe; if it is orange, stay indoors or take the less busy route; if it is red, this means windows should be closed and outdoor play should wait. This is the same customary care you already take when you look at the weather before going out.

Strategy: Give instructions specific enough to remove all doubt

Why and how it works

Vague advice fails at the moment of action because the person still has to work out what to actually do. Precise, step-by-step instructions remove this uncertainty and build the sense that the behaviour is doable. Spell out the action in concrete steps, including the details people usually get wrong. For equipment, specify the standard and the fit. Provide the details that tell the person that their action is working.

Examples

All pollution sources

A face mask only reduces exposure to particles when it fits and when it contains an efficient filter. Well-fitting certified respirators (like KN95-standard ones, which are sometimes available in children's sizes but are mainly for adults) are the most effective. How the mask is secured matters as much as the filter. Respirators with straps that pass around the head seal far better than those with ear loops, which lose about a third of their protection during ordinary use. Surgical masks offer some protection, if they can be made to fit. Ear loop clips can help with this. Cloth masks or materials offer little or no protection. Put the mask on and put the ear loops over the ears (or head straps around the head). Press the metal strip over the bridge of the nose with two hands. If air leaks around the edges when you breathe out – you may be able to feel air from your breath on your eyelashes or down your neck – adjust it. You may need to try more than one brand to find one that fits properly.

Strategy: Replace the wrong instinct with the right action

Why and how it works

Several common responses to air pollution actively make things worse, and simply telling people to stop does not give them a replacement response. Identifying the harmful action, explaining briefly why it backfires and presenting the correct action alongside it enables the person to swap one behaviour for another, rather than leaving them with a knowledge gap.

Examples

All pollution sources	Second-hand smoke
Dry sweeping and dry dusting lift the smallest particles back into the air, where they are easily breathed in. Wet cleaning traps them. Dampen a cloth with water until it is wet but not dripping. Wipe surfaces in one direction then fold the cloth and continue.	Opening a window helps with ventilation if clean air is being blown through, but fine particles can still drift between rooms and linger for hours. The only arrangement that reliably protects everyone is a home where no one smokes indoors at all.

Strategy: Build capability in stages, especially with children

Why and how it works

A behaviour that feels difficult or is refused outright can be made easier by breaking it down into smaller, more achievable steps, with success in each step building confidence to take the next. This matters most when a child has to cooperate, because, while an enforced first attempt often fails to establish the behaviour, a gradual, rewarded approach is more likely to be successful. Sequence the steps of the behaviour from easy to difficult, and build in early success and praise. For actions that involve a child's cooperation, let the child approach the equipment on their own terms and practise using it in calm conditions before it is required.

Examples

All pollution sources

Show your child the face mask before asking them to put it on. Let them touch it, smell it and handle it themselves or as you hold it. Let them practise wearing it for short periods inside the home before using it on the way to school. Praise them when they keep it on. The first few times may be the hardest. After that, it becomes part of getting ready to go outdoors, like putting on shoes.

Strategy: Plan the response before the bad air day arrives

Why and how it works

Decisions about protection when under pressure, such as once the smoke is already in the air, are harder to make, are made more slowly and are more likely to be skipped. A plan settled in advance converts a series of difficult in-the-moment choices into the simple execution of an agreed routine. For forecastable exposure, this is the single most valuable thing a family can do. While the air is clean, have the family decide the small number of details that would otherwise have to be worked out during an exposure event, such as which room will become the clean air room, who will check the air quality and where the face masks are kept.

Examples

All pollution sources

Decide today what your family will do on bad air days, before the next bad air day arrives. A plan made in clean air is one you can follow effectively when the air quality turns bad.

Matching the protection to the body: A safety note that must accompany every action

The protective actions are not all suitable for everyone, and a message that provides an action must, at the same time, direct the people that it excludes to an alternative. The clearest case is respiratory protection. Certified respirators are not suitable for children who cannot tell their caregiver if they are uncomfortable or who are not able to take it off by themselves, or for whom the components of the certified respirator present a choking hazard. There are also children with certain illnesses who may struggle to tolerate the added breathing resistance from wearing a certified respirator.

For those who cannot wear respiratory protection, the alternative is for them to stay away from the pollution altogether, such as in a sealed room with clean air. During long or severe events, relocate such people from the polluted area to somewhere with cleaner air where possible. Keep small children and pregnant women out of the cooking area, and wait until the smoke clears before bringing them back.

Tailor to the pollution sources that dominate the setting



Household cooking and heating smoke

The largest reduction in exposure comes from use of cleaner fuel. A full switch cuts fine particles in the home by around 85 per cent. Using an improved biomass stove cuts them by about half, which still leaves the air quality above safe levels.[17] Electricity, solar power, biogas and liquefied petroleum gas produce far less smoke than wood, charcoal, dung, crop residue or coal. The use of kerosene indoors is no longer recommended.[18] Burning fuels such as gas still produces fumes, so ventilate the area during and after cooking, even once the household has switched its fuel source, and favour electricity where the supply allows.[19] Where a full switch is not yet possible, dry the fuel, use a pot lid, direct the smoke outside through a chimney or cook in a doorway or courtyard, and keep the youngest children out of the cooking area or away from the heating source. Retire the old stove when a cleaner one is available.

17 World Health Organization and University of Liverpool, 'Clean Household Energy Solutions Toolkit (CHEST): Which cooking fuels and stoves are most beneficial to global health', Policy brief, WHO, 30 May 2024, <www.who.int/publications/i/item/WHO-HEP-ECH-AQE-2024-1>, accessed 27 August 2026.

18 World Health Organization, 'Household Air Pollution', Fact sheet, WHO, 16 December 2025, <www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>, accessed 27 August 2026.

19 Kashtan, Yannai, et al., 'Integrating Indoor and Outdoor Nitrogen Dioxide Exposures in US Homes Nationally by ZIP Code', *PNAS Nexus*, vol. 4, no. 12, 2025, <https://doi.org/10.1093/pnasnexus/pgaf341>.



Traffic

If possible, change the route and the timing of the journey, and ensure that there is a protective barrier between the child and the road. Take the route with less traffic even if it is slightly longer, especially if the roadside air is heavily polluted. If possible, shift outdoor activity to when it is not peak rush hour, and, when in a vehicle, close the windows and set the ventilation to recirculate in heavy traffic. Respiratory protection can be worn when other actions are not possible or to further reduce exposure.



Wildfire and landscape fire smoke

Particle for particle, smoke from fires is more harmful than everyday urban pollution.[20] Prepare before the wildfire season if possible;[21] otherwise, seal the home when the smoke arrives. Where possible, run an air purifier in the room where the children sleep, since one purifier protects one room and not a whole home. Wear a certified respirator or well-fitting surgical face mask outdoors. Relocate if possible during prolonged events. Clearing dry vegetation from around the home before the season protects the building itself.



Sandstorms and dust storms

Use the hour between the warning and the arrival of the storm to close and seal the home. Protection should cover the whole body – a fitted face mask, tight-fitting goggles and covered skin for anyone who must go out. After the storm, wipe surfaces with a damp cloth rather than sweeping, and change any clogged filters on air purifiers.



Second-hand smoke

Create a household rule that prohibits smoking inside the home or the car, with no exceptions, and keep smoking far from doors, windows and children. Residue on clothing and hair can still reach a child, so change clothes before holding a baby and support the family member who wants to quit smoking.

20 Alari, Anna, et al., 'Quantifying the Short-term Mortality Effects of Wildfire Smoke in Europe', *The Lancet Planetary Health*, vol. 9, no. 8, 2025, <www.thelancet.com/journals/lanplh/article/PIIS2542-5196(25)00174-3/fulltext>, accessed 27 August 2026.

21 World Health Organization, 'Wildfires', WHO, n.d., <www.who.int/health-topics/wildfires>, accessed 27 August 2026; United States Environmental Protection Agency, 'Protect Children from Wildfires, Smoke, and Volcanic Ash', US EPA, updated 22 May 2026, <www.epa.gov/children/protect-children-wildfires-smoke-and-volcanic-ash>, accessed 27 August 2026.



Industrial pollution

Close and seal the home during heavy releases of pollutants, use an air purifier, wear a fitted certified respirator on outdoor journeys, and ask the authorities about soil and food testing where a garden or livestock are downwind.



Waste burning

Avoid burning plastic, treated wood, foam, rubber or electronics, and never use waste as cooking or heating fuel. Separate waste so that fewer of these materials end up in the fire, keep children away from active and former burning sites, and close and seal the home when burning is happening nearby.

3.4. Context and habit: The conditions that determine whether messages stick

Recognize, engage and act do the psychological work of getting a family to perceive the threat, care about it and gain the capability to respond. The remaining components, context and habit, complement this work. Context concerns whether a well-designed message can be acted upon in each setting. Habit concerns whether the behaviour the message encourages lasts after the campaign ends. These components are discussed in less depth in this guide than the three components covered above are, because most of the message development process relates to recognize, engage and act. Messaging on its own produces small changes, and smaller ones than campaign planning usually assumes. Context and habit provide the foundations for sustained behaviour, namely the conditions that make a behaviour possible and the routines that keep it going.



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Context: When messaging alone is not enough

In the case of a large share of air pollution exposure, people are constrained by structural conditions, including geographical, economic and cultural conditions, and no message can alter these. Around 2.1 billion people cook using open fires or inefficient stoves because cleaner fuels are unaffordable or unavailable, not because they are unaware of the risks associated with the smoke.[22] In 2021, only 14 per cent of the urban population relied on polluting fuels, against 49 per cent of the rural population,[23] and women and children, who spend the most time near the cooking area, carry the greatest burden of risk.[24] The biggest outdoor pollution sources, including power plants, factories and busy roads, are most often located in the poorest communities.[25] Even sandstorms and dust storms are partly a structural issue, because at least a quarter of global dust emissions arise from human activity such as deforestation and land degradation.[26] A family told repeatedly to switch fuels they are not able to buy, or to move away from a factory in an area they are not able to leave, may interpret the message as blame.

This is why a strong effort to address the effects of air pollution pairs its household-targeted messaging with advocacy for the structural changes that make the household behaviour possible. The following are some examples: subsidizing both the clean stove and the fuel so that the cleaner option is also the cheaper one; making clean energy the default through electrification and the removal of subsidies on polluting fuels; building schools and playgrounds away from major roads and setting buffer zones and modern emission controls on industry; forecasting wildfire smoke and offering farmers workable alternatives to burning and cash incentives;[27] developing a waste collection service that removes the need to burn household waste; and enacting comprehensive smoke-free laws. Governments have agreed a shared goal of halving the health damage caused by air pollution by 2040.[28] Reaching the first World Health Organization interim target for fine particles, an annual average of 35 micrograms per cubic metre, would save an estimated 300,000 lives a year.[29] These messages are addressed largely to policymakers and community leaders rather than to caregivers, and their role is to make sure that families are not asked to solve alone what policy is meant to fix.

22 'Household Air Pollution'.

23 Ibid.

24 'Air Pollution'; 'Air Pollution: A threat to children's rights'; 'Household Air Pollution'.

25 'Air Pollution'; 'Air Pollution: A threat to children's rights'.

26 World Health Organization, 'Sand and Dust Storms', Fact sheet, WHO, 23 April 2025, <www.who.int/news-room/fact-sheets/detail/sand-and-dust-storms>, accessed 27 August 2026; United Nations Convention to Combat Desertification, 'Sand and Dust Storm Frequency Increasing in Many World Regions, UN Warns', Press release, UNCCD, 14 November 2023, <www.unccd.int/news-stories/press-releases/sand-and-dust-storm-frequency-increasing-many-world-regions-un-warns>, accessed 27 August 2026.

27 Jack, B. Kelsey et al., 'Money (Not) to Burn: Payments for ecosystem services to reduce crop residue burning', *American Economic Review*: Insights, vol. 7, no. 1, March 2025, pp. 39–55.

28 World Health Organization, 'Second WHO Global Conference on Air Pollution and Health Concludes with Powerful Commitments to Protect Public Health', News note, WHO, 28 March 2025, <www.who.int/news/item/28-03-2025-second-who-global-conference-on-air-pollution-and-health-concludes-with-powerful-commitments-to-protect-public-health>, accessed 27 August 2026.

29 'Recommendations on Classical Air Pollutants'.

Habit: Sustaining the behaviour after the campaign

A protective behaviour that requires deliberate effort every time gradually erodes. This is demonstrated by the household that keeps a protective action going through one bad air season and then lets it lapse. Most of the habit messaging for air pollution protection is covered in the act strategies above, such as anchoring the morning air check to the existing routine, tying the ventilation of cooking smoke to the tending of the daily fire and highlighting the cumulative benefit of cleaner air days. The important point is that sustaining a behaviour depends less on repeating the message and more on reducing the amount of effort the behaviour takes; for example, a clean air room already set up and face masks already stocked up on before the high-pollution season; signage that reminds a child to don a face mask on exiting school to walk home; and a fuel that is available and reliably affordable. Where the cue for the behaviour can be built into the environment or the routine, so that it happens almost automatically, the behaviour lasts. Where it depends on making a fresh decision each day, it fades. Designing messages with this in mind, and also the context that keeps the behaviour affordable, is what turns a season of good intentions into sustained protection.



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4 Messaging for priority audiences

Most air pollution messaging is addressed to caregivers, and rightly so. But five other audiences carry enough of the exposure burden, or enough of the power to reduce it, that a campaign should develop messages specifically for them rather than including them in the general caregiver material. The REACH strategies above still apply. What changes is the level and source of exposure, the communication channel and the identity of the audience.

4.1. Pregnant women

During pregnancy each breath carries more weight because the same level of pollution produces a larger effect on a developing fetus than on an adult, and some pollutants cross the placenta and reach the baby directly.[30] Around a third of preterm births are linked to fine particle pollution.[31] Pregnant women's exposure is related to features of daily life, such as the fire used for cooking or heating, the walk to work, second-hand tobacco smoke in the home, and seasonal smoke and dust. However, the case for acting on each source is stronger, and when it comes to cooking or heating the home, the household will often need to share the load so the pregnant woman spends less time exposed to smoke. Alongside reducing exposure, supportive nutrition offers the developing baby an added buffer. Antioxidant-rich fruits and vegetables, and sources of omega-3 fatty acids such as oily, small fish, are associated with reduced pollution-related harm, and exclusive breastfeeding for the first six months and continued breastfeeding thereafter, where possible, provides protective compounds for the infant. These are complementary to cleaner air and not substitutes for it, and health workers should reassure mothers that breastfeeding remains protective even where the air is polluted. The antenatal visit is the natural communication channel for relaying this message, which often begins with a single conversation during the visit.

30 'Air Pollution'; 'Air Pollution: A threat to children's rights'.

31 Ghosh, Rakesh, et al., 'Ambient and Household $PM_{2.5}$ Pollution and Adverse Perinatal Outcomes: A meta-regression and analysis of attributable global burden for 204 countries and territories', *PLOS Medicine*, vol. 18, no. 11, 2021, <https://doi.org/10.1371/journal.pmed.1003852>.

4.2. Health workers

Community health workers, midwives and clinicians constitute one of the most trusted communication channels in any campaign. Mothers act on what a health worker says in ways they do not act on information communicated via radio, posters or visiting officials, because of the years of repeated contact with the health worker and their personal knowledge of her household. Asking three questions during a routine visit can help build a profile: (1) what the household cooks with and where the child sits relative to the smoke; (2) whether anyone smokes indoors; and (3) whether there is a main road, industrial site, dump or seasonal burning site nearby. These three questions identify the main exposures in under two minutes. The existing contact points, such as the antenatal visit, the immunization session, the under-fives clinic and the home visit, already reach the families who most need to have the conversation. The approach is to add questions about air pollution exposure and give one piece of source-specific advice per visit, and to leave the household with a short written plan. The home visit is where this approach reaches its full potential because it is possible to directly observe any possible exposure to air pollution, and a concrete change can be agreed on the spot.

4.3. Schools

A child who regularly attends school spends close to a thousand hours a year inside the school building and several hundred more in its grounds. If the school sits on a major road, traffic pollution is usually highest within about 500 metres of such a road (although the distance varies by pollutant and is greater on still nights),[32] and much of that exposure occurs during school hours. Administrators can choose to locate the classrooms of the youngest children away from the road, ban engine idling at the gate, fit air purifiers (if classrooms can be sealed and kept cool) and move the drop-off zone back from the roadside if relevant. Teachers and administrators are also responsible for making daily decisions inside the classroom, for example whether to open or close the window or hold break time outdoors. Air quality also belongs in the curriculum, as children who understand air pollution and protection take that knowledge home to households where the conversation may not otherwise happen.

32 Health Effects Institute Panel on the Health Effects of Long-term Exposure to Traffic-related Air Pollution, *Systematic Review and Meta-analysis of Selected Health Effects of Long-term Exposure to Traffic-related Air Pollution*, Special Report 23, HEI, Boston, MA, 2022, <www.healtheffects.org/publication/systematic-review-and-meta-analysis-selected-health-effects-long-term-exposure-traffic>, accessed 27 August 2026.

4.4. Young people

Older children and adolescents are an audience on their own. Their lungs and airways keep developing through adolescence, so polluted air still shapes how they develop.[33] What changes is autonomy; by their teens, young people make many of the decisions a caregiver once made for them, from which route they walk and at what time, to whether they exercise hard beside a busy road, wear a face mask on a bad air day or start smoking or vaping. These are the behaviours to advise them on. Young people are also reached through different channels than caregivers: through secondary schools, sports coaches, peer groups, youth clubs and the platforms on which they already spend time, such as social media. They have the autonomy to protect themselves by recording and charting local air quality, taking part in community monitoring, taking what they learn home to households where the conversation may not otherwise happen, and helping to protect younger siblings, and eventually their own children, on the walk to school.

4.5. Outdoor and informal workers

Outdoor and informal workers face the highest air pollution exposure of any adult population, and they are often absent from campaigns aimed at households, among them the traffic officer at the intersection, the construction worker, the market vendor on the dusty roadside, the brick kiln worker, the agricultural labourer in the burning season and the informal waste picker beside the burning site. A worker beside a road or a fire for an eight-hour shift can breathe in more pollution during that shift than a comparable person breathes in over the course of a week, and the pollution is carried home on their on clothing and hair, reaching their children.

The protective actions for this group are wearing a certified respirator matched to the contaminant, scheduling heavy work for when the air is cleaner, keeping a distance and staying upwind from the source where possible, and changing out of work clothes before holding children. Because these actions can only be reliably sustained when the workplace enforces them, worker organizations, cooperatives, unions and informal worker groups are a key part of ensuring protection, turning individual requests that can be deflected into collective ones that are harder to ignore.

33 'Air Pollution'; 'Air Pollution: A threat to children's rights'.



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5 Application: Putting the components to work

5.1. Application approaches

The REACH components are flexible tools. Which to start with, how to combine them and how to deliver them depend on the dominant pollutant, the dominant barrier to action in the community, the messaging channels available, the timeline, the budget, and whether the campaign is responding to an acute episode or building long-term prevention. There are two broad approaches to messaging.

Component-specific messaging

Focusing on only one component at a time works best when formative research shows that one barrier clearly dominates, when the audience is at a particular stage of readiness or when availability of only a single channel constrains the message to one idea at a time. The campaign should concentrate on the component that addresses the single largest barrier. A community that has normalized its polluted air needs 'recognize'; a community that feels helpless needs 'engage'; a community that is worried and willing but unsure what to do needs 'act'.

Advantages: It is clear, focused and easy to evaluate. It meets the audience where they are and does not dilute the message.

Disadvantages: It can leave other barriers unaddressed, and a family addressed using a single component may stall at the next barrier if there are no follow-up messages or other interventions.

Example: In a district where clinic interviews show that caregivers believe that the air is "only bad when you can smell it", a recognize-led campaign organizes radio spots and health worker scripts that make the risks of the invisible particles concrete and attach the local air quality reading to a simple daily rule for protection.

Integrated comprehensive messaging

Combining multiple components works best when there are various barriers, when the campaign has access to a channel that supports a fuller message and when the aim is to support a family the whole way, from noticing the threat to sustaining a response. A single message, or a coordinated set of messages, combines recognition, engagement and action, so the family perceives the threat, acknowledges its relevance and is provided with a concrete action.

Advantages: It reflects how a real decision is made when there are competing priorities, and it does not lose the audience in the gaps between separate campaigns.

Disadvantages: It demands more from each message and each channel, it is harder to keep the message clear and it is harder to evaluate the effectiveness of each component.

Example: A wildfire season campaign built around the returning smoke explains why the family's youngest and frailest are affected by it first, and walks the household through preparing protective actions before the season begins, all in one message delivered by radio, social media and a health worker handout.

5.2. Campaign design considerations

There are three types of campaign that work with either of the approaches described above. Moment-based campaigns are attached to a predictable event, such as the start of the wildfire or dust season, the harvest burning window or a pollution episode, and concentrate effort when attention is highest. Participation campaigns invite families to do something concrete together, such as a neighbourhood-wide switch to cleaner cooking fuel or setting up a walking group that takes the quieter route, which also helps to establish new social norms. Thematic consistency campaigns carry one motif and one voice over a long period, trading immediacy for the repetition that builds recall.

5.3. Localizing the campaign

This guide is meant to be adapted and localized. Three things are needed at the local level before launching a campaign. First, profile the local pollution sources and audience mix and decide what message to lead with, because a village that cooks using biomass, a traffic-choked city, and a region living through a burning or dust season need different first messages. Second, provide a low-technology fallback for every cue that assumes access to a smartphone, a live air quality feed or a national standard. Where a reliable number is absent as an indicator, the same behaviours can be triggered by seasonal calendars, radio and text message alerts, mosque and school announcements, and rules of thumb, such as when the far hills disappear into a haze. Third, calibrate any colour- or number-based rule to the national air quality standard, which differs among countries. The households most exposed to air pollution are often the least likely to be able to check live data, so a campaign that relies on an app alone will not reach everyone equally. In some countries, the number of public monitors has fallen, so check what data still exist locally before building a message around it. Where ground monitors are absent, regional and satellite estimates can still support a seasonal or weekly rule.





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6 Message examples by scenario

The five scenarios below show the strategies working together in finalized messages. In each case, a situation is presented where a specific audience is exposed to air pollution through a specific pathway. This is followed by a recognize, an engage and an act message, and an integrated message that combines all three. Every full message is paired with a short version suitable for a text message or a line in a poster, and a rationale that links the message back to the strategies. The scenarios span the major pollution sources and priority audiences, but will need to be adapted to the relevant source, channel and messenger in the local setting.



6.1. Scenario 1: Household cooking smoke – Messages for a pregnant woman and her baby

A woman in the third month of pregnancy cooks two meals a day over a wood or charcoal fire in a small kitchen. She knows the smoke stings her eyes, but not that the small air particles reach the baby through her blood. The household treats cooking as her task. The messages here would be disseminated through antenatal clinics, community health worker home visits and women's groups.

Recognize message

Unborn babies cannot protect themselves from air pollution. Their protection is provided through their mother's actions. Pollution can travel from the air you breathe through your blood and placenta to your baby, just like nutrients do. By reducing your exposure to household cooking smoke, you are protecting your child.

Short version	Rationale
The baby absorbs what the mother breathes in. Protect its air; protect two lives.	This message puts the unborn child at the centre and uses the familiar idea of nutrients crossing the placenta to make an abstract risk immediate and easy to picture.

Engage message

Over a lifetime of breathing, the nine months of pregnancy may be the period when each breath carries the greatest weight. The same level of air pollution that produces a small effect in an adult produces a larger effect in a developing baby. A small reduction in exposure during pregnancy produces a greater benefit than the same reduction at other times of life. The protective decisions made in the kitchen, on the walk to work and at home determine what is passed on to the baby as it develops in the womb.

Short version	Rationale
During pregnancy, the air you breathe can affect your baby's growth. Reducing your exposure to air pollution can protect your baby.	This message raises motivation by identifying pregnancy as the window when each breath matters the most and framing a reduction in exposure to air pollution as an investment in the child.

Act message

The kitchen is often the source of the greatest daily air pollution that a pregnant woman is exposed to. Where cooking is done over a fire fuelled with wood, charcoal, dung, kerosene or coal, the smoke can affect the woman and the baby for hours afterwards. Move the fire outdoors, where possible. Cook on the veranda, in a courtyard or in a separate outdoor kitchen. Where cooking must happen indoors, ventilate using the most effective method available, such as by sending the smoke up a chimney, and have another household member share the cooking duties so the pregnant woman spends less time exposed to the smoke.

Short version	Rationale
Cook outdoors or by a source of ventilation. Share the cooking duties so the pregnant woman breathes in less smoke.	This message gives specific, achievable instructions for moving cooking smoke away from the pregnant woman and recommends sharing the task so she spends less time exposed.

Integrated message

The air a woman breathes during pregnancy reaches the baby through her blood and shapes the lungs, brain, heart and immune system the baby will carry throughout their life. The nine months is short; the effect on the baby is lifelong. Move cooking smoke outdoors, take the less busy road, ask anyone who smokes to keep the cigarette outside and, if possible, close and seal the home during wildfire or dust events. Eat a balanced and nutritious diet, and plan to breastfeed for the first six months and beyond with the support of family and a health worker. This way, two lives are protected at once.

Short version
Pregnancy is short, but the effects of pollution on a baby are lifelong. Move the smoke outside, choose cleaner air, eat well and plan to breastfeed. Two lives are protected at once.

6.2. Scenario 2: A school beside a busy road – Messages for administrators and teachers

A primary school stands 10 metres from a busy road with idling cars sitting in traffic, and the classrooms facing the road keep their windows open for ventilation. Staff see the traffic and pollutants as unavoidable. The messages here would be disseminated through school leadership meetings, education authority briefings and staffroom notices.

Recognize message

A child who regularly attends school spends close to a thousand hours a year inside the school building and several hundred more in the surrounding grounds. If the school is on a busy road, beside an industrial zone or downwind of frequent burning sites, your pupils may be exposed to harmful levels of air pollution. You can take steps towards changing the use of the school building, the schedule and the rules to reduce the exposure of pupils and staff.

Short version	Rationale
A child breathes air at school for around a thousand hours a year. If your school is in a polluted area, you can act to reduce children's exposure.	This message makes a diffuse risk concrete by counting up the hours a child spends at school and reframes the building as an air pollution environment the school can manage.

Engage message

The decisions an administrator makes about the location of classrooms, building design, ventilation, air filtration and drop-off arrangements can impact the health of the children in your school. A classroom retrofitted with an air purification system can help to protect every cohort that passes through it for the lifetime of the equipment. A drop-off zone moved 50 metres from the gate helps protect every child arriving every morning. Few decisions in school administration carry this kind of cumulative effect.

Short version	Rationale
You can take actions that will protect the children in your school from harmful air pollution.	This message motivates administrators by showing that a single decision about the school building or drop-off arrangements can help to protect every cohort for the lifetime of the building.

Act message

The environment directly outside a school may have one of the highest levels of air pollution that a child is exposed to each day. Establish a 'no idling' rule for vehicles within the school perimeter and at the drop-off zone in regions where this is relevant, with clear signage at the gate, a short letter to caregivers and school bus companies at the start of each school year, and a polite reminder from staff. Pick-up zones moved 50–100 metres from the gate can help to substantially reduce the pollution at the school entrance.

Short version	Rationale
No idling vehicles at the school gate. Move pick-up and waiting back from the school entrance.	This message provides administrators with a specific, low-cost 'no idling' rule with clear steps and establishes walking and using public transport as a visible social norm.

Integrated message

Children spend close to a thousand hours a year inside the school building and several hundred more in the grounds, and the air quality in those hours can be influenced by decisions the school makes. Locate the classrooms for the youngest children away from the road. Ban engine idling at the gate. If rooms can be sealed and kept cool, put air purifiers in the rooms where children spend the most time. Move break time indoors when the air quality is bad. Send a short message to caregivers on bad air days informing them of the poor air quality and advising them to take protective actions. Introduce air quality to the curriculum so children learn about what they are breathing and why it matters.

Short version
A thousand hours of air are breathed by children at school every year. Move those at most risk from road-facing classrooms, introduce air filtering if possible and teach them about air pollution.

6.3. Scenario 3: A wildfire smoke episode – Messages for a caregiver

A family lives in a region that regularly gets smoke from wildfires, but the arrival of the wildfire season is becoming less predictable and the smoke more severe. Last year, the family scrambled for face masks once the sky had already turned grey. The messages here would be disseminated through radio, text message alert systems and community groups in the weeks before the wildfire season.

Recognize message

In many parts of the world, the wildfire season has become a fixed period of the year. If you have access to an air quality app, check the air quality every morning during these weeks the same way that you might check your phone upon waking or the weather forecast before deciding whether to carry an umbrella. A season you can anticipate is a season you can prepare for. The smoke comes back every year; so does the chance to be ready before it returns.

Short version	Rationale
The burning and wildfire season returns at similar times every year. You can prepare for it before the smoke arrives.	This message brings a distant threat closer, reminding people about the wildfire and burning season and helping them to prepare.

Engage message

In communities that experience a wildfire or burning season every year, many families are using the calm months before to prepare. Some have stocked appropriately sized face masks for each member of the household (adults and children who are old enough to be able to express their discomfort) before the season starts. Some have chosen the room that will become the clean air room, sealed its gaps and tested its fan. Some have made sure a child's asthma inhaler is in working order and an older relative's medicines are within reach. Preparing in advance can make it much easier to cope when the smoke arrives.

Short version	Rationale
Many families near you prepare for the smoke season in the calm months, with face masks stocked and medicines ready.	This message uses neighbours preparing in the calm months to make early preparation feel normal and to address the sense of helplessness a large seasonal threat can create.

Act message

When an alert announces a smoke event, if possible, close every window and every external door. If your home has air conditioning, turn it to recirculation mode so the system reuses indoor air rather than pulling smoke in from outside. If possible, cover obvious gaps around door frames, vents and old window seals. A sealed home reduces the level of smoke indoors to a fraction of that in the air outside. If you have one in your home, move the family to the clean air room for sleeping and for the hours when the smoke peaks. Cooking, lighting candles or incense and any other indoor burning add to the poor air quality and should wait until the smoke clears.

Short version	Rationale
When the alert comes, close and seal the home, recirculate the air and move everyone to the clean air room if possible.	This message anchors a specific home-sealing routine to the moment a smoke alert arrives and spells out each step.

Integrated message

Wildfire smoke returns each year in most fire-prone regions, often for weeks, carrying particles small enough to reach a child's bloodstream and the baby of a pregnant woman. Stock certified respirators or appropriately sized face masks for every family member, set up one room that can be sealed, keep medicine stocks up to date and find out how you can receive air quality alerts. When the smoke comes, close and seal the home, use an air purifier if you have one, wear face masks outdoors and move the most vulnerable family members into the room with the cleanest air. A season that can be anticipated is a season that can be prepared for.

Short version
The smoke returns every year. Prepare your home, buy well-fitting face masks, and stock up on medicines, then do your best to seal your home when the smoke arrives.

6.4. Scenario 4: Second-hand smoke in the home – Messages for the family member who smokes

A father smokes indoors in the evenings, often in the same room where his toddler plays, and opens a window because he believes it clears the smoke. He would not consider that he is putting his child at risk. The messages here would be disseminated through health worker conversations, public messaging in health centres or locally used communication channels such as text messages or radio, fathers' groups and household-level counselling.

Recognize message

A cigarette burned in one corner of a room sends smoke into every corner within minutes, and that smoke stays in the air for hours after the cigarette has gone out. The fine particles in tobacco smoke are the same size as the particles in wildfire smoke and city traffic. They enter the lungs of anyone in the room, including the child playing in the next chair and the baby in the cot next door. Smoke also settles into walls, curtains, sofas and clothing, and keeps releasing chemicals into the air for weeks. The cigarette burns out in minutes, but the smoke lingers long after.

Short version	Rationale
One cigarette fills the room with harmful smoke for hours and settles into the walls for weeks. Your cigarette smoke can harm your child.	This message illustrates the risk of tobacco smoke by comparing its particles to those in wildfire and traffic smoke, and corrects the belief that the air clears once the cigarette is finished.

Engage message

You can protect your family from harmful tobacco smoke. Quitting is the greatest gift you can give them, and support to quit is more widely available now than in the past. Where quitting is not yet possible, the next best protection is smoking only outside the home, never in the car and always at a distance from any child. The choices are yours to make. The protection for your child is real and its impacts long-lasting.

Short version	Rationale
Their protection is in your hands. Quit smoking if you can; until then, smoke outside, never near a door or window of the house, or near a child.	This message speaks to the smoker's own agency, offering an achievable step short of quitting while respecting their choice.

Act message

Make a household rule that no one smokes inside the home and no one smokes inside the car, with no exceptions for cold weather, late nights, parties, guests or the household member who has always smoked indoors. A car interior is a confined space where smoke concentrates faster than in any room, even with the windows open. Nobody should smoke anywhere inside the home. Inform guests politely and clearly as they arrive. Keeping the home smoke-free is the single greatest protective action against second-hand smoke a household can take.

Short version	Rationale
No smoking inside the home or car – no exceptions. Politely inform guests at the door.	This message presents one unambiguous smoke-free rule with no exceptions, and corrects the belief that an open window makes smoking indoors safe.

Integrated message

Second-hand tobacco smoke fills a room within minutes and lingers in walls, furniture and clothing for weeks. Children can be harmed by inhaling second-hand smoke, as can babies in the womb who are exposed through the mother's blood. Opening a window, putting on a fan or smoking in a different room does not solve the problem. No one should smoke inside the home or the car. Smoking outside should happen at a distance from the doors and windows of the home, and away from children. Family members can support the person who wants to quit smoking.

Short version
No open window or fan can completely clear indoor smoke. You can stop your child from breathing in cigarette smoke by not smoking in the home or car.

6.5. Scenario 5: Waste-burning season in the neighbourhood – Messages for caregivers and nearby workers

In a settlement with irregular waste collection, households and small businesses burn mixed rubbish, including plastic, in open piles close to homes and children playing nearby. Informal waste workers spend the day around these fires. The messages here would be disseminated through community leaders, neighbourhood groups and workers' associations.

Recognize message

Household waste may contain plastic, painted wood, foam, rubber, food packaging and chemical containers. When it burns, it releases extremely harmful chemicals, and metals including lead, cadmium and chromium, which are also harmful to your health. The fire and smoke may look ordinary, but the smell may be acrid. A single afternoon of mixed-waste burning behind a home can release many toxic compounds, which are dangerous to you and your family.

Short version	Rationale
A waste fire looks ordinary but releases some of the most toxic chemicals known, which are dangerous for both adults and children.	This message identifies the specific toxic chemicals a waste fire releases and targets the assumption that a familiar-looking fire is harmless.

Engage message

In neighbourhoods where waste collection is unreliable or absent, burning is often the only way to clear the waste that a household produces. The harm is greatest in the children who live closest to the burning sites. Studies of children in communities with frequent open burning find higher rates of respiratory illness, more frequent hospital visits and reduced lung function compared with children of similar age and from households with a similar income in communities with regular waste collection and without burning. Stopping waste burning will help protect children from poisonous chemicals and particles.

Short version	Rationale
Although burning waste is often the only option, children close by are harmed by it. You can protect children by not burning waste.	This message connects the practice of burning waste to the children who live closest and are harmed by it, and reframes avoiding a fire as an achievable, worthwhile protection.

Act message

Burning plastic produces smoke that contains extremely toxic chemicals. A bag, a bottle, a wrapper, a piece of food wrap – they all release these compounds when they burn, regardless of the size of the fire. Some chemicals do not break down in the body. They accumulate in fat, in breast milk and in the bones, and the effects on children's developing brains and immune and reproductive systems become clear over the course of their lives. Keep plastic out of every fire, indoors and outdoors. Keep plastic separate until it can be taken to a recycling point, collected or taken to a landfill site.

Short version	Rationale
Never burn plastic. Store it until it can go to a recycling point or landfill site, or be collected.	This message presents a clear rule not to burn plastic and says exactly what to do with it instead.

Integrated message

The smoke from burning waste contains extremely toxic chemicals, and waste fires are usually closer to children than any factory chimney. Plastic, painted wood, foam and rubber release chemicals, metals and other persistent pollutants at ground level, where children breathe them in. The household can reduce the air pollution by separating waste so that less ends up in the fire. Keep plastic, treated wood and electronics out of any fire. Never use waste as cooking or heating fuel. If possible, close windows, doors and other ventilation gaps when burning is happening nearby. Advocate for local authorities to provide the waste collection services that are needed for a longer-term solution.

Short version
Smoke from burning waste can be highly toxic and waste fires are closer to children than a factory. Separate the waste, never burn plastic, close the home if burning is happening nearby and advocate for waste collection to end the need for fires.

Conclusion

The messages in this guide are one part of a wider effort. Social and behaviour change work sits alongside policy and advocacy communication that presses for cleaner fuels, cleaner vehicles and cleaner industry; risk communication that guides families through acute smoke and dust episodes; strategic media that keeps air quality on the public agenda; and the partner communication that aligns the many organizations working on improving air quality for children's health. The household behaviours that this guide supports are most powerful when the structural conditions are moving in the same direction. For example, families asked to cook or heat their homes using methods that produce less smoke are able to attain affordable clean fuel; families asked to obtain well-fitting and effective respiratory protection for the household are able do so; and a school asked to improve its air filtration is backed by a local authority that subsidizes the transition.

Behaviour change on air pollution takes time, trust and consistent reinforcement. The threat is intermittent, its harm is slow to appear and the practices that involve exposure are often woven into culture and survival, so a single message rarely produces lasting change. What works is a sustained, respectful presence that meets families where they are, identifies the threat honestly without blaming them for it, offers them protective actions that are achievable and is reinforced often enough for the new behaviour to become a habit. Air pollution is the largest environmental risk a child faces, and is also one that families, schools, health workers and communities can begin to act on today, breath by breath, across the years that matter most in a child's development.



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Annex:
Sample messages by REACH component

These sample messages are based on a range of air pollution sources and audiences. They are not for verbatim use. They are starting points for adaptation to the local context, so be sure to change the source to the one that dominates in the given setting, the messenger to the one the audience trusts and the wording to the local language and idioms. Messages are grouped by the component they serve.

To complement these sample messages are global templates, including posters to handouts available online: https://ceh.unicef.org/events-and-resources/knowledge-library/protecting-children-air-pollution-applying-social-and

REACH

Recognize

1. The smell only indicates part of the danger

A burning smell warns you the air is unsafe. While the sight and smell of smoke are obvious indicators of danger, the greatest danger is in the smaller particles that you cannot see or smell and that travel further into the body and remain there for longer. When the smell has gone, the smallest particles often remain. Treat any burning smell as the signal to close windows and take children indoors; check the air before going back out and, if necessary, use respiratory protection.

2. The smoke from your own fire

Cooking or heating using fuel sources such as wood, charcoal or dung releases polluting particles that are too small to see, and in a closed kitchen they can reach high levels. Cooking over an open flame can introduce as much smoke to the room as smoking several cigarettes. The person cooking may register only a familiar warmth and smell; meanwhile, the smallest particles are doing harm long before anyone coughs.

3. The other pollutants inside the home

A family can cook on a clean stove and still breathe in polluted indoor air. Cooking and heating stoves, frying and fireplaces release particles into the room. Cigarette smoke pollutes the house. Lit mosquito coils release particles as they burn. Incense lingers after the stick goes out. Kerosene lamps give off particles and gases. Strong cleaning products, fresh paint and glues release chemicals that hang in the air. Together, in a closed home, they affect the quality of the air that a child and their family breathes.

4. Carbon monoxide – the gas with no smell and no warning

Carbon monoxide is produced by every fire that burns inside a home, whether it is an unvented wood stove used for cooking or a charcoal brazier or kerosene heater used for heating. It has no colour, no smell and no taste. The first signs of carbon monoxide poisoning are a headache, tiredness or a child who will not settle. Never burn charcoal for heat in a closed room where people sleep.

Recognize (continued)

5. The pollution that is concentrated along the busy road

The air next to a busy road can be several times more polluted than the air 50 metres away from the road, and many times more than the air 200 metres away. Walking along a footpath next to a busy road exposes you to the highest levels of pollution. The air one street back from the busy road may be much cleaner. Avoid the busy road for the best protection.

6. The smoke that crosses the horizon

A fire burning hundreds of kilometres away can cause smoke to linger over a town or school for days. Wildfire smoke carries particles small enough to slip through the gaps around windows and under doors, and into the lungs of anyone breathing in the air. Even when the fire itself feels like someone else's problem, the smoke it produces is your problem. The haze and smell are the first signs of danger.

7. The dust that carries more than dirt

Sandstorms and dust storms carry more than dirt. Inside the clouds is a mix of fine and coarse particles, mineral fragments from degraded land, bacteria, fungal spores and allergens gathered along hundreds of kilometres of the storm's path. The coarse particles irritate the eyes and skin. The fine particles reach deep into the lungs. A sandstorm or dust storm is an air pollution event, not only a weather event.

8. The chimney you can see and the chemicals you cannot

Industrial smoke is more than the plume you can see. Factories, refineries, smelters and power plants release fine particles together with sulfur dioxide, nitrogen oxides, metals such as lead and mercury, and persistent chemicals. A visible plume of smoke is an obvious sign of pollution. But a chimney with no visible smoke can still be releasing contaminants that travel for kilometres and settle on land, water and crops.

9. The community closest to the industrial site

Industrial facilities are most often sited where land is cheapest and residents have the least political influence: land occupied by low-income communities, informal settlements, recent migrants and the poorest farmers. The children growing up nearest the industrial site are unlikely to be the children of the family who own the plant. It is one of the most consistent findings in environmental health, and it means the air a child breathes is partly decided by where a family can afford to live.

10. The workers often missing from the conversation

Most air pollution messages target households, mothers and children. The most exposed workers are often not addressed in these campaigns: the traffic officer at the intersection, the construction worker, the market vendor on the dusty roadside, the brick kiln worker, the agricultural labourer in the burning season. Each of them breathes in higher concentrations of particles, metals or combustion products than almost any household audience. These workers include pregnant women and workers who come home to their families and children covered in polluted dust. Protecting them protects the most vulnerable.

Engage

1. A child breathes in more air than you do

Relative to their body weight, children breathe in far more air than adults. A child's lungs are still growing, still building the capacity they will maintain for life. Every clean breath today helps to protect the health of the adult they will become.

2. A mother's breath is shared

A baby in the womb cannot choose the air it breathes. Whatever the mother breathes in, the baby is exposed to as well. Cleaner air is one of the gifts a mother can try to give her child before it is even born: sitting away from the cooking or heating fire, asking visitors not to smoke indoors, walking along the less busy roads when possible. These small choices during pregnancy help to protect the development of the lungs and brain of a child even before they are born.

3. The cook breathes in polluted air for hours every day

A mother who cooks three meals a day over a biomass-fuelled stove can spend three to seven hours a day exposed to the smoke, which, across a year, adds up to months of heavy exposure. Her lungs and heart are harmed, and, during pregnancy, so are those of the baby she carries. Protecting the cook protects the household. A cleaner stove, a chimney, an outdoor cooking area or a switch to gas fuel improves the air quality for the whole family.

4. The school environment

A child who walks 20 minutes to school along a busy road and then walks home the same way spends close to 200 hours a year breathing in traffic pollution on this walk. Add to that a playground that is located beside the road, and the school setting can become the largest source of exposure to pollution for a child across the year. Explore protective options such as an appropriately sized face mask or taking alternative routes to school.

5. Families on your street are choosing the less busy route

In your community, many caregivers are making changes to how their children travel near traffic. Some walk along the backstreet instead of the main road. Some leave five minutes earlier to avoid the peak traffic times. Some use respiratory protection on the worst air pollution days. By making these changes, children arrive at their destination having breathed cleaner air.

6. The dust season your household is learning to prepare for

In dust-affected communities, families get better each year at preparing for the dust season. Some check the daily air quality information before opening the windows. Some move the children's mattresses to the room with the best-fitting windows. Some keep goggles and face masks by the door for whoever must go out. Some have agreed that elderly relatives will stay at home on dust storm days. These actions are habits, built and sustained by knowledge of the harm the dust carries.

Engage (continued)

7. The families changing where cigarettes are smoked

In many communities around the world, people are choosing to move where they smoke away from the living room to the balcony, from the balcony to a spot in the garden, from inside the car to outside it. Many smokers are now protecting their families by taking steps to put a greater distance between their smoking and their children.

8. The communities that help to change industrial policy

The fastest movement on emission standards and buffer zones at the community level has come when decision makers heard from the families and caregivers of the children whose lungs are affected by air pollution. For example, a school principal describing absences during pollution events, a paediatrician comparing the asthma caseload of two neighbourhoods or a parent describing the difference between a polluted day and a clear day. Local data can convince a community to take action and community voices together can convince policymakers.

9. The workers nearest the smoke every day

Informal waste pickers and dump workers face some of the highest levels of chronic exposure to burning emissions of any occupational group. They spend hours around active fires, handle the materials before and after they burn, and rarely receive protective equipment or have access to health services. Their children are also often nearby. Their work is essential to the continued functioning of the urban waste system. These workers have the strongest claim to protection, and in most cases receive it last.

10. Workers protecting workers

Where worker protection has improved, the change has almost always come through collective action: workers organizing in cooperatives, unions and informal groups, comparing which protective equipment works and which employers respond. When a single worker speaks out, their request is more easily deflected. When a group of workers raises the same request for protection, the response is faster. There is protection in the collective, especially as many of these people who are exposed to pollution return home to families and children.

Act

1. Open the right window at the right time

Ventilation is one of the strongest tools against indoor pollution, when it is done at the right time. Open windows when the air outside is cleaner than the air inside: usually early in the morning before traffic builds, in the late evening after the rush-hour traffic or after rain has settled the dust. Keep windows closed during rush hour, dust events, periods of wildfire smoke and when the air quality index is in the higher bands. The same window can protect a family or expose them, depending on when it is opened.

2. Move a metre, breathe better

Distance from the pollution source matters more than most people realize. When walking near traffic, stay on the side of the pavement furthest from the road. When smoke from cooking or indoor heating collects in the room, keep children in a different room. When nearby construction work produces dust, take the longer way around to avoid it. Pollution levels drop quickly with distance – every metre helps.

3. When your child coughs in polluted air

A cough in polluted air is the body trying to clean itself. Take it as a signal to act. Bring the child indoors, close the windows and go to the clean air room if you have one or put on respiratory protection (a certified respirator or well-fitting face mask), if possible. Offer water. If the child has asthma, use the prescribed reliever as the health worker showed you. Seek care at once if the cough does not settle within an hour, breathing becomes fast or noisy, the lips turn blue or the child is too breathless to speak.

4. Send the smoke outside

Smoke that stays in the room is smoke a child breathes in. A chimney or flue carries it up and away from where the family eats and sleeps. A range hood does the same for a gas stove. Where neither is available, cook in the doorway, in a courtyard or in a separate outdoor kitchen. Create airflow by opening windows on opposite walls in a room if possible. Even a single open window makes a difference.

5. Never burn what is not meant to be burned

Plastic bags, food packaging, painted or treated wood, rubber, foam and old household items should never be burned indoors, and never used as fuel to cook food or heat a room. Burning these materials releases chemicals far more harmful than wood smoke. If a fire is the only available heat source, ventilate the room and never sleep with the fire burning.

Act (continued)

6. Mask up when you must walk beside traffic

When walking next to a busy road is unavoidable, a well-fitting face mask with good filtration is the next best means of protection. Certified respirators (like N95-, KN95- and FFP2-standard ones) offer the best protection, and those with straps that pass around the head seal better than those with ear loops. Surgical masks may provide some protection. Cloth masks or scarves will offer little protection. Put the mask on by unfolding all the flaps, placing it over the mouth and nose, fitting the head straps or ear loops over the head or ears, moulding the metal strip over the nose and checking that no air is escaping around the edges when you breathe out. Children with the ability to tell you if they are uncomfortable should wear child-sized certified respirators or face masks that seal well to the face.

7. When inside the car, close it to the air outside

A car in heavy traffic is not sheltered from the air outside. When the windows are open or ventilation is drawing in outside air, exhaust fumes from the vehicles ahead quickly fill the car. Close the windows in heavy traffic, in tunnels and when driving behind diesel trucks and buses. Set the ventilation to recirculation so the system reuses the air inside the car, for short periods of time only, so that the stale air is replaced every so often. Leave a bigger gap when travelling behind buses and trucks.

8. After the dust has settled, wipe with water rather than sweep

When a dust storm has passed, try to remove settled dust without lifting it back into the air. Dry sweeping and shaking out cloths lifts the smallest particles back into the air. Wet cleaning traps them: Use a slightly damp cloth on surfaces and a damp mop on floors, sweeping in one direction then rinsing out the cloth or the mop, frequently. If you can purchase a vacuum cleaner, buy one with a HEPA (high-efficiency particulate air) filter and empty it outdoors. Effective cleaning shortens the time the household is exposed to the indoor dust by days.

9. Where the smoker goes when they leave the building

Smoking just outside a doorway or an open window will still allow smoke to get inside the house. Smoke at least seven to eight metres from any entrance, window or air intake. Around children, the rule extends further: no smoking in playgrounds, parks or any space where children gather, whatever the distance. The same applies to e-cigarettes, whose aerosol carries nicotine, metals and fine particles. Smoking outdoors is safer than indoors.

10. Close the home during industrial incidents

When you are informed of or notice an industrial release of polluted air, close every window and external door. Switch any ventilation or air conditioning to recirculation so the system reuses indoor air. Seal obvious ventilation gaps. Where this is not possible throughout the house, identify a room that is easiest to seal and make this your clean air room. Move the youngest, the oldest and anyone with asthma or heart disease into that room. The same household action protects against wildfire smoke, dust storms and industrial pollution.

Act (continued)

11. Run the air purifier or HEPA filter

If you have a room in your home that can be kept sealed and cool, and if you can afford it, using an air purifier with a HEPA filter reduces the level of fine particles. A lower-cost alternative is a desk fan with a HEPA filter strapped to the front of it. Size the filter to the room and change it regularly, and even more regularly after a heavy pollution event. Schools and clinics can benefit from the same equipment and the same maintenance.

12. The other waste that does not belong in any fire

As well as plastic, never burn painted or treated wood, rubber, foam, batteries or electronic waste, on any scale. Painted timber releases arsenic, lead and formaldehyde; rubber and foam release polycyclic aromatic hydrocarbons; and batteries release metals. Each should have a disposal route that is not the household fire. Where safe alternatives are not available, store the material safely until it can be removed.

13. Protect the informal workers nearest the fire

Informal waste pickers spend their working hours close to active and smouldering fires. The protection they need most is protection against the polluted air: a well-fitting certified N95-, KN95- or FFP2-standard respirator with head straps, worn during sorting and near burning materials; gloves and a covering for clothing that reduces the amount of residue carried home; eye protection; and clean water for washing before eating. Where certified respirators are unavailable, working upwind, keeping a distance and limiting time spent closest to the flames reduces the amount of toxins breathed in, although none of these actions gives the same level of protection as a certified respirator.

14. The certified respirator for the job that cannot be relocated

Where work brings people into direct contact with or close to the source of the pollution, a certified respirator is the primary defence. Use N95-, KN95-, FFP2- or P100-standard equipment, fitted properly, favouring head straps over ear loops where there is a choice. Surgical masks may offer some protection, if they can be made to fit closely to the face. Cloth masks or scarves will offer little to no protection. Change the certified respirator on schedule (if provided by the employer) or when it becomes dirty, damaged or difficult to breathe through, or no longer forms a seal to the face. For dust, add eye protection. For exposure to chemicals such as welding fumes or kiln emissions, the certified respirator type changes with the contaminant; check the safety data sheet and information from the labour authority.

Integrated

1. The breath that affects a growing child

Most harmful pollution is too small to see. It enters the body through the nose and mouth, travels into the lungs and affects how a child grows. Children breathe far more air relative to their weight than adults, so they may take in more harmful particles while their lungs and brain are still developing. The good news is that small, daily choices reduce exposure. Check the air quality outside before opening windows. Keep smoke from cooking and heating away from where children play, or vent indoor air pollution. Wipe with water instead of sweeping dust. Repeated, these habits build stronger lungs and brains for life.

2. Two lives, one breath

When breathed in, polluted air does not stop at the lungs. The smallest particles cross from a pregnant woman's blood to the baby, affecting how the brain, lungs and heart form and raising the risk of low birthweight and early birth. Pregnancy is the period when protection matters most and when small choices have the greatest effect. If possible, stay away from cooking and heating smoke. Ask visitors not to smoke indoors. Walk along the less busy roads. Wear a fitted face mask on days when the air is heavily polluted. Every protected breath during pregnancy is two lives protected at once.

3. When the air outside is bad, the home becomes a shield

On days when the outside air is polluted, the home can be a family's most important protection. Pollution enters through open windows, doors and gaps, and pollution from cooking, heating, smoking and cleaning chemicals adds to the load inside the home. If possible, close the windows and seal other ventilation gaps when pollution levels are high. If that is not possible, seal up one room as much as possible. If you do not have other ways to vent cooking and heating smoke (e.g., a chimney), try to hold off on cooking and heating until the air quality is better outside. Save dust-raising work for cleaner air days. A protected home is a protected child.

4. The kitchen is where it begins

For some children, the first polluted air they breathe is smoke in the family kitchen. Cooking with wood, charcoal, dung or kerosene fills the room with fine particles that settle in growing lungs and reach the baby of a pregnant woman. A child carried on the mother's back is kept close to the pollution source. Switching to a cleaner fuel makes the largest difference. Where that is not yet possible, dry the fuel, use a pot lid, vent the smoke outside and keep the youngest members of the household in another room until the smoke clears.

5. Air pollution during the school year

The walk to school, the wait at the gate, the play beside the road: these ordinary parts of a child's day may be when they face the highest exposure to air pollution in their routine. Traffic smoke carries particles that reach the lungs, blood and brain of a growing child. Pick the side street over the main road. Wear a fitted face mask when exposure to air pollution is unavoidable. Repeated across the year, these small decisions ensure cleaner air for the child on the journey they take twice a day.

Integrated (continued)

6. The storm a household can prepare for

Sandstorms and dust storms carry fine particles, mineral fragments, bacteria and allergens hundreds of kilometres, reaching the eyes, skin and lungs of children. You may receive a dust storm warning before the storm arrives. Use this time to prepare. Keep face masks, goggles, coverings for clothing and medicines in one place that everyone in the household knows. When the warning comes, close the windows, set any air conditioning to recirculation and move to the most well-sealed room. When the storm passes, wipe with water rather than sweep any settled dust, and change any air purifier filters. A sandstorm or dust storm that you prepare for is a storm where a child breathes in far less polluted air.

7. The industrial site at the edge of the neighbourhood

The factory or power plant nearby releases more than the smoke that families can see, emitting fine particles, metals and toxic chemicals that settle in the air, soil and the food that is being grown downwind. Children breathe in more air relative to their weight than adults, and live with the consequences of breathing polluted air for decades. Check the air each morning. Close windows and external doors and use an air purifier (if you can seal a room and can afford one) when pollution levels are high. Wear a well-fitting certified respirator or face mask when outside. Ask about soil and food testing if a garden where produce is grown is downwind of an industrial site.

8. The work that does not have to harm the worker

Outdoor and informal workers face the largest air pollution exposure of any adult group, and particles can be carried home on clothes and skin to family members and children. Use a well-fitting certified respirator. Change clothes before holding children. Advocate with other workers so that protective conditions become mandatory instead of optional.

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Wherever he lives.

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