ISGlobal

RECTIFICATION

The previous version of the press release contained some errors. On the one hand, the web with the preview data for journalists did not correctly show the preventable deaths by NO_2 according to the new WHO guidelines. On the other hand, there were some errors in the figures for some cities. Below, the press release with the corrections highlighted. Sorry for the inconvenience.

- PRESS RELEASE -

EMBARGOED UNTIL 10 NOVEMBER 2021 AT 23.30 UK TIME

European Cities Could Avoid an Extra 114,000 Premature Deaths Every Year by Meeting the New WHO Air Quality Guidelines

An update of the ISGlobal Ranking of Cities shows that the new air pollution recommendations could save up to 58,000 additional deaths for $PM_{2.5}$ and 56,000 for NO_2 compared to the previous recommendations

Barcelona, November 10, 2021-. A health impact assessment from the Barcelona Institute for Global Health (ISGlobal), a centre supported by the "la Caixa" Foundation, has concluded that European cities could avoid an extra 114,000 premature deaths every year if they met the new air quality guidelines presented by the World Health Organization (WHO) in September 2021 **compared to the previous guidelines**.

These estimates are an update of a study originally published in January 2021 in *The Lancet Planetary Health*, in which ISGlobal researchers showed that European cities could avoid up to 51,000 premature deaths per year by meeting WHO's previous air quality guidelines, which had been in place since 2005. After the publication of the new guidelines, the research team performed a new assessment of the **mortality burden attributable to fine particulate matter ($PM_{2.5}$) and nitrogen dioxide (NO_2)** in the same 1,000 European cities included in the original study. The overall results have been published in a letter in *The Lancet Planetary Health*, while the specific results for each city have been published on the ISGlobal Ranking of Cities website.

The updated results show that achieving the **new air quality guidelines for $PM_{2.5}$** would result in **a 113% increase in the number of deaths that could be avoided** in European cities compared to the previous air quality guidelines from 2005, avoiding **109,188 premature deaths each year**. For **NO_2**, achieving the new recommended levels could prevent **up to 57,030 premature deaths**, 56,130 more than the 900 avoidable deaths estimated for the former NO_2, recommended levels.

Going further, meeting the lowest levels of PM2.5 and NO2 observed in any city, could prevent **125,000 and 79,000 annual premature deaths,** respectively.

Avoidable deaths in European cities		
	PM2.5	**NO2**
2005 WHO guidelines	51,213	900

2021 WHO guidelines	109,188	57,030

"Even though there is no safe exposure threshold below which air pollution becomes innocuous, these new results show how the new WHO global air quality guidelines offer a **much better framework for protecting human health and prevent a large number of deaths**", says ISGlobal researcher **Sasha Khomenko**, first author of the study.

The new data show that the number of avoidable deaths is much higher if the new WHO reference levels are adopted as targets. **This effect is much more noticeable in the case of NO_2**. Among the cities with the highest mortality attributable to this pollutant, Madrid would go from avoiding 206 annual deaths if the old WHO recommendations were met to avoiding 1,966 using the new targets. Antwerp would go from 22 avoidable annual deaths to 254; Turin from 34 to 562; Paris from 185 to 2,135; Milan from 103 to 1,864 and Barcelona from 82 to 1,554.

Nearly 100% of the population above recommended levels

One statistic that shows how far European cities have to go to achieve clean air is the **percentage of the population living in areas with concentrations of air pollutants higher than those recommended by the WHO**. While under the previous WHO recommendations this percentage was 84% for PM2.5 and 9% for NO_2, under the new recommendations these figures rise to **99.8% and 99.7% of the urban population**, respectively. It should be noted, however, that the study was based on air pollution data for 2015.

"Since the current levels of air pollution in European cities are putting more than 100,000 lives at stake every year, the EU should align its legislation to match the WHO recommendations", says **Mark Nieuwenhuijsen**, senior author of the study and Director of the Urban Planning, Environment and Health Initiative at ISGlobal. "In turn, local, regional and national governments should set the reduction of air pollution as a priority. We urgently need to reduce fossil fuel use, remove private cars and add more green spaces in our cities. This will not only reduce air pollution, but also contribute to climate action, which is one of our highest priorities for humankind", he adds.

Current **European directives** stipulate an upper limit of 25 µg/m3 for annual mean $PM_{2.5}$ and 40 µg/m3 for annual mean NO_2.

Air Pollution Maximum Levels (annual mean)			
	New 2021 WHO Guidelines	**2005 WHO Guidelines**	**EU directives**
$PM_{2.5}$	5 µg/m3	10 µg/m3	25 µg/m3
NO_2	10 µg/m3	40 µg/m3	40 µg/m3

Full data on www.isglobalranking.org

From November 11, 2021, updated avoidable mortality data using the new WHO recommendations for the 1,000 cities included in the study will be available at **www.isglobalranking.org**, where the recently published ranking of mortality associated with lack of access to green space is also available.

The update of the WHO's air quality recommendations has not changed the position of the cities within the rankings of mortality associated with excess air pollution.

Top 10 cities with the highest mortality burden

The ten cities with the highest mortality burden due to $PM_{2.5}$:

1. Brescia (Italy)
2. Bergamo (Italy)
3. Karviná (Czech Republic)
4. Vicenza (Italy)
5. Silesian Metropolis (Poland)
6. Ostrava (Czech Republic)
7. Jastrzębie-Zdrój (Poland)
8. Saronno (Italy)
9. Rybnik (Poland)
10. Havířov (Czech Republic)

The ten cities with the highest mortality burden due to NO_2:

1. Madrid (metropolitan area) (Spain)
2. Antwerp (Belgium)
3. Turin (Italy)
4. Paris (metropolitan area) (France)
5. Milan (metropolitan area) (Italy)
6. Barcelona (metropolitan area) (Spain)
7. Mollet del Vallès (Spain)
8. Brussels (Belgium)
9. Herne (Germany)
10. Argenteuil-Bezons (France)

Top 10 cities with the lowest mortality burden

The ten cities with the lowest mortality burden attributable to $PM_{2.5}$:

1. Reykjavík (Iceland)
2. Tromsø (Norway)
3. Umeå (Sweden)
4. Oulu (Finland)
5. Jyväskylä (Finland)
6. Uppsala (Sweden)
7. Trondheim (Norway)
8. Lahti (Finland)
9. Örebro (Sweden)
10. Tampere (Finland)

The ten cities with the lowest mortality burden attributable to NO_2:

1. Tromso (Norway)
2. Umeå (Sweden)
3. Oulu (Finland)
4. Kristiansand (Norway)
5. Pula (Croatia)

6. Linköping (Sweden)
7. Galway (Ireland)
8. Jönköping (Sweden)
9. Alytus (Lithuania)
10. Trondheim (Norway)

Preview data for journalists

Until the embargo on the press release is lifted, the updated data for the 1,000 cities included in the study is available at https://isglobalranking.gestortectic.com/.

A table with all the data can also be downloaded at the following link.

References

Khomenko S, Cirach M, Pereira-Barboza E, Mueller N, Barrera-Gómez J, Rojas-Rueda D, de Hoogh K, Hoek G, Nieuwenhuijsen M. Health impacts of the new WHO air quality guidelines in European cities, *The Lancet Planetary Health*, D-21-00431R1, Nov 2021.

Khomenko S, Cirach M, Pereira-Barboza E, Mueller N, Barrera-Gómez J, Rojas-Rueda D, de Hoogh K, Hoek G, Nieuwenhuijsen M. Premature mortality due to air pollution in European cities; an Urban Burden of Disease Assessment. *The Lancet Planetary Health*, 2021. https://doi.org/10.1016/S2542-5196(20)30272-2

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between the "la Caixa" Foundation and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. Its working model is based on the generation of scientific knowledge through Research Programmes and Groups, and its translation through the areas of Training and Analysis and Global Development. ISGlobal has been named a Severo Ochoa Centre of Excellence and is a member of the CERCA system of the Generalitat de Catalunya.

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