Clean Air for Schools

/ Purify

BELGIUM's most ambitious project
to provide clean air in schools.

POSITIVE IMPACT TEAM

An Airscan & Positive Impact Team
initiative to improve the health of our children.

airscan®

Clean Air for Schools

WHO?

POSITIVE IMPACT TEAM

airscan®

Teaming up for positive impact projects

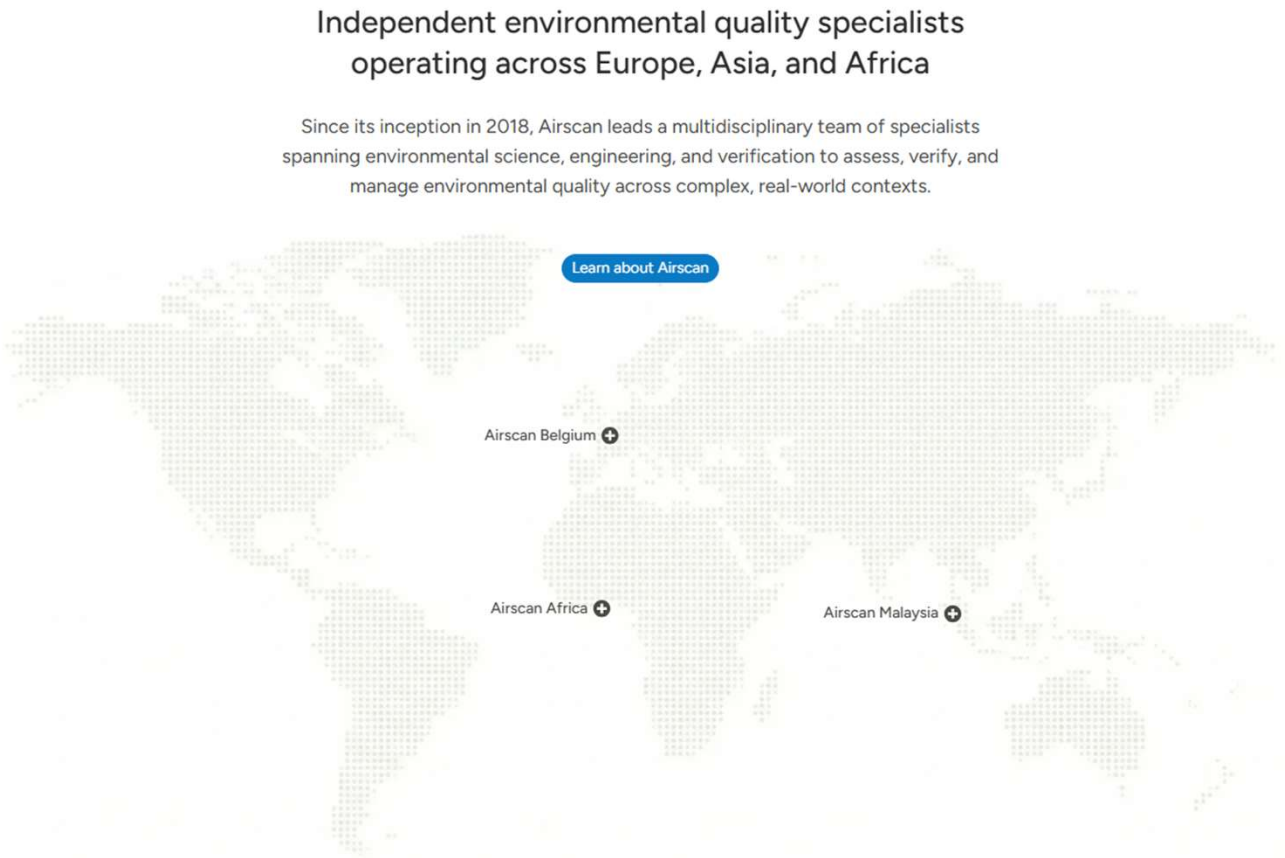
Airscan’s mission:

Airscan helps organizations understand, manage, and improve the environmental conditions that shape health, function, and long-term wellbeing across everyday spaces.

Positive Impact Team’s mission:

7 of the 9 planetary boundaries have been crossed. Our goal is to support and develop organizations, projects, services and solutions that help to thrive within safe planetary boundaries.

Teaming up for positive impact projects



POSITIVE IMPACT TEAM

airscan®

Clean Air for Schools

WHAT?

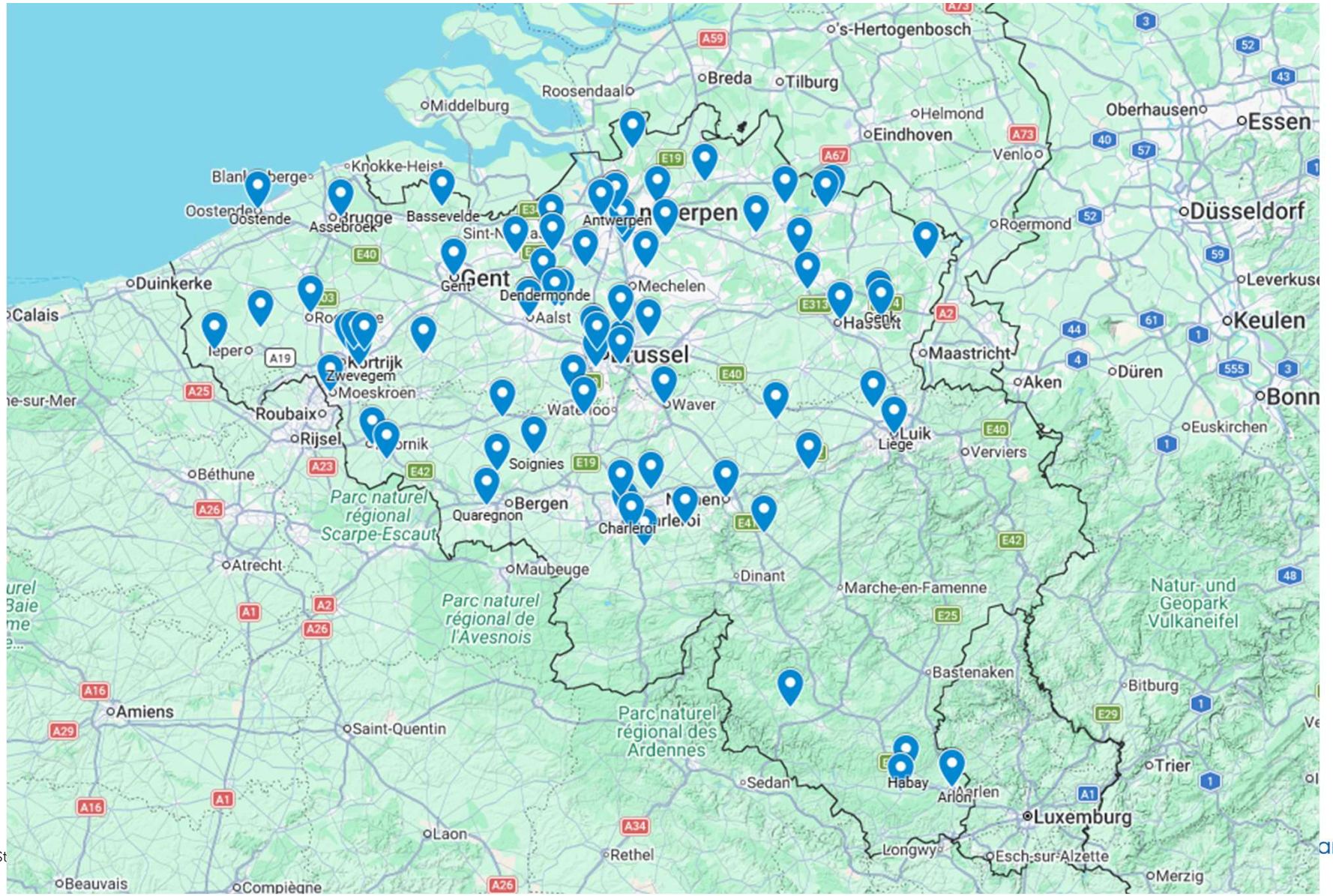
POSITIVE IMPACT TEAM

airscan®

Phase 1 (2022-2025)

- Measurements in 75 schools
- 84% of classes had particulate matter (PM) beyond WHO norms
- Teachers and students were informed of the issue
- Participative tips & tricks were shared to improve air quality
- 5,670 children benefited from the monitoring & improvements
- 13737 alerts were sent to teachers to report pollution spikes

(sponsored by Belfius)



Confidential - St

Clean Air for Schools

www.cleanairforschools.be NL

Contact

Clean Air for Schools

www.cleanairforschools.be FR

Contact

Phase 1: (2022-2025) ✅

We analysed air quality in 75 schools.

Context in Belgium:

- + 84% of classes = too much PM2.5 (particulate matter)
- 6411 schools
- 2,1 million students
- +/- 24 pupils / class
- +/- 87.500 classes
- 84% of 87.500 = approx. 73.500 classes to address
- Belgium has an unhealthy educational environment

Phase 2: (2026-2030)

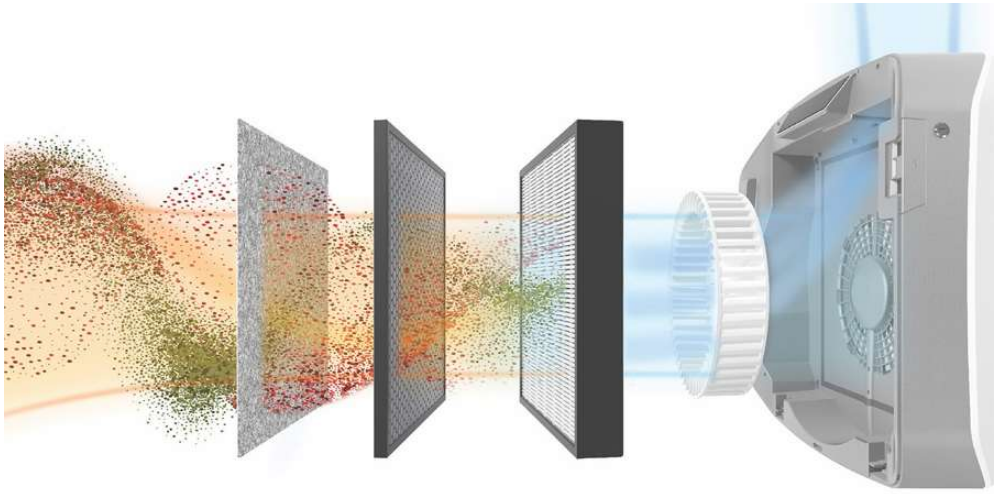
Purify the air in 73.500 classrooms.

Solution for Belgium:

- Structural renovations are very expensive and take a lot of time (7-20m€ / school)
- Our solution: “Plug & Play” purifiers
- 1000€ per class to purify the air
- Best in class air purifier - VITO & SPF/FOD Health approved*
- Est. 73.5m€ for +/- 73.500 classes = 16-18€ per kid/y (5y basis)
- Y+1: Annual budget 14.700.000€ for filters = 7€ per kid
- Increased air quality, health & efficiency

Experimental phase done ✅ (in phase 1)

- Airscan tested air purifiers in classes and managed to reduce PM by 60%. Getting back around/below WHO norms (safer air quality zone) similar to Fellowes test in Italy.
- Ensuring cleaner air for children
- Now all children deserve this !
- We need partners to roll this out across schools !



Phase 2 (2026-2030) now !

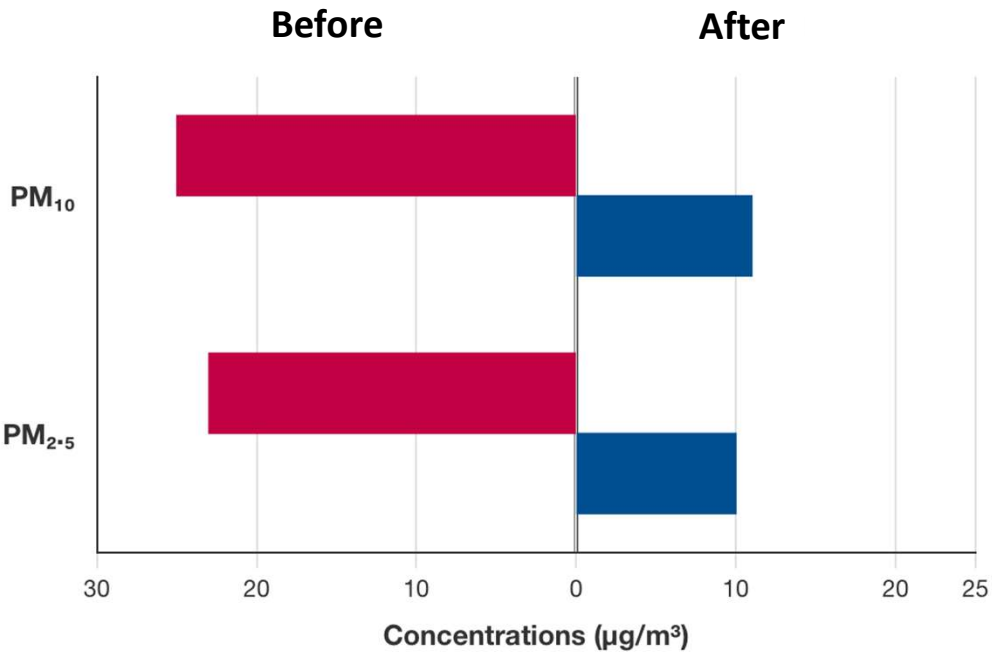
- **Underrated problem identified**
- **Viable & efficient solution found**
- **It's time for nationwide roll-out of air purifiers**

- Equip Belgian schools with air purifiers (+4600 schools & approx. 87 500 classes)

- Proven technology & SPF Health approved

- Results are better than expected (see graph ->)

- Much cheaper & easy scalability VS structural renovation & ventilation system.



This bar chart shows the particulate matter concentrations before and after installation of the air purifier in a classroom where high concentrations were measured.

airscan

Clean Air for Schools

Impact van het 'Clean Air for Schools'-project

SITUATIE IN BELGIË

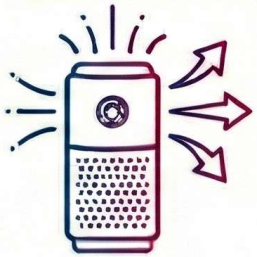
2,1 Miljoen
kinderen in België

87 500
klaslokalen

DE UITDAGING

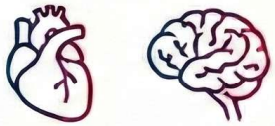
84%
van de klaslokalen overschrijdt de WHO-normen voor PM2.5 (ongeveer 73 500 klaslokalen)

DE OPLOSSING EN IMPACT



Nieuwe luchtreinigers verminderen PM2.5 en andere verontreinigende stoffen met

by 60%



Dit heeft een aanzienlijke impact op de gezondheid en prestaties van kinderen en onderwijzend personeel

BUDGET EN KOSTEN

Voor een totaal budget van
73 Miljoen Euro
kunnen we kinderen schone lucht bieden.

En daarna jaarlijks
15 Miljoen
voor filtervervanging

DE KOSTEN PER KIND

Over 10 jaar:
Kosten per kind per jaar van
10-15€

de prijs van 2 Lattes bij Starbucks

POSITIVE IMPACT TEAM

airscan®

Clean Air for Schools

Impact du Projet “Clean Air for Schools”

SITUATION EN BELGIQUE

2,1 Million
d’enfants en Belgique

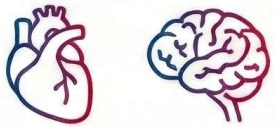
87 500
classes

LE DÉFI

84%
des classes dépassent les normes de l’OMS en matière de PM2.5 (soit 73 500 classes)

LA SOLUTION ET L’IMPACT

Des nouveaux purificateurs **réduisent de 60%** les PM2.5 et autres polluants



Ceci a un impact important sur la santé et performance des enfants et du corps enseignant

BUDGET ET COÛT

Pour un budget total de
73 Millions d’Euro
on peut offrir de l’air sain aux enfants

Et puis annuellement
15 Millions
pour le renouvellement des filtres

LE COÛT PAR ENFANT

Sur 10 ans :
Coût par enfant par an de
10-15€

le prix de 2 Latte chez Starbucks

POSITIVE IMPACT TEAM

airscan®

Clean Air for Schools

WHY?

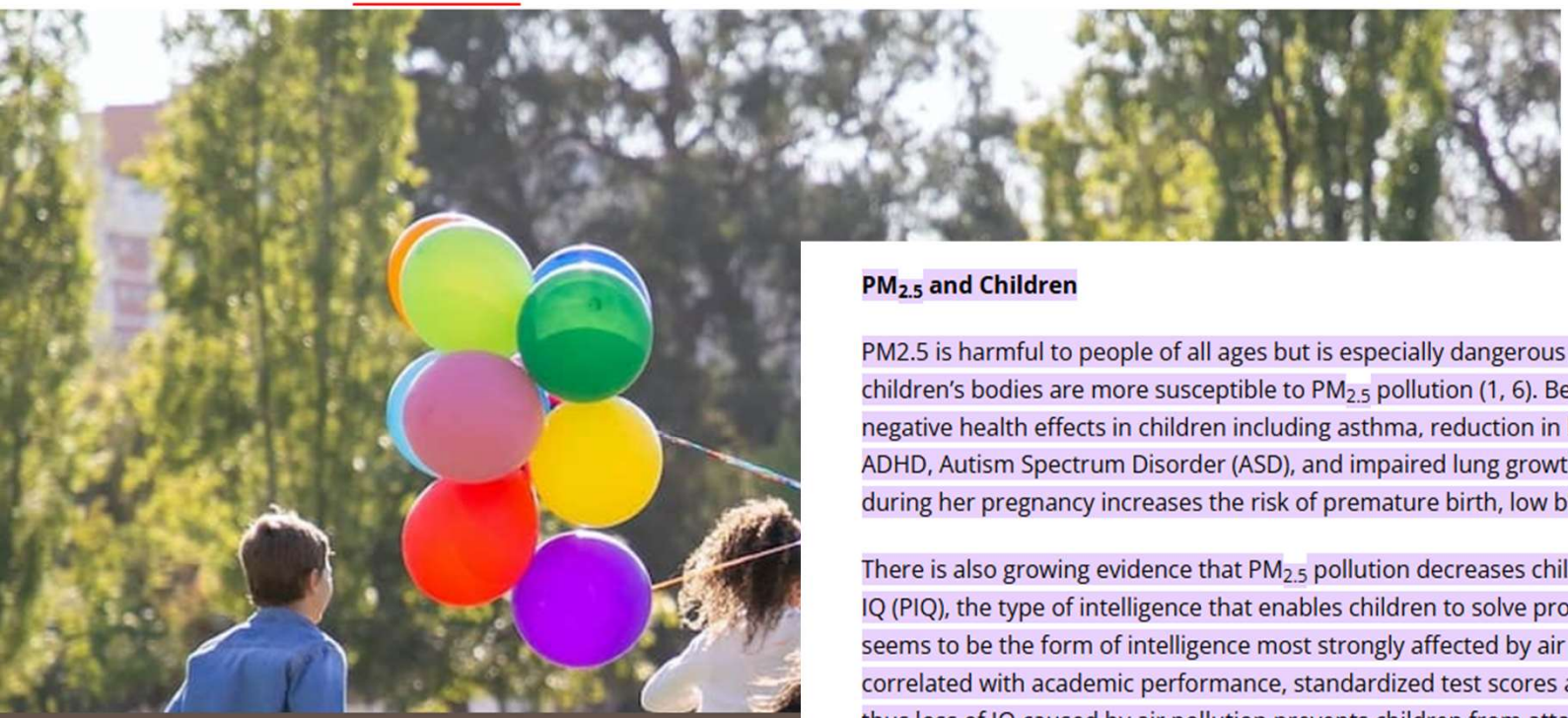
POSITIVE IMPACT TEAM

airscan®

The problem

- Children aged 2-12 spend an average of 30 hours a week in a classroom
- Children are vulnerable to air pollution partly because their organs are still developing and they breathe more rapidly and are closer to the ground, where pollutants are more highly concentrated.
- Poor ventilation and unhealthy outdoor-indoor air
- Leading to more sick children, more absences
- Less concentration, **less development.**

MassCleanAir



$PM_{2.5}$ and Children

PM2.5 is harmful to people of all ages but is especially dangerous for children. Compared to adults, children's bodies are more susceptible to $PM_{2.5}$ pollution (1, 6). Because of this, $PM_{2.5}$. can cause many negative health effects in children including asthma, reduction in brain volume, behavioral dysfunction, ADHD, Autism Spectrum Disorder (ASD), and impaired lung growth. A mother's exposure to $PM_{2.5}$ during her pregnancy increases the risk of premature birth, low birth weight, and stillbirth (7-10).

There is also growing evidence that $PM_{2.5}$ pollution decreases children's intelligence (11). Performance IQ (PIQ), the type of intelligence that enables children to solve problems and react to new situations, seems to be the form of intelligence most strongly affected by air pollution. IQ scores are highly correlated with academic performance, standardized test scores and high-school graduation rates, and thus loss of IQ caused by air pollution prevents children from attaining their full potential.

Volksgezondheid
Veiligheid van de Voedselketen
Leefmilieu

Thema's Onderzoek Tools

Ben jij verplicht om actie te ondernemen?

Alle binnenruimtes die omsloten zijn door muren of deuren, én voorzien zijn van een plafond of vloer, vallen onder de wet van 6 november 2022 betreffende de verbetering van de binnenluchtkwaliteit in gesloten plaatsen die toegankelijk zijn voor het publiek.

Dat betekent dat je deze regelgeving moet naleven als je een plaats uitbaat die toegankelijk is voor het publiek, zoals:

- horecazaken
- culturele instellingen
- sportinfrastructuur
- zorginstellingen
- scholen en opleidingscentra
- winkels en handelszaken, enz.

Niet van toepassing: privéwoningen en ruimtes die uitsluitend bestemd zijn voor medewerkers vallen niet onder deze verplichtingen.

Een vrijwillige fase tot 2027

Sinds 1 oktober 2024 loopt er een **vrijwillige fase**. Die geeft je de kans om vertrouwd te raken met de vereisten die de wet stelt aan de luchtkwaliteit in jouw binnenplaats.

Vanaf 2027 zal een koninklijk besluit bepalen **welke soorten publieke plaatsen** aan deze verplichtingen moeten voldoen. Deze lijst wordt geleidelijk uitgebreid, zodat **tegen eind 2037 alle publiek toegankelijke plaatsen** onder de wet vallen.

Door nu al vrijwillig te starten met de eerste stappen van de wet, **bereid je je goed voor op de toekomstige verplichtingen**. Tegelijk bied je je bezoekers vandaag al een gezondere en aangenamere omgeving.

Santé publique
Sécurité de la Chaîne alimentaire
Environnement

Thèmes Recherche Outils Org

Comment savoir si je suis concerné ?

Tous les locaux fermés par des portes ou des parois, et équipés d'un plafond ou d'un plancher sont concernés par la loi du 6 novembre 2022 relative à l'amélioration de la qualité de l'air intérieur dans les lieux fermés accessibles au public, sauf s'ils sont limités à la sphère familiale ou purement la sphère professionnelle. Cette loi concerne donc des secteurs variés tels que :

- l'Horeca,
- la culture,
- le sport,
- les soins de santé,
- l'éducation,
- les commerces, etc.

Ne sont pas concernés : les habitations privées et les salles de réunion réservées exclusivement aux employés, par exemple.

Une phase volontaire jusqu'en 2027

Une **phase volontaire** est en cours depuis le 1er octobre 2024 pour vous familiariser avec les exigences imposées par la loi.

A partir de 2027, un arrêté royal précisera **quels établissements** seront soumis aux différentes obligations. Cette liste de lieux s'étendra **jusqu'à couvrir tous les lieux publics d'ici fin 2037**.

En appliquant volontairement les premières étapes de la loi, **vous vous préparez à ces obligations futures**, tout en cherchant dès aujourd'hui à offrir un environnement plus sain et confortable à vos visiteurs.

Why wait ? When you know the problem & when you have the solution…

airscan

Volksgezondheid
Veiligheid van de Voedselketen
Leefmilieu

Thema's Onderzoek Tools

Wat moet je doen?

Vanaf vandaag kun je op vrijwillige basis de eerste maatregelen van de wet toepassen:

1. **Meet de CO_2-concentratie** om na te gaan of er voldoende ventilatie is in verhouding tot het aantal aanwezige personen en de activiteit in de ruimte. Een **praktische gids** helpt je om een geschikt meettoestel te kiezen en het correct te installeren, gebruiken en onderhouden.
2. **Breng de vervuilingsbronnen in kaart** en voer een risicoanalyse uit waarin je de factoren identificeert die de luchtkwaliteit beïnvloeden. Stel indien nodig ook een actieplan op waarin je aangeeft welke alternatieven je invoert en hoe je de risico's van deze bronnen beheert. Raadpleeg de praktische gids die je stap voor stap begeleidt. Deze gids helpt je ook bij het gebruik van de gratis toepassing *Risicoanalyse & Actieplan*, waarmee je deze documenten eenvoudig online kunt invullen.
3. **Beantwoord vragen van je publiek** over de CO_2-concentratie of luchtdebieten in je ruimte.

Om de luchtkwaliteit in je ruimte te verbeteren:

- Beperk vervuilingsbronnen. ☑
- Ventileer de ruimte.
- Zuiver de lucht.

Volg de gedetailleerde aanbevelingen op de pagina over het verbeteren van de binnenluchtkwaliteit.

Santé publique
Sécurité de la Chaîne alimentaire
Environnement

Thèmes Recherche Outils Or

Que dois-je faire ?

Dès aujourd'hui, vous pouvez volontairement mettre en œuvre les premières mesures de la loi :

1. **Mesurez la concentration en CO_2** pour vérifier si la ventilation est suffisante par rapport au nombre de personnes présentes dans le lieu et à l'activité qui y est organisée. Un guide pratique vous aide à choisir votre appareil de mesure et à l'installer, l'utiliser et l'entretenir correctement.
2. **Identifiez les sources de pollution** et procédez ainsi à une analyse de risques reprenant les facteurs qui peuvent influencer la qualité de l'air dans votre lieu. Si nécessaire, **établissez** aussi **un plan d'actions** listant les alternatives à mettre en place et la manière de gérer les risques liés à ces sources de pollution. Consultez ce guide pratique, qui vous accompagnera dans ces démarches. Ce guide vous aidera aussi à utiliser l'application gratuite Analyse de risques & Plan d'actions, qui vous permet de compléter ces documents facilement en ligne.
3. **Répondez aux questions de votre public** concernant la concentration en CO_2 ou les débits d'air dans votre lieu.

Pour améliorer la qualité de l'air dans votre lieu :

- **Limitez les sources de pollution**. ☑
- **Ventilez** votre espace.
- **Purifiez** l'air.

Suivez les recommandations détaillées sur la page spécifique à l'amélioration de la qualité de l'air intérieur.

airscan®

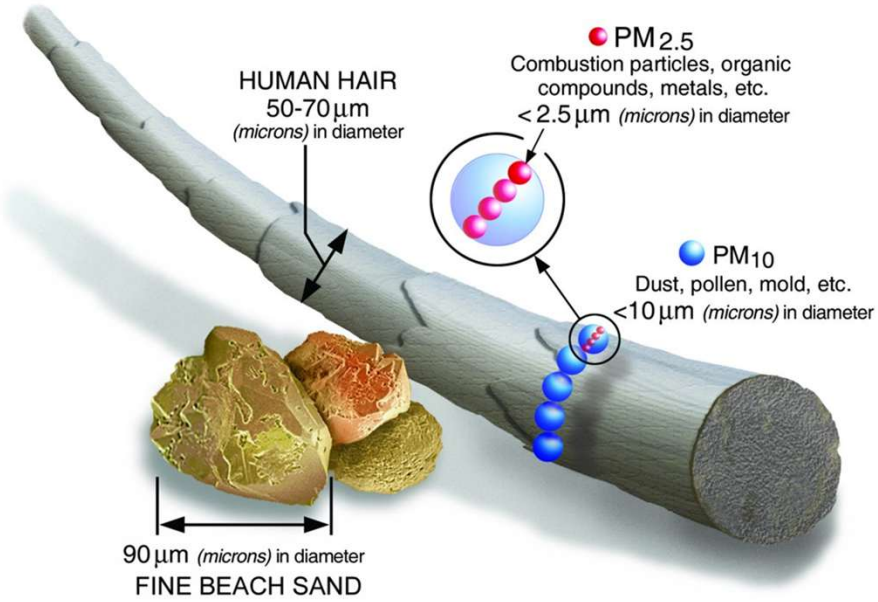
The problem

- *Children aged 2-12 are in a crucial development phase, spanning toddlerhood, preschool, and school age, marked by explosive growth in cognitive (thinking, learning), physical (motor skills, growth spurts), social, and emotional skills, transitioning from basic toddler actions to complex reasoning, independence, and the beginnings of abstract thought as they approach adolescence. This decade covers significant milestones like language acquisition, complex play, learning to read/write, understanding rules, and developing self-identity.* ***Source: European Environment Agency***

- *For children aged 2 to 12, the most critical developmental phase is the first five years, as 80% of brain development occurs by age three. This period is a "critical window" where physical, cognitive, and social-emotional foundations are established.* ***Source: Asthma + Lung UK***

"We prioritize our children's growth and development, yet poor air quality remains a significant obstacle."

- Airscan.org -



Clean Air for Schools

Thank you

Q&A

POSITIVE IMPACT TEAM

airscan®

Clean Air for Schools (phase 1) in the press

LE SOIR

Podcasts Politique Société Monde Économie Sports Culture

ACCUEIL • PLANÈTE • POLLUTION

L'air des écoles est trop souvent de mauvaise qualité

La pollution de l'air menace les écoles belges : 84 % dépassent le seuil de particules fines. La ventilation et les purificateurs d'air permettent de réduire la concentration en CO_2 (-19 %), particules fines et composés volatils.

Article réservé aux abonnés

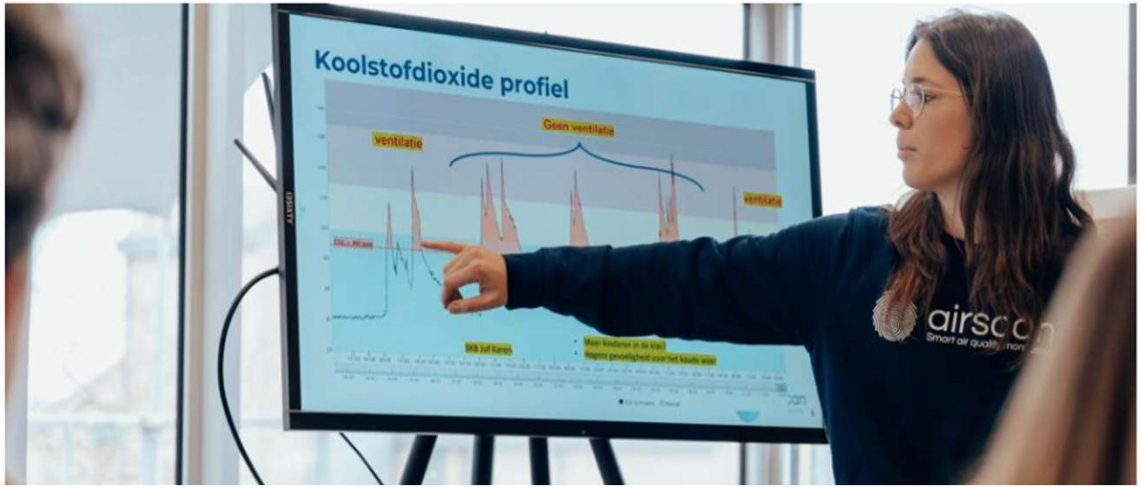
Trends LIVE BOURSE

tendances Trends

Trends Z A la Une Bourse Entreprises AI & Tech Immo Opinions Mon Argent Eve

DÉVELOPPEMENT DURABLE

Airscan et Belfius partenaires pour une meilleure qualité de l'air dans les écoles belges: les particules fines, véritable point noir



Clean Air for Schools in the press

made in West-Vlaanderen Starters Failli

Milieubedrijf Airscan maakt verontrustende analyse over de luchtkwaliteit in scholen

KNOKKE - Zes jaar na de oprichting van het gespecialiseerde milieuconsultancybedrijf Airscan, komt mede oprichter en Knokkenaar Antoine Geerinckx met een diepgaande analyse voor de dag over de luchtkwaliteit in scholen. De bevindingen zijn - eufemisch uitgedrukt - eerder verontrustend en vergen een nieuwe aanpak. Een en ander blijkt uit een diepgaand onderzoek dat Airscan gevoerd heeft in samenwerking en met de steun van Belfius. Belfius en Airscan benadrukken de noodzaak om

ENGINEERINGNET Bedrijfsnieuws

INDUSTRIE WETENSCHAP TECHNIEK MAINTENANCE HR OPLE

Engineeringnet › Nieuws › Techniek › Meten en verbeteren luchtkwaliteit in en rond scholen

01/09/2020 | Lydia Heida

Meten en verbeteren luchtkwaliteit in en rond scholen

Airscan en Belfius rusten scholen uit met meetapparatuur die de binnen- en buitenluchtkwaliteit analyseert en automatisch alerts geeft als drempelwaarden worden overschreden.

#aerosol, #Airscan, #Belfius, #CNRS, #CO2, #CO2logic, #COVID-19, #drempelwaarden, #fijnstof, #labo, #lucht, #meetapparatuur, #nano, #school, #ventilatie, #virus, #vluchtige organische stoffen, #vochtigheid

Lees verder

Appendix

Children's unique vulnerability

Children are uniquely vulnerable to air pollution, with damage beginning even before birth. Maternal exposure during pregnancy can impair fetal growth, increase infant mortality, and raise risks of preterm birth, low birth weight, and lifelong developmental challenges. After birth, children inhale more polluted air than adults because they breathe faster, spend more time outdoors, and are closer to sources like dust and vehicle exhaust.

Because children's lungs, brains, and immune systems are still developing, even small exposures cause greater harm — blocking smaller airways, impairing growth, and interfering with development. Over time, air pollution increases the risk of asthma, cancers, impaired lung function, and cognitive effects, limiting children's ability to learn, play, and thrive. Many of these impacts appear later in life, with some lasting a lifetime.

1. In utero
2. Lung development
3. Airway size and permeability
4. Immune system
5. Cognitive immaturity and dependence on adults

Appendix

Significance of Air Pollution and Children's Health

Long-Lasting effects

Air pollution exposure in early childhood can have long-term consequences. Children who are born prematurely or with low birth weight because of a mother's exposure to air pollution during pregnancy are at high risk of cardiovascular disease, kidney disease, hypertension, and diabetes later in life (14, 15). Similarly, stunted lung growth caused by air pollution can result in impaired lung development and put children at higher risk for chronic respiratory diseases. Lung injury caused by air pollution also puts individuals at higher risk of hospitalization and death from respiratory infections like COVID-19 (16).

Children Don't Choose

Most air pollution is caused by human action and specifically by the burning of fossil fuels – coal, oil and gas. (12). Fossil fuel combustion accounts for 85% of $PM_{2.5}$ pollution and nearly all pollution by nitrogen oxides and sulfur oxides. Fossil fuel combustion is also the major cause of climate change.

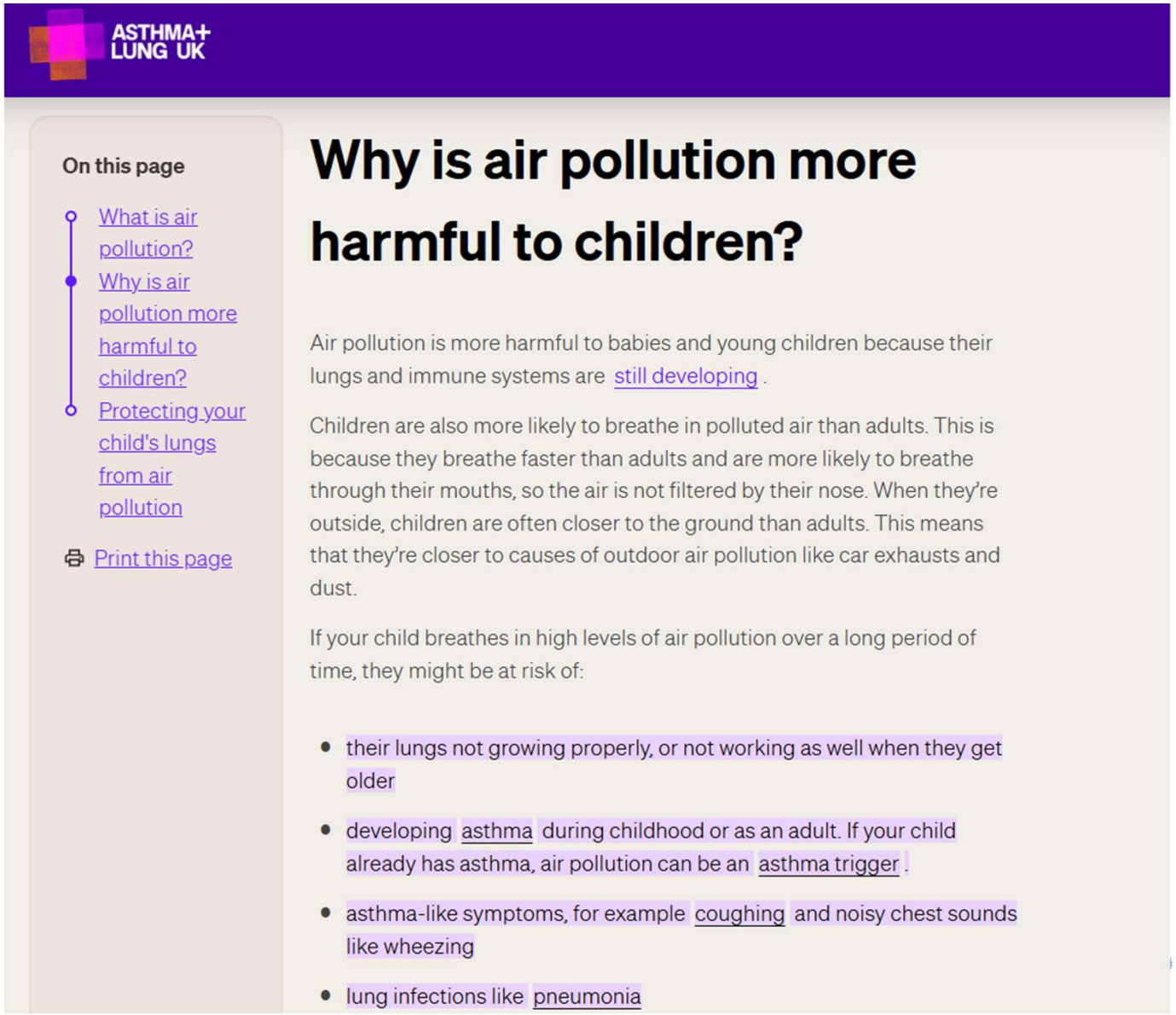
Children have no voice in decisions about whether to burn fossil fuels and yet they are the members of our society who suffer the most serious consequences from these decisions. Moreover, it is our children and their children who will suffer the greatest injury from climate change – the major long-term consequence of fossil fuel combustion. It is morally imperative that we do our best to protect children from the adverse effects of a world they didn't create.

Children Are the Future

Perhaps the most important reason why we must protect children from the dangers of air pollution is that they represent the future of our society. If we can confront air pollution now, then we will allow the next generations to flourish and tackle even bigger issues that the world so desperately needs.

airscan®

Appendix



ASTHMA+ LUNG UK

On this page

- What is air pollution?
- Why is air pollution more harmful to children?
- Protecting your child's lungs from air pollution

Print this page

Why is air pollution more harmful to children?

Air pollution is more harmful to babies and young children because their lungs and immune systems are still developing .

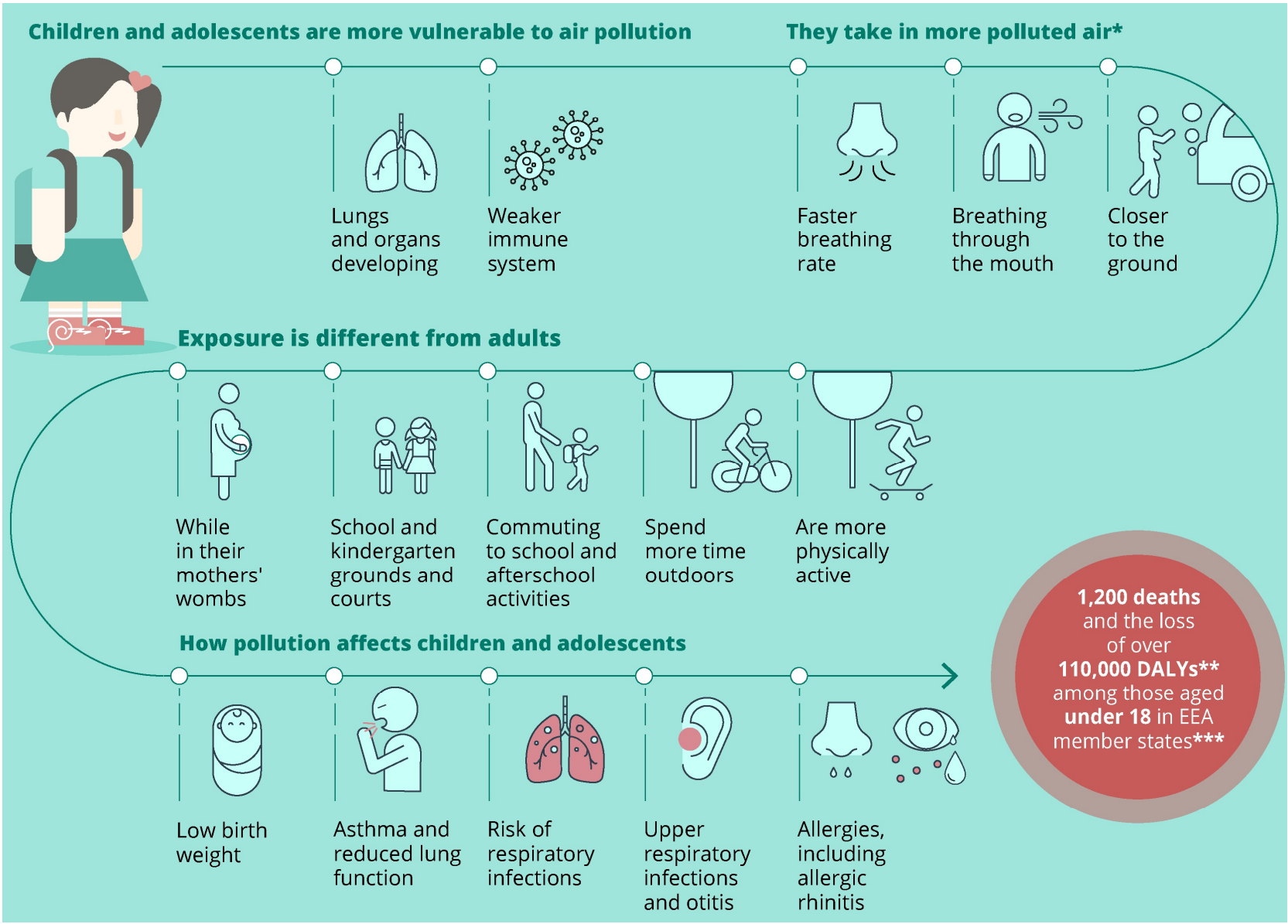
Children are also more likely to breathe in polluted air than adults. This is because they breathe faster than adults and are more likely to breathe through their mouths, so the air is not filtered by their nose. When they're outside, children are often closer to the ground than adults. This means that they're closer to causes of outdoor air pollution like car exhausts and dust.

If your child breathes in high levels of air pollution over a long period of time, they might be at risk of:

- their lungs not growing properly, or not working as well when they get older
- developing asthma during childhood or as an adult. If your child already has asthma, air pollution can be an asthma trigger .
- asthma-like symptoms, for example coughing and noisy chest sounds like wheezing
- lung infections like pneumonia

airscan

Appendix



Source: European Environment Agency

Appendix

Jornal de Pediatria
Volume 101, Supplement 1, March–April 2025, Pages S77-S83

Review article

How does air quality affect the health of children and adolescents?

Herberto José Chong-Neto, Nelson Augusto Rosário Filho

Show more

Add to Mendeley Share Cite

https://doi.org/10.1016/j.jped.2024.11.009 Get rights and content

Under a Creative Commons license Open access

Abstract

Objectives

To assess how air quality and pollutants affect the health of children and adolescents.

Source of data

A narrative review of recent literature was conducted using PubMed databases, focusing on studies published between 2015 and 2023. The keywords included "air pollution", "child health", "adolescents", "respiratory diseases" and "cognitive development". The studies were selected based on their relevance to the pediatric community and impacts on air quality, emphasizing original peer-reviewed research and meta-analyses.

Synthesis of data

Exposure to pollutants in the air during the formative and development years can lead to respiratory disorders, neurodevelopmental impairment, and exacerbated chronic conditions. This review synthesizes current evidence on the relationship between air quality and pediatric health, emphasizing the effects of specific pollutants, mechanisms of harm, and long-term implications.

Conclusions

From respiratory disorders to neurodevelopmental problems, air pollution, remains a widespread threat, particularly to vulnerable populations. Immediate actions at the political, community, individual, and industry levels are necessary to mitigate these risks.

airscan®

Source: European Environment Agency

Appendix

Key messages

- Children are particularly vulnerable to air pollution, from when they are in the womb to when they reach adulthood.
- Over 1,200 deaths in people under 18 years of age are estimated to be caused by air pollution every year in EEA member and collaborating countries[1].
- Air pollution also causes low birth weight, asthma, reduced lung function, respiratory infections and allergies in children and adolescents, as well as increased risks of adult chronic diseases.
- Traffic, heating, and industry are the main sources of air pollution in Europe; while emissions have declined, air pollution levels are still not safe.
- Air quality policies should protect the health of children and adolescents by explicitly taking into account differences in their biology and exposure pathways.
- Improving air quality in around schools and kindergartens, in other child-centric settings, and during activities like school commutes and sports, can help reduce exposure.
- Children and adolescents cannot protect themselves from air pollution, or vote for or influence relevant policies; only adults can do it for them, and it is urgent.

airscan®

Source: European Environment Agency