

Frequently asked questions:

Expert consultation on cancer-causing risks of diesel and gasoline engine exhausts

1. What is this scientific consultation about and how is it conducted?

An independent panel of international experts will meet from 5-12 June to evaluate the human cancer risk of exposure to diesel and gasoline engine exhausts, and related agents, based on published evidence. The consultation is part of IARC's regular *Monograph series* that evaluates cancer-causing risks to humans.

This is not a new study. It is a critical review and evaluation of all published scientific evidence on the cancer-causing potential of human exposure to the agents. This includes data on cancer in people and experimental and lab studies.

A working group of scientists will meet for eight days to discuss and finalize the critical review of available evidence, and then classify each factor for its cancer-causing potential.

The results of this evaluation will be announced on 12 June (at approximately 1800 hrs Geneva time) on the IARC web site and at a global virtual press conference.

2. How are diesel and gasoline engine exhausts defined today in terms of cancer risk? What is the likely outcome of this evaluation?

For about 20 years, diesel engine exhaust has been defined as *probably* carcinogenic to humans (group 2A, see list below). An IARC advisory group has repeatedly recommended diesel engine exhaust as a [high priority for re-evaluation since 1998](#).

Gasoline engine exhaust has been classified as *possibly* carcinogenic to humans (group 2B, see list below).

Scientists participating in the new review may reaffirm these risk levels, or change how the agents are classified on the 1 to 4 scale of cancer risk.

The outcome will be based on the independent scientific working group's assessment of all published evidence and determined at their meeting.

Defined classifications are:

- Group 1: Carcinogenic to humans
- Group 2A: Probably carcinogenic to humans
- Group 2B: Possibly carcinogenic to humans
- Group 3: Not classifiable as to its carcinogenicity to humans
- Group 4: Probably not carcinogenic to humans

3. How are levels of risk determined?

IARC identifies environmental factors that can increase the risk of human cancer such as chemicals,

occupational exposures, lifestyle factors, physical and biological agents. The research is done as part of its regular [IARC Monographs on the Evaluation of Carcinogenic Risks to Humans](#).

IARC Monographs are the first step in carcinogen risk assessment. The evaluations identify potential hazards to health, based on an independent expert review of published evidence. Subsequent risk assessments and risk management of identified carcinogens, if appropriate, are done by public health authorities such as WHO.

Agents are classified for their cancer-causing potential for humans on a 1 to 4 scale with five possibilities (see list of classifications in Q. 2).

4. Diesel engines are a part of life in every part of the world. Why has it been so long since the last evaluation of engine exhaust?

An IARC external advisory group has repeatedly recommended diesel engine exhaust as a high priority for re-evaluation since 1998. However, the advisory group also recommended that the health agency wait to conduct the review until new, important human studies of disease were finished and published in the last few years.

[In March 2012 the U.S. National Cancer Institute stated that heavy exposure to diesel engine exhaust increased risk of death from lung cancer](#), based on a study of underground miners in the United States.

5. Who are the experts that classify the exposure risk? What are their interests in the outcome?

Interdisciplinary groups of scientists review the evidence and define the cancer risk of each factor. [Participants in this consultation](#) include public health and cancer specialists from North America, Europe and Japan.

[Strong safeguards](#) are in place to protect against potential conflicts of interest by experts that could influence outcomes. Interests related to the subject of each meeting are disclosed to meeting participants and summarized in the published evaluation.

[Names of participants are available](#) on the IARC web site about two months before working group meetings. Participants will not speak publicly about the consultation until the review is complete.

6. Who is most at risk of cancer from engine exhaust based on what we know today?

Health effects from occupational exposure to diesel engine exhaust are the focus of most human studies of increased cancer risk, but the general public is also exposed. Railroad workers, truck drivers and vehicle mechanics are workers with potential exposure to diesel exhaust.

[The U.S. National Cancer Institute stated in March 2012 that heavy exposure to diesel exhaust increased risk of death from lung cancer, based on a study of underground miners in the United States.](#)

7. What happens after the evaluation is done? What does this mean to public health?

IARC defines potential cancer risks to humans. These consultations do not recommend legislation or regulation. The evaluation is designed to assist national and international health authorities in making their risk assessments and taking preventive action.

Public health recommendations based on IARC reviews are made by WHO and other health authorities.

WHO will follow the consultation closely to determine if public health advice is needed to manage the risk, and how to determine those recommendations, if any. More information will be provided as it is available.

8. When and how will we know the outcome of the new evaluation?

The outcome of the evaluation will be announced by IARC on 12 June (at approximately 1800 hrs Geneva time) as follows:

- Results will be posted in [the news section of the IARC web site](#).
- A virtual press conference for global press will be held immediately after the close of the consultation.

Media or others interested should visit the IARC web site for more information.

An online summary of the evaluations and supporting evidence will appear in the *Lancet Oncology* on 15 June.

9. What is the difference between IARC and WHO? Are they the same organization?

IARC is a specialized agency of WHO. IARC produces evidence-based science to be translated into public health policies and actions by national or international public health authorities such as WHO. The global organizations cooperate to reduce cancer cases and deaths.