

-Consultation on the draft WHO Global Air Quality Guidelines

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SUBJECT MATTER AND SCOPE

The WHO Global Air Quality Guidelines have been developed in response to the request by the Member States at the sixty-eighth World Health Assembly on 26 May 2015 in Geneva, Switzerland. This draft document provides evidence-based public health recommendations and guidance on air quality, and applies (but is not limited) to the following target audience: decision-makers, technical experts, academics, impact assessors as well as stakeholders in civil society organizations. As we are in the final stages of guideline development, we seek your input in the capacity defined below.

As external reviewers, we would kindly ask you to:

- identify any factual, content-related errors or missing information;
- comment on the clarity of the text;
- identify any setting-specific issues; and,
- comment on implications for implementation that you consider important (the next page discusses comments in more detail).

Thank you for participating in the consultation; your feedback is important to us.

PART 0: YOUR AREA OF EXPERTISE

This part aims to map the expertise covered in this consultation.

Question Title

Which of the following areas of knowledge does best define your expertise? [Please select all that apply.](#)

- ☐ Guideline development and methodology
- ☒ End-user perspective, policy implications, guideline implementation
- ☐ Air pollution emissions and atmospheric chemistry / exposure assessment
- ☐ Health effects of air pollution - epidemiological evidence and/or risk assessment
- ☐ Health effects of air pollution - toxicological and/or clinical evidence
- ☐ Best practices, interventions and health economics
- ☒ Impact on affected groups / equity, human rights, gender or low- and middle-income country perspective

PART ONE: CLARITY AND EASE OF UNDERSTANDING

This part is designed to understand if each of the sections in the guidelines are clear, well structured and easy to follow.

Question Title

[Section 1: Introduction - is clear and easy to understand](#)

- ☐ I am broadly in agreement with this
- ☒ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

EFA response:

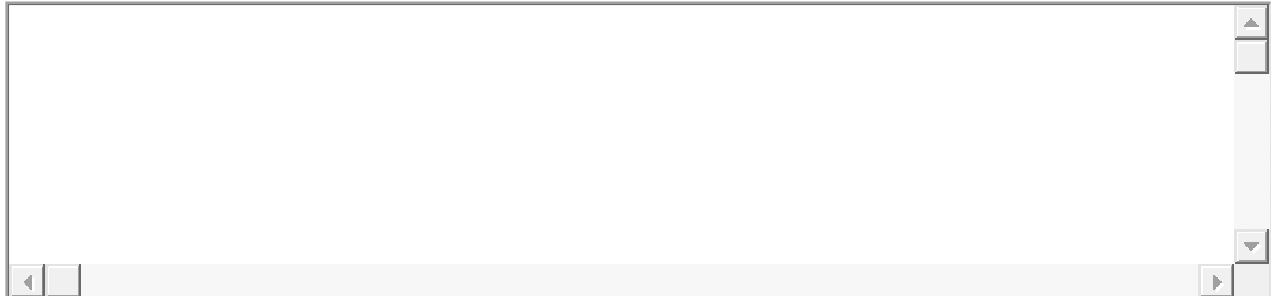
In our role as patients representatives, at EFA we find the Introduction (1-63) difficult to read and to understand by non-experts. The content is comprehensive but the narrative is expressed in passive mode, leading to all important things being placed at the end of each sentences. We recommend turning that content into an active mode when suitable. We are also missing more assertive language when referring to the importance of the guidelines, and an explicit reference on the link of air quality and health. It would be timely to have in 8-15 a direct reference to the diseases linked to the exposure to air pollution, and a few more details on the damage it causes to the individuals' respiratory health. A link between air pollution and climate change could also be added. We think reviewing this Introduction can help contextualising the Guidelines better. Our recommendations can also be applicable to the future Foreword and Executive Summary.

In addition, EFA believes that there is room for WHO to highlight in this Guidelines the links between air pollution and infectious diseases, such as COVID-19, offering insights from a developing body of evidence on how air quality can impact vulnerability to other diseases.

We welcome section 1.3.2., as it can become a great tool for patient groups such as EFA. Therefore, we would like to recommend to have a list of pollutants and sources as exhaustive as possible with examples if needed. For example:

- 175 mentions "tobacco combustion and combustion for other purposes". It is not completely clear to us if "other purposes" refers to smoking products such as non-tobacco products like electronic cigarettes or hookah. We consider that non-tobacco products' contribution to air pollution should be pointed out by explicitly mentioning them in this paragraph.
- 177-178 there is a mention to "industry and power generation" as an outdoor combustion source. Could you consider adding "heating"? Or specifying that domestic heating is included in the mention to "power generation". We consider heating as a crucial, individual and collective choice, having great impact on air quality both in urban and rural areas. It is well mentioned as an indoor air pollutant in line 191, but we feel that by not mentioning it as an outdoor air pollution source, the contribution of heating could be seen half-way.
- 180 mentions "surface dust". Does it also include sand and sandstorms?
- 186 looks into combustion sources from agriculture. We do not see anywhere in the text a specific mention to pollen as an outdoor air pollutant, in many cases pollen is a direct result of intensive human activities related to agriculture. We think given its seasonality and impact on respiratory health, pollen should be included as a pollutant in this section too, especially given the growing evidence between climate change and pollen allergenicity.
- 191-192 mentions "tobacco smoking" only. It would be relevant to mention "tobacco and other smoking products", as stated in our comment for line 175 in this question.
- 193-202 looks at non combustion indoor pollution sources. We wonder if there could be a specific mention to aeroallergens such as pollen, fungi and dust-mites.
- 195 mentions "renovation of houses". It would be easier for the reader to have a more specific picture on what this means. If it refers to "renovation, construction and finishing products", we recommend mentioning them specifically.
- 196 refers to "consumer products (e.g. cleaning products and insecticides)". There are infinite consumer products polluting the air, not all of them are organic compounds. We advice to review this line and include chemical-based compounds and add a specific mention to fragrances and gases.
- 224-231 looks into indoor air pollution concentrations. We see there is no mention to indoor air pollution variation depending on ventilation. We think this is important to refer to ventilation in this section, especially thinking about the future recommendations stemming from these Guidelines that will be addressed to the general public and vulnerable populations.
- 248-253 we propose to add a reference that, when indoors, risk factors may also include daily items which tend to attract aeroallergens and allergens such as dust mites and pet hair (e.g. carpets and curtains), as well as furniture and elements of the building structure or finishing products (e.g. floorings, glues, insulation), that can be indoor air pollution sources.

- 278 mentions several diseases but forgets to mention asthma, which is an important indicator on emergency hospitalisations. We recommend including it.
- 387-395 is looking into inequality due to outdoor air pollution. Knowing this is about the global air quality guidelines looking at ambient pollution, we consider there should be a reference to inequalities happening too due to indoor air quality, even if indoors is not the focus.

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Question Title

Section 2: Guideline development process / Introduction - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

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Question Title

Section 2: Guideline development process / Determining the scope of the guidelines and formulation of review questions - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.



EFA response:

At EFA we take note that, in the prioritisation of health outcomes, it has been chosen to pay attention mainly to effects on mortality, although there can be important morbidity effects. In Table 2.1 it is even written, without any supporting evidence, that for PM2.5 there are no less serious effects than mortality when there is exposure at lower levels (long-term and short-term). Of course, it is unlikely that the effect from lower-level exposure will be more deaths, but on the other hand it is very likely that respiratory problems occur to sensitive people even at lower levels. EFA proposes to include morbidity considerations for long- and short-term exposure to all pollutants where applicable.

Question Title

Section 2: Guideline development process / Systematic review of evidence - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

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Question Title

Section 2: Development of guidelines / From evidence to recommendations - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

EFA response:

- 1095-1106 and/or 1195-1213 At EFA we think that there is a crucial point here for WHO to elaborate on: the need to emphasize the fact that there are no ‘safe’ levels of air pollution, and that even exposure to low-level pollution (mostly long-term, but also short-term) is linked with adverse health effects to vulnerable groups of the population e.g. patients living with chronic respiratory conditions such as allergy, asthma and COPD.

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

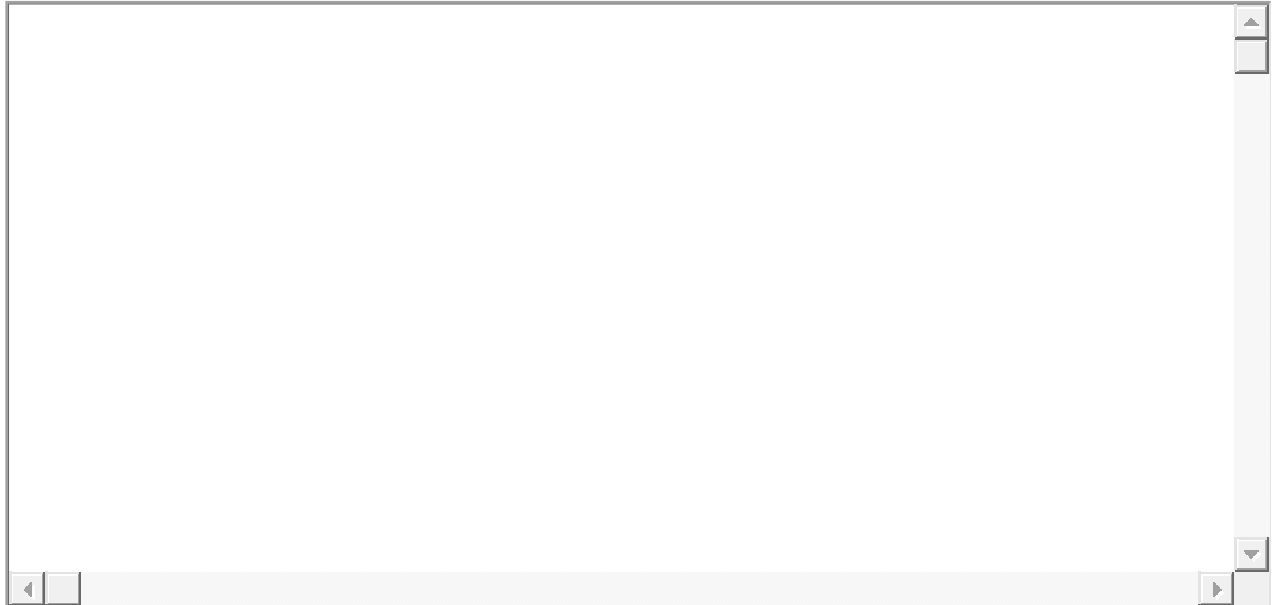
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Question Title

Section 2: *Development of guidelines / Groups involved in guideline development* - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.



EFA response:

- 1554-1562 Given that many members of the External Review Group coming from the civil society and are not air quality experts as such, EFA would appreciate having better prior information and a longer timeframe to provide with our contribution to the draft AQGs. Equally, some of the technical aspects and requirements of the external consultation could be amended in order to enable more comprehensive input by external stakeholders (see general comments, Part 3 of this questionnaire for more details).

Question Title

Section 2: *Development of guidelines / Document preparation and external review* - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

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EFA response:

- 1600-1606 Given that many members of the External Review Group coming from the civil society and are not air quality experts as such, EFA would appreciate having better prior information and a longer timeframe to provide with our contribution to the draft AQGs. Equally, some of the technical aspects and requirements of the external consultation could be amended in order to enable more comprehensive input by external stakeholders (see general comments, Part 3 of this questionnaire for more details).

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Question Title

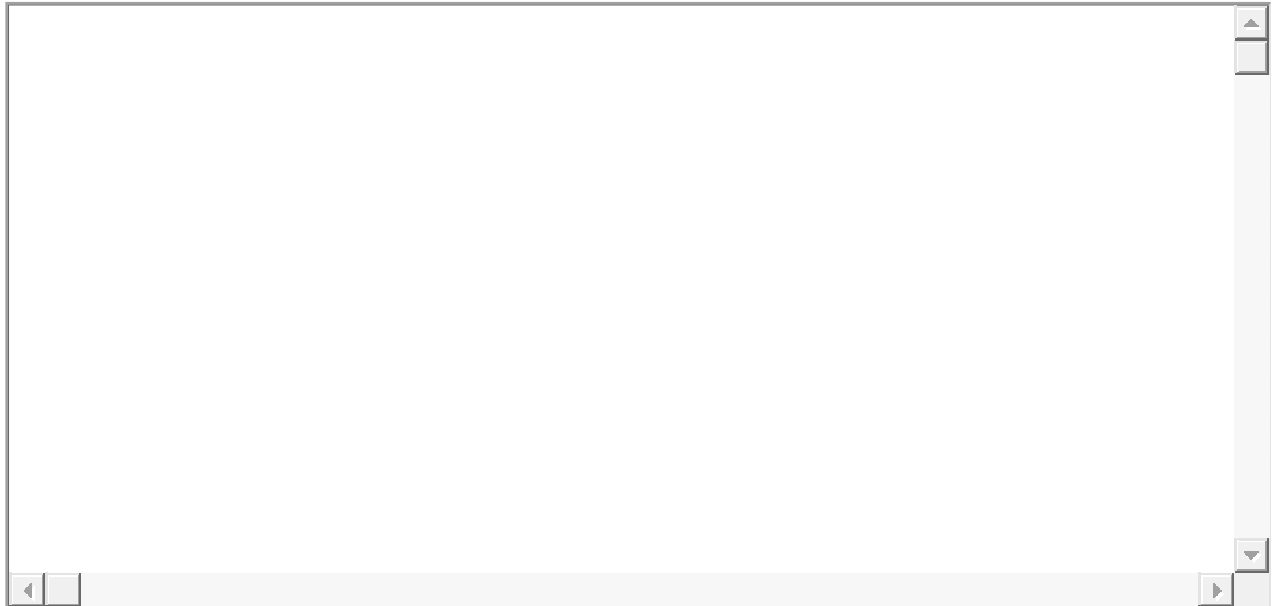
Section 3: *Recommendations / Recommendation 3 – Ozone* - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

EFA response:

In general, as lay people representing patients with allergy, asthma and COPD, EFA is missing an introduction to each pollutant stating what they are, their origin, and a short sentence summarising the health effects that have been linked to that pollutant. We think such an introduction is important, as it provides the lay reader with a more tangible picture on the pollutant on that section.



Question Title

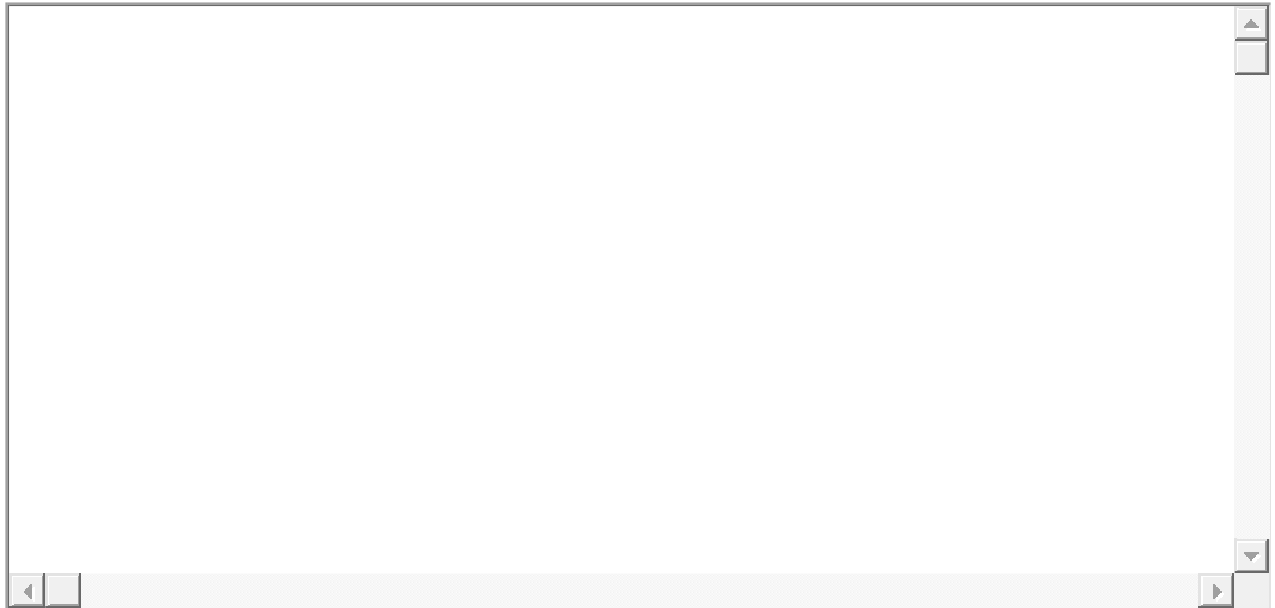
[Section 3: Recommendations / Recommendation 4 – NO2](#) - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

EFA response:

In general, as lay people representing patients with allergy, asthma and COPD, EFA is missing an introduction to each pollutant stating what they are, their origin, and a short sentence summarising the health effects that have been linked to that pollutant. We think such an introduction is important, as it provides the lay reader with a more tangible picture on the pollutant on that section.



Question Title

[Section 3: Recommendations / Recommendation 5 – SO₂ - is clear and easy to understand.](#)

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

EFA response:

In general, as lay people representing patients with allergy, asthma and COPD, EFA is missing an introduction to each pollutant stating what they are, their origin, and a short sentence summarising the health effects that have been linked to that pollutant. We think such an introduction is important, as it provides the lay reader with a more tangible picture on the pollutant on that section.

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.



Question Title

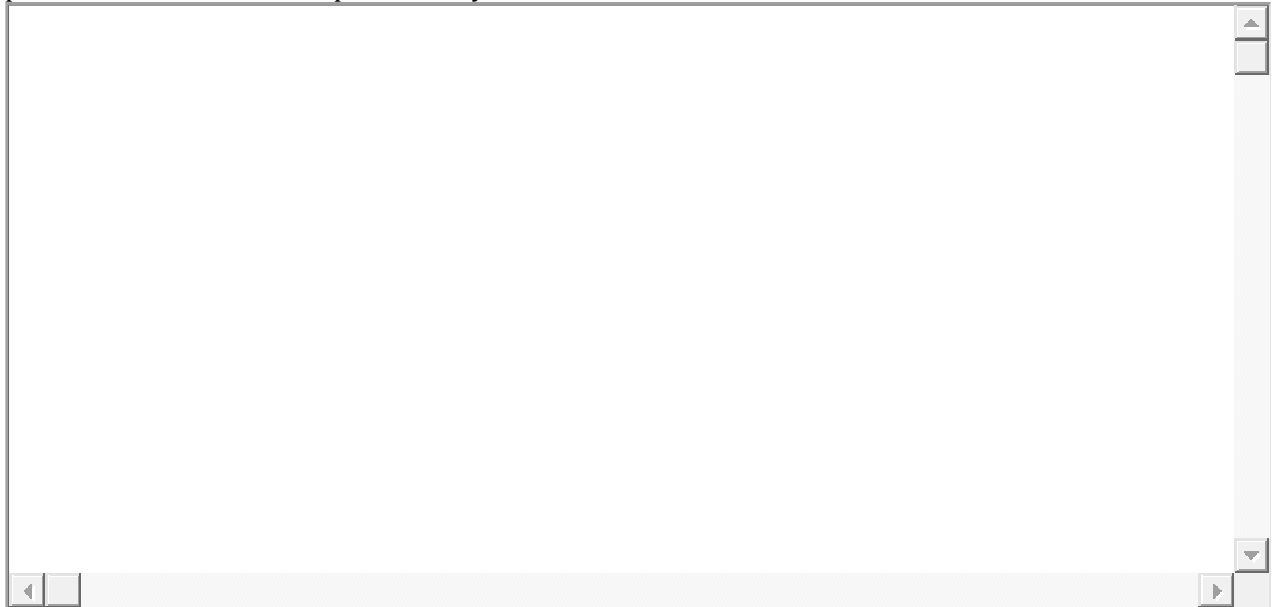
[Section 3: Recommendations / Recommendation 6 – CO - is clear and easy to understand.](#)

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

EFA response:

In general, as lay people representing patients with allergy, asthma and COPD, EFA is missing an introduction to each pollutant stating what they are, their origin, and a short sentence summarising the health effects that have been linked to that pollutant. We think such an introduction is important, as it provides the lay reader with a more tangible picture on the pollutant on that section.

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.



Question Title

[Section 3: Recommendations / Summary of recommended AQG levels and interim targets - is clear and easy to understand.](#)

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

EFA response:

At EFA we think this section is probably the most important outcome of the review of the Guidelines because it summarises the new levels. However, it is not fully clear what “+” means in Table 3.14 (line 3091).

We also encourage WHO to issue a final Guidelines document that includes a comparative table with the guidelines levels from 2005 and 2020.

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

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Question Title

Section 3: Recommendations / Supporting burden of disease calculations - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

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Question Title

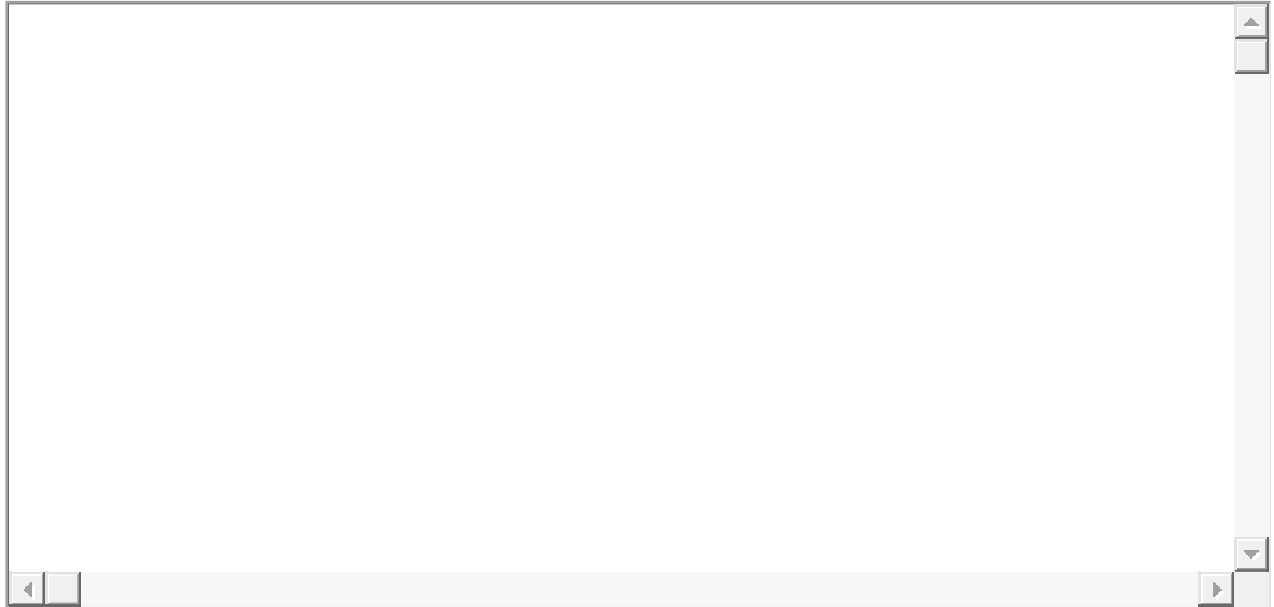
Section 4: Good practice statements / Introduction - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

EFA response:

At EFA we hold that this whole chapter 4 is a very interesting one to advance research, understanding and prevention policies for pollutants that have not been included in this review of the Guidelines. It is an excellent initiative. The current text looks only into particulate matter (ultrafine, black carbon) and as allergy and airways diseases representatives, we wonder if there could be another section offering a “Good Practice Statement for volatile organic compounds”.

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Section 4: Good practice statements / Good practice statements on black carbon/elemental carbon - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

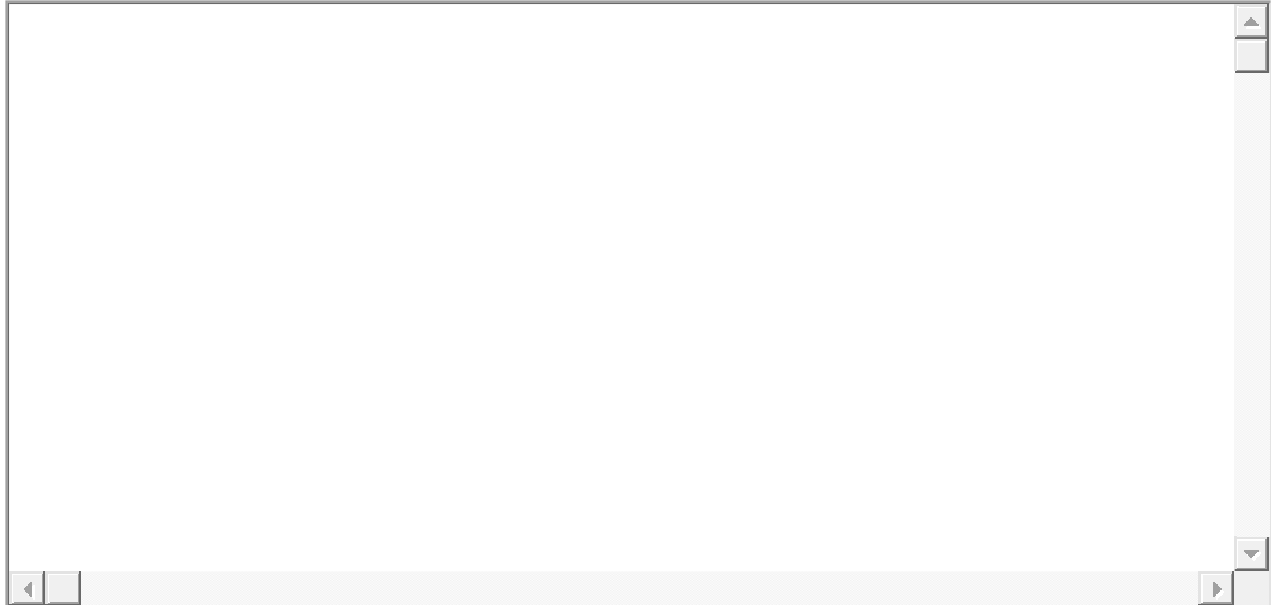
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Section 4: *Good practice statements / Good practice statements on ultrafine particles - is clear and easy to understand.*

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

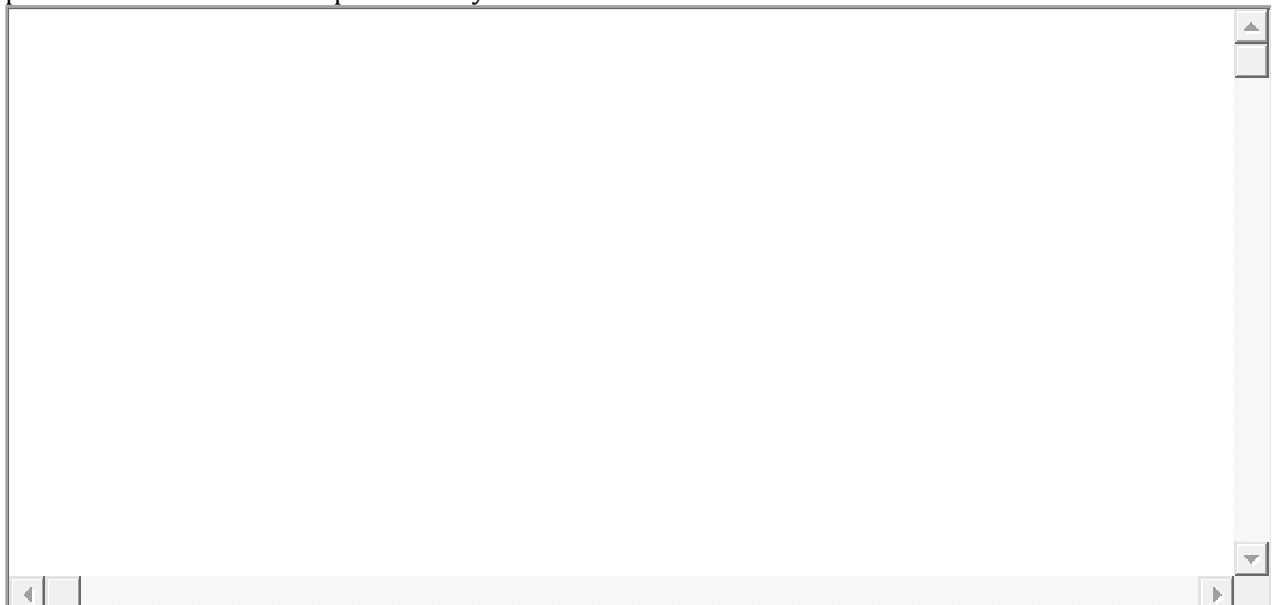


Question Title

Section 4: *Good practice statements / Good practice statements on desert and sand storms - is clear and easy to understand.*

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.



Question Title

Section 5: *Dissemination of the guidelines - is clear and easy to understand.*

☒ I am broadly in agreement with this

☐ I do not agree with this

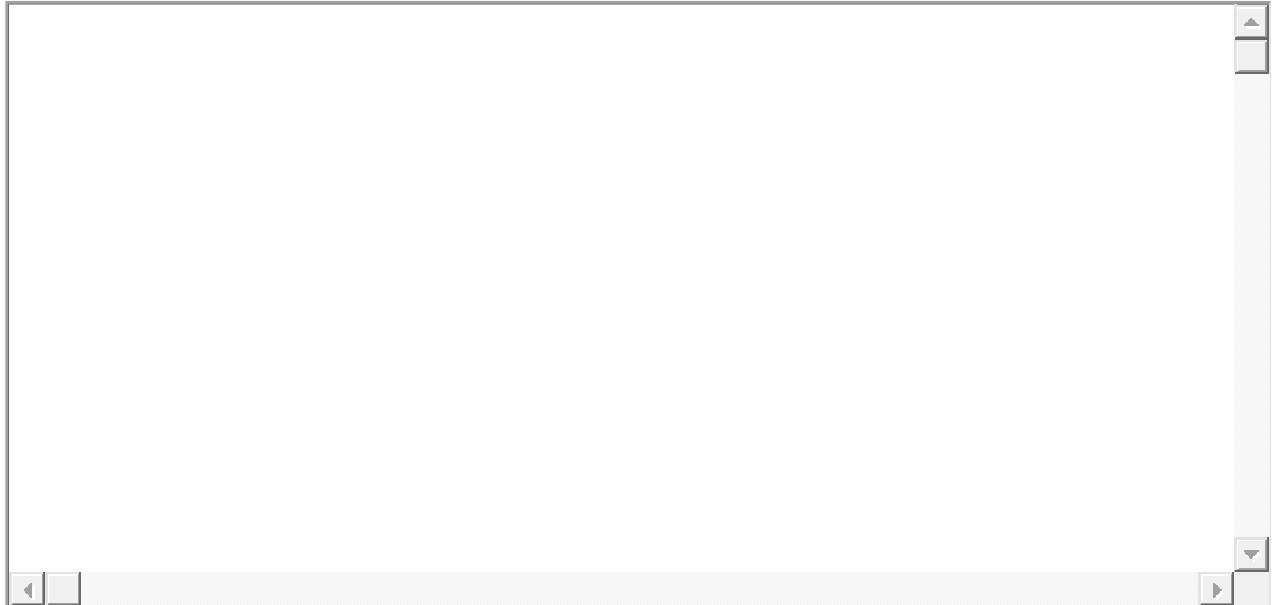
Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

EFA response:

At EFA we are delighted that the review of the Guidelines considers patient groups as end users of the guidelines, as an audience and as a stakeholder helping its dissemination. It is an honour for us but also, as we believe, a right, as representatives of people with allergy, asthma and COPD at European level, to partner with WHO to inform policy makers and the public on the importance of air quality for health.

- 3705 5. The WHO Website is a great tool to store and showcase the guidelines in a permanent way, however as civil society organisations, and individuals, it is difficult to retrieve how are the guidelines applied in national policy and the level of enforcement. We encourage WHO not only to make the Guidelines visible, but also to publish the national information it possesses on national progress and enforcement, and/or provide links to national websites featuring this information. It would also be very useful to increase awareness among the population to build an interactive map on annual average pollutants by country, in addition to the ideas listed in point 7.2. In addition, as an organisation with strong links with our members at the country level, EFA is very much aware of the necessity to work on the ground in order to amplify the message for air quality. Therefore, we recommend to include a strong reference to the role of national-level patient groups and networks as key audiences in the dissemination of relevant information, as well as key allies in view of the implementation of AQGs.
- 3726 EFA finds that a consistent permanent platform providing real time air quality information and its effects on health is missing. It would be fantastic if WHO could guide Member States to improve the information to the public with real-time specific, transparent and accessible messaging, e.g. taking the example of the Canadian Air Quality Health Index.
- 3733 you mention “materials in lay language”. We wonder if WHO could also develop or support the development of specific materials for vulnerable people, by disease, age and region. We would be thrilled to collaborate with you to create such materials for Europe.
- 3738-3744 EFA would advise to also add a sectoral component in your initiatives and campaigns, demonstrating how different sectors of the economy (e.g. transport, agriculture, energy-intensive industry) could contribute to achieving the recommended values
- 3753 We are missing a reference to the WHO Conference on air pollution and health. Maybe this line that refers to high level profile events could be a good place to remember it.
- 3758 mentions having “meetings of professional medical societies”. We encourage also to consider meetings with professional environmental and environmental health societies and researchers, if those are not included into the medical societies.
- 3768-3777 At EFA we think that the point on Risk Communication is unprecedentedly weak. We recommend reinforcing it with references to the role of Governments at all levels to monitor and inform through public alerts during pollution peaks. Moreover, we request WHO to include a clear statement in these Guidelines on the responsibility health and environment authorities have to issue public health advisory campaigns and messaging addressed to vulnerable groups, carers and healthcare professionals to increase awareness, reinforce prevention and ultimately increase protection of people with allergy and airways diseases against air pollution. In addition, we would like to clarify that in our views, Risk Communication should be a result of team work between governments and civil society such as patients groups.
- 3778-3788 EFA and the patient community it represents are ready to engage in a continuous dialogue with WHO on promoting evidence-based information within our channels. We can

help convey the appropriate messaging by co-designing and disseminating the relevant material in lay language, and do that involving other European-level patient groups representing people with respiratory diseases with whom, along with the European Respiratory Society, we are about to issue a joint Respiratory Vision for Europe fo 2030, which includes a strong chapter and calls on prevention.



Question Title

Section 6: Implementation of the guidelines - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

EFA response:

Thank you for considering patient groups such as EFA as key stakeholders in the implementation of the guidelines, in our capacity as umbrella organisation and disease specific advocacy organisations. We have some comments to this section:

- 3915-3920 This part reads like an exhaustive list of pollutant sources by sector of activity but we fear that by not including a specific mention to agriculture, industry and the building sector, those sectors could disengage from cooperating towards better health. EFA therefore recommends mentioning specific industrial sectors when addressing implementation.
- 4173 very briefly refers to citizen science and the development of low-cost monitors. At EFA we are convinced this is the future for air quality measurement by location with two roles: 1) a real-time monitoring system at hand of citizens 2) a powerful accountability tool. We recommend WHO to refer to those as a powerful future tool for meet the Guideline levels. Even if scientifically inaccurate and difficult to aggregate-date, those little machines can still work as eye-opener for many, including those who feel safe against dirty air.
- 4144 is a very useful pollutant table for the lay public. EFA suggests to consider making it a bit more exhaustive as per our comments to this questionnaire? For example:
 - add to home sources “emissions from renovation, construction, finishing materials and furniture, mould, dust”.
 - add to transportation environments, “stationary elements of transport means e.g. bus/train seats collecting dust mites”
 - add to street sources, “urban vegetation and gardens, pollen”.
 - add to work environment sources, “hazardous chemicals and gases, fragrances”

- 4273 on the Role of the Health sector is an excellent way of pointing some difficulties patients have when latest research development are unknown by health professionals. The text mentions specifically the diseases that have been used as indicators to determine the Guidelines, such as respiratory and cardiovascular disease, but there are patients who live with other diseases that have the same questions. EFA therefore recommends adding in here "allergy and other inflammatory conditions".
- 4297-4299 presents with a clear an invitation from WHO to patient groups to participate in the dissemination of the Guidelines to the lay public. EFA would be delighted to support WHO on this crucial task and offer some of our ideas for collaboration in our response to question 5 of this questionnaire.

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

Question Title

Section 7: Monitoring and evaluation of the guidelines - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

EFA response:

Thank you for having a specific chapter for the most important part in the implementation of the Guidelines: the monitoring and evaluation, that lead to learning and improving.

- 4389 It is very good that the draft Guidelines mention the limited monitoring capacity to assess population exposure and to measure progress on the guidelines. However, the current text does not go much into detail on the minimum requirements and settings to consider air quality monitoring stations data, as valid. EFA would find it fantastic if in this section WHO could address, even if with examples, what a monitoring station should be measuring, at what height, and where it should be located to be fit for purpose. Is a monitoring station measuring air quality, or is measuring air pollution exposure? In the latter, monitoring stations should be at a human average height.

Question Title

Section 8: *Future research needs* - is clear and easy to understand.

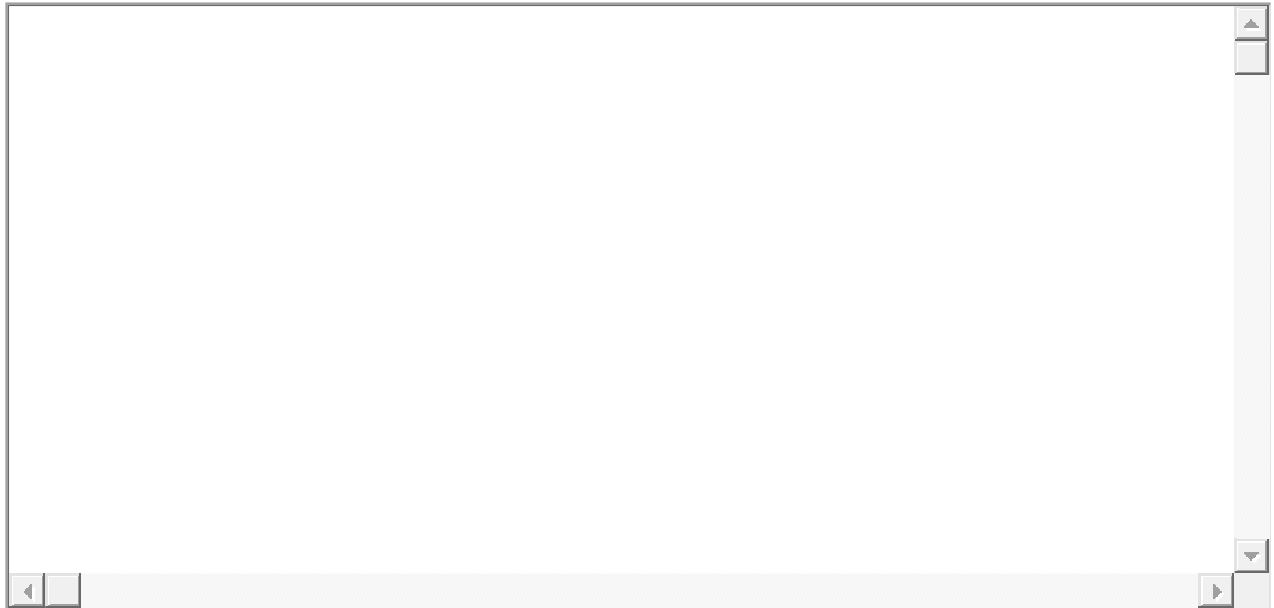
- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

EFA response:

Subheading 8.1 reads as an excellent and challenging list of needed scientific evidence to inform air quality policies in the future. We have additional ideas that could be integrated into that list:

- 4473 Multi pollutant exposures. Very important for allergy and respiratory patients that the guidelines encourage research on this topic.
- 4477 mentions behavioural factors “physical activity and diet” but we encourage WHO to add stress to this list.
- 4480 At EFA we think research should also focus on the short-term effects of exposure leading to worsening of symptoms for diseases that are not even mentioned in this draft, such as allergy and other inflammatory conditions.
- 4536 EFA recommends to include an assessment on how effective communication and engagement can vary by socio-economic status.
- It would be good if in the future there were also guidelines for more specific components in urban environments such as black carbon and elemental carbon and for combination measures that take into account collaboration e.g. Air Quality Index
- EFA also encourages to conduct future research to focus on combination of health risks between pollen and air pollution, as well as the accumulative effects of several different air pollutants for vulnerable groups



Question Title

Section 9: *Updating the guidelines* - is clear and easy to understand.

- ☒ I am broadly in agreement with this
- ☐ I do not agree with this

Please indicate the page and line numbers of any major errors or omissions, or of any suggested possible amendments to improve clarity.

PART TWO: IMPLEMENTATION

This section contains questions on ease of implementation of the formulated recommendations and guidance, their applicability and the resources needed to aid implementation.

Question Title

How easily do you think the recommendations and guidance may be implemented?

- ☐ Easily
- ☒ Not easily

EFA response:

As an umbrella organisation at European level, one of our main target audiences for change is the European Union institutions. As patients with allergy, asthma and COPD, at EFA we are grateful that the European region and the European Union are world leaders in climate change mitigation, but also very high polluters. It is very encouraging how the EU in particular has developed environmental legislation leading to the Air Quality Directives, addressed to improve air quality. However, and even if binding, Directives are not being fully applied across the EU Member States. Currently, half of Member States are under infringement procedures due to a chronic excess levels on pollutants, levels much higher than the previous Air Quality Guidelines.

EFA envisages that this revision of the Air Quality Guidelines will work as a wake-up call on the health effects air pollution bring to the EU population. The harmful impact of air pollution, coupled with the raised awareness about our respiratory health due to the COVID19 pandemic, make it an ideal moment to push for real enforcement of current legislation, and the adoption of stricter levels in the near future. That is the reasonable thing to do. But are the economic tissue and the public ready for the change? We think they are not.

The WHO Manifesto for a healthy recovery from COVID-19 is a good start and signal that we need to build back better, but we need more than words. From our perspective, we need first-hand advocacy and resourced campaigns to explain the situation and help individuals and companies connect the dots between the planet, their health, and our collective and individual choices.

Patient groups like EFA can be fundamental connectors of sectors and information. We will continue doing this delivering in our mission to INFORM the European institutions about air pollution and health, but we need global or regional initiatives, like the UN Global Compact, that put Corporate Social Responsibility on the table to effect change.

Air has no boundaries and no owner, and it is the most precious natural resource we need to live.

EFA also thinks that in order to have real change air quality should be tackled differently. Right now air quality is only addressed by pollutant and polluter, which ends up fragmenting understanding, policy, and finally, responsibilities. If WHO instils regional and national governments about the need to think about air as an entity, as we do think about water we sustain, there will be more awareness about how an individual variable affects the whole. This requires a strategic framework addressing air quality both indoors and outdoors, a framework that touches upon the pollutants in these guidelines, but also climate conditions, indoor environments, and ventilation.

Please explain what obstacles you foresee and what would facilitate the implementation.



Question Title

How would you or your organisation use or implement the forthcoming WHO Global Air Quality Guidelines? **Please select all that apply.**

- ☐ Policy development
- ☒ Awareness raising
- ☐ Conduct of risk / impact assessments
- ☐ Development of air quality limits and standards
- ☐ Information for further research
- ☐ Other (please specify)

Question Title

- ☐ Implementation guidance tools
- ☒ Webinars
- ☒ Instructional videos / public service announcements
- ☒ Synthesised summaries or fact sheets
- ☒ Translation of key documents into several languages
- ☒ Easy to understand infographics
- ☐ Other (please specify)

PART THREE: GENERAL COMMENTS

Question Title

EFA response:

The document is an excellent tool for public health advocates to demand more action on air quality and we are grateful that WHO is providing with a holistic approach to air pollution, mentioning throughout the document the problem of indoor air pollution. Some of our comments go to the direction of indoor air pollution because it would be fantastic if WHO seizes the ambient air pollution guidelines as an opportunity to educate policy-makers and the public about the nature of air, which does not know any boundaries.

We are also aware that this revision has been done using the 2016 International Classification of Diseases (ICD-10 codes) (line 782). We however regret that there is no mention to the newer version (ICD-11), which quadruples the number of diseases and causes of mortality in a standard way. We hope the next revision of the Guidelines will take stock of a more exhaustive disease classification, resulting on a broader picture of the effects air pollution has on health, specifically mentioning the links between pollution and inflammation and allergies. More specifically, we hope the next revision will include short- term effects and evidence (as this one relies on mortality and hospitalisations data), and findings about quality of life and air quality.

On another note, we are surprised about the lack of references to the digital world. The use of mathematical models for data gathering and analysis can bring amazing opportunities in to understand and address air pollution. We consider very relevant that WHO includes a reference to big data and artificial intelligence in this document.

Finally, we hope that in the next revision the WHO will be able to integrate the increasing body of Real World Evidence available on air pollution (e.g. treatment prescriptions and purchase to deal with allergies and airways diseases during pollution peaks). Patients are always available to provide their insights and first-hand experience with the diseases to inform the global frameworks.

Thank you!

Thank you for taking your time to participate in the consultation process for the forthcoming WHO Global Air Quality Guidelines.

We highly appreciate your efforts and would be most happy to collaborate with you further on this important issue.