

The importance of good IAQ and ventilation

BUILD UP Webinar | Health performance of Nearly Zero-Energy Buildings

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European alliance of **41** allergy, asthma and chronic obstructive pulmonary disease (COPD) national patients' associations

Present in **25** European countries

Represent the voice of more than **30%** of European citizens living with these diseases

Patients' participation in every decisions influencing their health, partnership & sharing knowledge



THE MOST PREVALENT CHRONIC DISEASES IN EUROPE

Chronic respiratory diseases are a huge burden on EU national health systems and patients



Asthma and allergy are the leading cause of school absences and hospitalisations



COPD is a major cause of absenteeism from work accounting for productivity loss of €28.5 billion yearly

... and our strategy is to engage!

FROM HIAP TO PIAP: PREVENTION IN ALL POLICIES

1 in 3 Members of the European Parliament are committed to act
for better care and a healthier environment



 #BreatheMission

Thanks to the 249 signatory MEPs that support the written declaration 115/2016 on chronic respiratory diseases



SIGN ONLINE www.CallAllergyAsthma.eu

Health in all policies principle is important but,
we should also include **prevention** in all policies



EFA

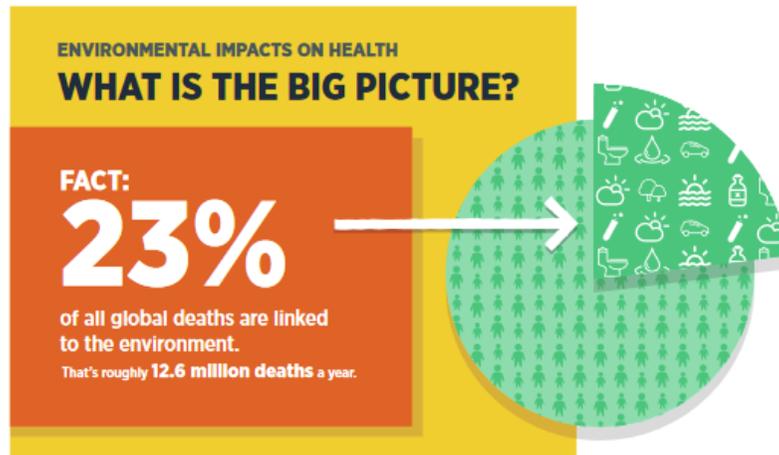
European Federation of Allergy and Airways
Diseases Patients' Associations

PREVENTION TAKES MANY FORMS: TACKLING ENVIRONMENTAL DETERMINANTS IS ONE

“Air quality is one of the main identified problems of environmental pollution related to health problems such as respiratory diseases, asthma, and allergies”

(DG SANTE)

- Pollution is responsible for 9 million deaths/year worldwide (The Lancet Report, October 2017): in 2015, pollution caused 3 times as many deaths as AIDS, TB and malaria combined
- 23% of all deaths globally can be prevented through healthier environments (WHO study, September 2017)



POLLUTION KILLS THE POOR AND THE VULNERABLE.

92% of deaths occur in low- and middle-income countries. Children are most affected.



9 MILLION premature deaths

= 16% of all deaths worldwide

Pollution costs the global economy **\$4.6 trillion** per year, equivalent to **6.2%** of global economic output.

Pollution is neglected by funding agencies worldwide.



We can all help to make a difference.

Governments
Implement programs to reduce pollution.
End special treatment for polluting industries.

International donors, foundations, & individuals
Prioritize funding for pollution planning, interventions and research.



VISIT WWW.POLLUTION.ORG for metrics and to connect.

Why is indoor air quality a priority for patients?



RIGHT TO GOOD INDOOR AIR QUALITY

- In OECD countries, people spend on average 90% of their time in indoor environments
- Under the principle of the fundamental right to health, everyone has the right to breathe healthy indoor air (WHO, The Right to Healthy Indoor Air, 2000)

↓ BUT

- Several sources of pollution regularly breach such a right, **900** compounds **HARMFUL TO HEALTH** have been detected in indoor air

- Outdoor air: combustion, industrial pollution, traffic, pollens – causing 50% of IAQ burden of disease (EnVIE project)
- Building: building materials, furnishing, equipment, consumer products
- Ventilation system: ventilation, air-conditioning
- Humans: occupants and their activities

**Smart buildings
should be healthy for people**

90% Europeans spend up to
of their lives indoors



European Performance of Buildings Directive:
We need an Indoor Air Quality Performance Certificate

🐦 #Buildings4Health

2 million healthy years are lost in the EU every year due to poor indoor air quality (IAIAQ project)

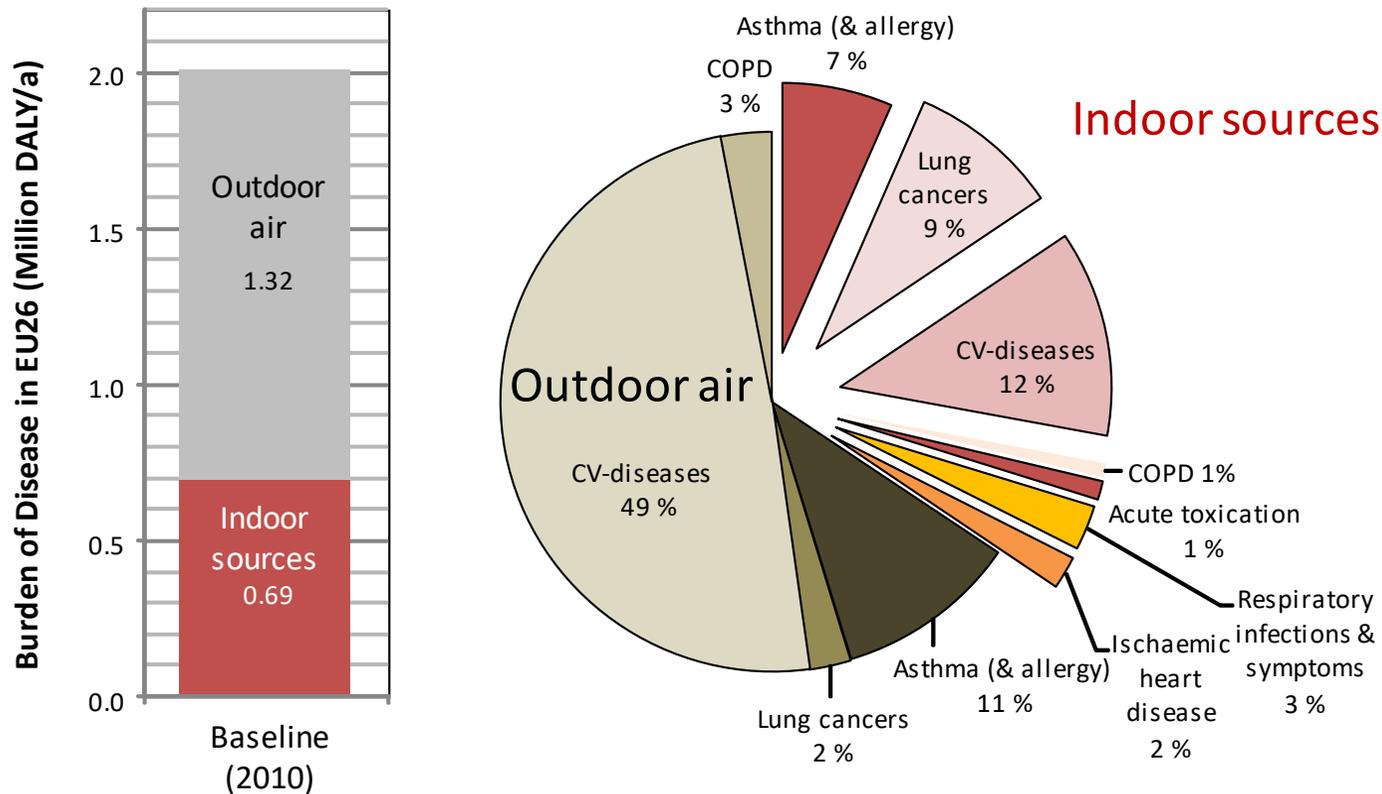
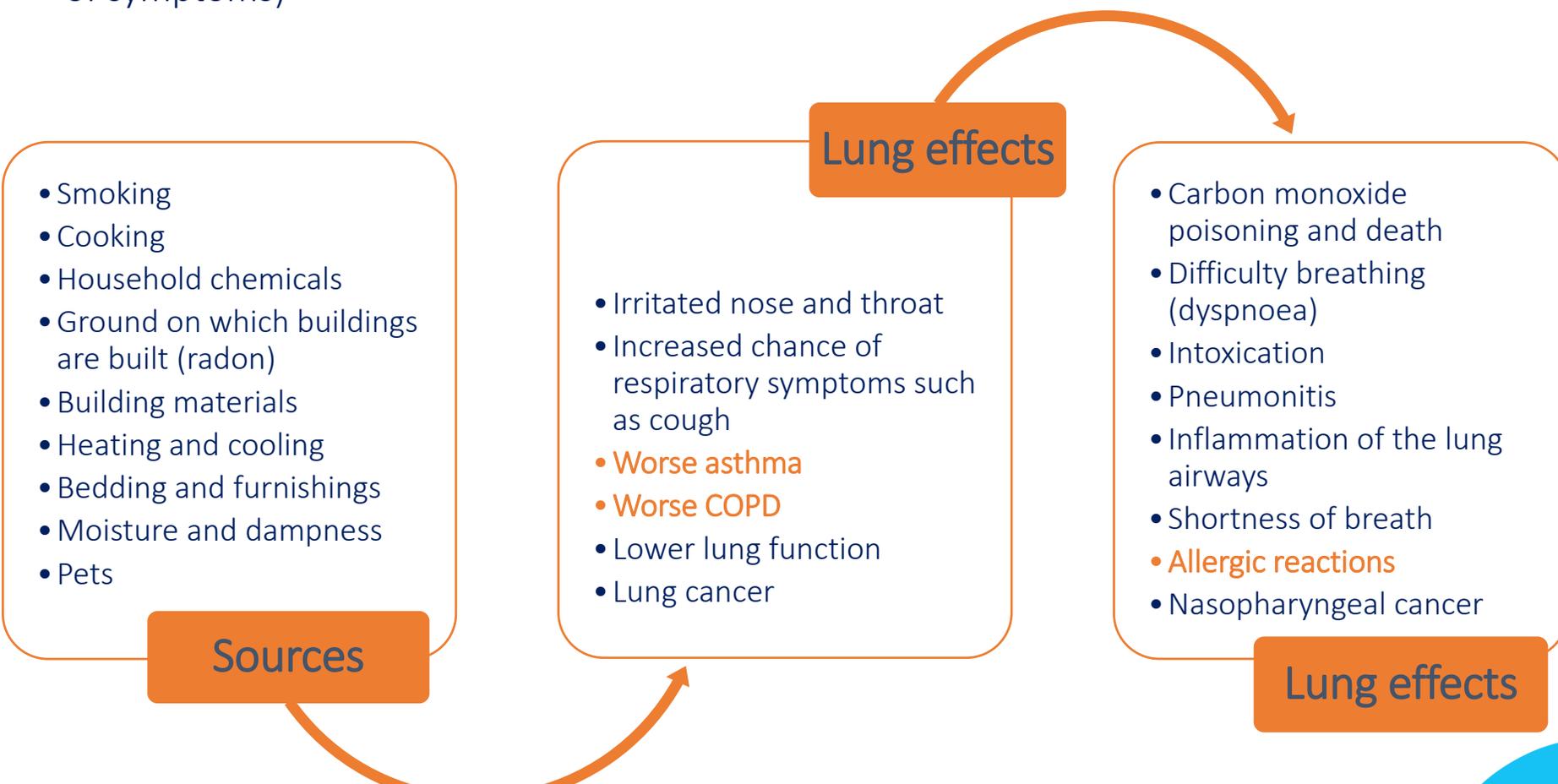


Figure 1. Burden of disease at the baseline (2010) in EU-26 divided into indoor and outdoor source components (left) and fractions associated with different diseases (right).

INDOOR AIR QUALITY AND THE LUNGS

People with allergy and respiratory diseases are particularly affected (first to react and worsening of symptoms)

- 
- The diagram illustrates the relationship between indoor air quality sources, lung effects, and specific health outcomes. It consists of three main boxes connected by curved arrows. The first box on the left, titled 'Sources', lists various indoor air quality factors. An arrow points from this box to a central box titled 'Lung effects', which lists general respiratory symptoms and conditions. A second arrow points from the central box to a final box on the right, also titled 'Lung effects', which lists more severe health outcomes.
- Smoking
 - Cooking
 - Household chemicals
 - Ground on which buildings are built (radon)
 - Building materials
 - Heating and cooling
 - Bedding and furnishings
 - Moisture and dampness
 - Pets

Sources

Lung effects

- Irritated nose and throat
- Increased chance of respiratory symptoms such as cough
- **Worse asthma**
- **Worse COPD**
- Lower lung function
- Lung cancer

- Carbon monoxide poisoning and death
- Difficulty breathing (dyspnoea)
- Intoxication
- Pneumonitis
- Inflammation of the lung airways
- Shortness of breath
- **Allergic reactions**
- Nasopharyngeal cancer

Lung effects

NOT ONLY HEALTH...

- Loss of **9%** of productivity due to offices' poor indoor air quality
- Carpeting and less ventilation reduce typing speed and proofreading accuracy by **4%**
- **64 million students and 4.5 million teachers** are affected by bad indoor air quality in Europe with impact on absenteeism, learning and student performance, as well as behaviour
- Social exclusion



Patient's expertise and susceptibility:

- Reduced cognitive abilities
- Lower memory
- Tiredness
- Headaches
- Feverishness
- Stomach problems
- Skin and eyes problems



HOW DO WE SOLVE THE PARADIGM?

The relation between indoor air quality pollution and health effects is a complex paradigm to solve: it cannot either be properly quantified nor observed yet!

IAQ definition:

Indoor air quality is a complex mixture of interactions and exposure



Patients problems:

1. A clinical test does not exist
2. A proper diagnosis does not exist
3. It is difficult to find a doctor familiar with indoor air quality illness related issues
4. Discrimination of patients in workplaces



OUR TESTIMONIALS: THE CASE OF FINLAND

“The Union of Health and Social Care Professionals in Finland reported issue related to IAQ, and **1/4 workers** had suspicion of related illness occurring”

Source: University of Turku, Finland

“**600,000–800,000 people** in Finland are exposed to damaged environment every day”

Source: Ministry of the Environment, Finland

“Patients feel it is **hard to find doctors** who are familiar with their problems and medications – an medical bills pile up. Some lose their jobs or the ability to work, or leave in constant fear of what can happen”

Source: Organisation for Respiratory Health, Finland



“Fragrances are increasingly being used in places frequented by the public. Another aspect of this trend is the habit of making fragrances long-lasting – a disaster if you have asthma and someone near you is using such products! This pungent odour makes it hard for people with asthma and allergy to remain in the vicinity. They are forced to leave or in the best case to take more medication to be able to stay.”

Joanna Bottema – Astmafonds (The Netherlands)

LACK OF EU INTEREST...

- Poor indoor air quality mistakenly believed to be a private problem

THEREFORE

- No proper legislative text adopted on IAQ...
 - EU Expert Group on IAQ established by DG SANCO in 2006, since 2012 not active anymore
 - Joint Research Centre dedicated website **BUT** no actions
 - Construction Products Regulation: construction materials should guarantee a good quality of the indoor air **BUT** nothing binding is established
 - Seventh Environment Action Programme: call for developing EU strategy and IAQ levels in line with WHO recommended guidelines
- ...although EU research and public health funding allocated to IAQ projects



PATIENTS' RECOMMENDATIONS

- Inclusion of indoor air quality requirements in the national regulations of all European countries, especially for hospitals, schools and kindergardens, and in line with WHO guidelines
- Harmonised construction products labelling criteria
- Common regulation in Europe on health-based ventilation rates, harmonising calculation practice among countries
- European guidance on proper scope, design, construction, maintenance and inspections of ventilation systems
- Inclusion of indoor air quality considerations in health and safety at work legislation



PATIENTS' RECOMMENDATIONS – CONTD

- Inclusion of patients' organisations in IAQ decision-making
- Development of new EU policies promoting sustainable buildings considering distance with industry, big roads, etc.
- Stricter comprehensive and sectorial legislations tackling ambient air pollution (e.g.: transport, industry)
- Labelling of consumers products
- Establishing national indoor air quality help-lines
- Banning of smoke in all public places
- No fragrance or scents in public buildings
- Separate heating and ventilation systems (reducing ventilation, not turning it off)
- Introduction of sensing devices for the monitoring of indoor air quality

DG ENV
Level(s) ?

How can the Energy Performance of Buildings Directive contribute to achieving better health in the EU?

PREVENTING THE DISEASE BEFORE IT BEGINS OR SPREADS!

An EU indoor air quality performance certificate could:

- Prevent the onset of chronic respiratory diseases
- Reduce cause of premature deaths
- Guarantee the right to clean air in indoor spaces
- Decrease discrimination



Citizens have the right to breathe safe air

Poor indoor air quality causes respiratory distress and leads to chronic illness

30 million
Europeans live
with asthma

more than
20% Europeans suffer
from allergic rhinitis

COPD by 2030 chronic obstructive
pulmonary disease will be
the 3rd cause of death
in the world

European Performance of Buildings Directive:

We need an Indoor Air Quality Performance Certificate

[#Buildings4Health](#)



Indoor Air Quality needs to be improved

Volatile organic compounds (VOC), dust, pollen
and toxicity of building materials, CO₂ and ozone
linked to temperature and relative humidity
pollute our air and we don't know it!

European Performance of Buildings Directive:

We need an Indoor Air Quality Performance Certificate

[#Buildings4Health](#)

WHY WE SHOULD BELIEVE, ACT, AND CARE?

- An indoor air quality performance certificate is important for **ALL** of us
- Prevention **reduces costs** in the national health system and **improves people's health and quality of life**
- Health is a fundamental right, and breathing clean air is a matter of **public health** and **social justice**
- EU is committed to the WHO action plan for the prevention and control of non-communicable diseases, by **promoting clean air** and **reducing premature deaths** by 25% by 2025

**The opportunity to
change is NOW!**

**Indoor Air Quality is a neglected
business opportunity**

It can lead to improved investment and incentives for
indoor health and healthier populations



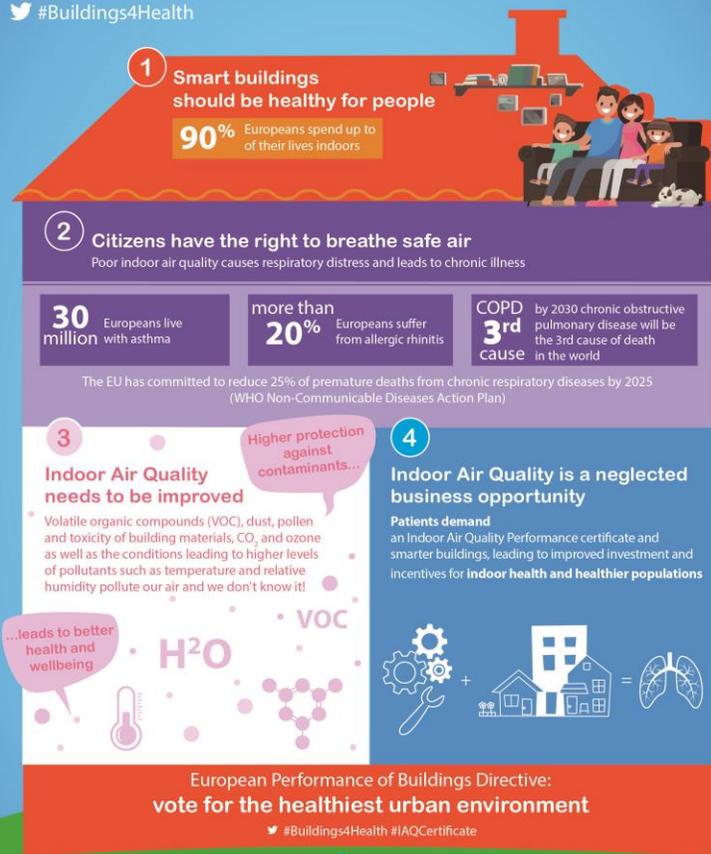
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We need an Indoor Air Quality Performance Certificate

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1 Smart buildings should be healthy for people
90% Europeans spend up to of their lives indoors

2 Citizens have the right to breathe safe air
Poor indoor air quality causes respiratory distress and leads to chronic illness

30 million Europeans live with asthma
more than 20% Europeans suffer from allergic rhinitis
COPD 3rd cause by 2030 chronic obstructive pulmonary disease will be the 3rd cause of death in the world

The EU has committed to reduce 25% of premature deaths from chronic respiratory diseases by 2025 (WHO Non-Communicable Diseases Action Plan)

3 Indoor Air Quality needs to be improved
Higher protection against contaminants...
Volatile organic compounds (VOC), dust, pollen and toxicity of building materials, CO₂ and ozone as well as the conditions leading to higher levels of pollutants such as temperature and relative humidity pollute our air and we don't know it!
...leads to better health and wellbeing
H₂O VOC

4 Indoor Air Quality is a neglected business opportunity
Patients demand an Indoor Air Quality Performance certificate and smarter buildings, leading to improved investment and incentives for **indoor health and healthier populations**

European Performance of Buildings Directive:
vote for the healthiest urban environment
#Buildings4Health #IAQCertificate

- Indoor air quality certificate not adopted, **BUT** when relevant, energy performance certificate should also include indoor air quality status
 - What does “when relevant” mean? Who decides?
- Ventilation and other elements linked to IAQ to be regularly monitored

“Although today ITRE has not voted for an Indoor Air Quality Certificate, MEPs have included measures to improve indoor air quality in the EPBD review. We welcome these considerations and call on the Council to emphasize our right to breathe clean air everywhere.”

MIKAELA ODEMYR
EFA PRESIDENT

#Buildings4Health



We need a **common comprehensive and urgent response** to tackle both indoor and outdoor air pollution

**We breathe
the same
air.**

[The Story of Heikki Huotari, who Fell Ill Due to Poor Indoor Air Quality](#)

[Santra and Pihla's Story \(part I\)](#)

[Santra and Pihla's Story \(part II\)](#)

THANK YOU!

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