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Military Burn Pits and Cancer Risk

What is a burn pit?

A burn pit is an approach to waste disposal that has been used by the US military at bases in the Middle East, mainly in Afghanistan and Iraq beginning in 2001. Burn pits are large areas where tons of waste products (including trash, plastics, wood, metal, paints, solvents, munitions, and medical and human waste) are burned in the open air. Typically, JP-8 jet fuel, which contains benzene, has been used as an accelerant. Burn pits create large volumes of toxic smoke and other substances. They give off more air pollution than contained burning, because the burning takes place in an open area and at lower temperatures.

Military personnel and contractors who have spent time near burn pits likely had high levels of exposure to air pollution, especially those people assigned to tend the pits. However, other people have been exposed as well, due to burn pit emissions being carried to surrounding areas by the wind.

Toxic exposures linked with burn pits

Environmental sampling of the air and soil near burn pits has documented the presence of several chemical compounds shown in studies to be linked with inflammation and body tissue damage, particularly in the respiratory tract. Incomplete combustion of organic and inorganic material in burn pits results in high volumes of toxic particulate matter (PM) in the air that includes metals, benzene, polychlorinated dibenzo-p-dioxins and dibenzo-p-furans (PCDD/Fs), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and other compounds.

There is extensive evidence in other situations that PM in air pollution is linked to heart disease, asthma, chronic obstructive pulmonary disease (COPD), lung cancer, and an overall increased risk of death.

Although it's almost impossible to prove that burn pits cause these same health issues, this evidence suggests that the health issues reported by veterans with exposures from burn pits and other chemicals linked to their deployment are reason for concern.

Personnel at these military bases have also been exposed to other air pollutants from a combination of local and regional sources. This includes dust made up of industrial emissions and waste, as well as aircraft and ground transportation emissions that mix with soil and are spread by the wind.

Do exposures to burn pit emissions cause cancer?

Studying the health effects of exposure to burn pit emissions is difficult. Ideally, there would be records that show who was exposed to the emissions, exactly what they were exposed to, how much exposure they had, and how long they were exposed. But in general, only indirect assessments of exposure are possible. Because of this, studies of health problems possibly linked with exposures to burn pit emissions fall into 3 main groups:

- Studies that use information about the types of pollutants found in burn pit smoke to estimate whether such exposures might cause cancer (and how likely this is)
- Studies that measure the pollutants in the air, soil, and water around burn pits to estimate exposure and cancer risk in military personnel
- Studies of the blood or body tissue of military personnel with burn pit exposure that measure the presence of pollutants known to be linked with genetic alterations

These types of exposures have also been studied in relation to health outcomes in other occupational groups, such as firefighters, and for comparison, in civilian groups without these exposures. These kinds of studies are especially important, given that cancers generally take many years to develop, and military burn pit exposures have taken place relatively recently.

What do expert agencies say?

In general, the American Cancer Society does not determine if something causes cancer (that is, if it is a *carcinogen*), but we do look to other respected organizations for help with examining the evidence.

A 2011 report from the US **National Academies of Sciences, Engineering, and Medicine (NASEM)** found that there was limited/suggestive evidence of a link between exposure to combustion products and reduced lung function in the populations studied,

but there was inadequate/insufficient evidence of a link at that time between combustion products and cancer. But because some of the chemicals linked with burn pit emissions can cause cancer, and the fact that it can take many years for cancer to develop after an exposure, the authors of the report concluded that they couldn't rule out that veterans exposed to burn pit emissions are at higher risk for cancer, and they suggested that further studies should be done.

Since then, NASEM has published other reports on burn pits and possible links to other health outcomes.

Other expert organizations have not assessed the possible link between burn pit emissions and cancer directly, but they have made determinations on some of the chemicals in burn pit emissions:

- **International Agency for Research on Cancer (IARC):** IARC, which is part of the World Health Organization, has classified some of the chemical substances found in burn pit emissions as “known to be carcinogenic to humans.”
- **US National Toxicology Program (NTP):** The NTP has classified at least one chemical found in burn pit emissions (dioxin) as “known to be a human carcinogen.”

To learn more about how these organizations study and classify cancer causes, see [Determining if Something Is a Carcinogen¹](#) and [Known and Probable Human Carcinogens²](#).

Can Afghanistan and Gulf War veterans be tested for exposure to contaminants from burn pits?

At this time, there are no widely available, simple lab tests that can show if someone was exposed to burn pit contaminants. Because of this, the US Department of Veterans Affairs (VA) presumes that all veterans who served in certain places at certain times might have been exposed, and therefore might be eligible for certain medical benefits for service-related disabilities.

Benefits for exposed veterans

Military service is associated with a range of risks, especially in war zones. Although some of these risks are unique to military occupations, others may be similar to risks in civilian occupations, but with higher exposure amounts or longer-term exposures in military settings.

Measuring exposures, especially in a war zone, is extremely difficult and is therefore not done. Pre- and post-deployment surveillance of exposures and health outcomes should be less difficult but is also typically not done. Thus, when veterans become ill with a condition that might be related to their service, they often face the challenge of proving that their health problems are service-related in order to receive health and disability benefits.

In the past, many Afghanistan and Gulf War veterans faced denial that their health problems were associated with exposure to burn pit emissions, similar to the challenges faced by veterans exposed to [Agent Orange](#)³ during the Vietnam War. Definitive evidence of disease causation may not have existed – and may never exist – for these exposures, but gaps and delays in the scientific evidence had left veterans without access to treatment and benefits for long periods of time. This was of particular concern because these associations are often plausible, even if they're not proven.

In circumstances where there is plausible (but not sufficient) evidence linking military service to health problems and disability, Congress and the VA can rely on the *presumption* that these problems are linked to a person's service.

At this time, Afghanistan and Gulf War veterans may qualify for **presumptive disability benefits** (compensation and health care) if they served at certain times and have developed certain health conditions that have led to at least a 10% disability. For more details on the conditions covered and other eligibility requirements, visit the VA website at <https://www.va.gov/disability/eligibility/hazardous-materials-exposure/specific-environmental-hazards/>⁴.

In August of 2022, Congress passed the PACT Act, a new law that expanded VA health care and benefits for veterans exposed to burn pits and other toxic substances. This included an expansion of the types of cancers that are now presumed to be service-connected disabilities. These cancers include:

- **Brain cancer, including glioblastoma**
- **Gastrointestinal cancer of any type**
- **Head or neck cancer of any type**
- **Kidney cancer**
- **Lymphatic cancer of any type**
- **Lymphoma of any type**
- **Melanoma**
- **Pancreatic cancer**
- **Reproductive cancer of any type**
- **Respiratory (breathing-related) cancer of any type**

The VA will process disability compensation claims for these and other presumptive conditions for veterans who served any amount of time in the Southwest Asia theater of operations (including Iraq, Kuwait, Saudi Arabia, and several surrounding areas) from August 2, 1990, to the present, or Afghanistan, Uzbekistan, Syria, Djibouti, Egypt, Jordan, Lebanon, or Yemen from September 11, 2001, to the present.

Even if you've filed a compensation claim in the past that was denied, you can file a supplemental claim for any condition now considered presumptive.

The Airborne Hazards and Open Burn Pit Registry

In 2014, the VA launched the Airborne Hazards and Open Burn Pit Registry (AHOBPR) in response to concerns about respiratory illnesses linked with exposure to burn pits, and the need to gather data on long-term health effects that may be linked with exposure to burn pit emissions. This voluntary registry will help researchers study the long-term effects of exposure to airborne hazards during deployments in Southwest Asia. For more information, go to:

<https://veteran.mobilehealth.va.gov/AHBurnPitRegistry/#page/home>⁵, or

<https://www.publichealth.va.gov/exposures/burnpits/registry.asp>⁶, or

<https://www.publichealth.va.gov/docs/exposures/ten-things-to-know-fact-sheet.pdf>⁷

What veterans can do for their health

Be sure your doctor knows if you have a history of potentially hazardous exposures during your military service. If there is a chance you might be at increased risk of cancer, your doctor might advise you to get certain [cancer screening tests](#)⁸ and to promptly report any suspicious symptoms.

Afghanistan and Gulf War veterans are at risk for many types of cancer just like everyone else, even if they haven't been exposed to contaminants during their deployment. You can help lower your risk of cancer (and other diseases) by [not smoking](#)⁹, [staying at a healthy weight](#)¹⁰, [getting regular physical activity](#)¹¹, and [eating a healthy diet](#)¹² (including avoiding or limiting [alcohol](#)¹³).

If you are concerned about past exposure to burn pit emissions, you may want to join a support group online or through your local VA hospital.

To learn more

Along with the American Cancer Society, other sources of information and support include:

Department of Veterans Affairs Toll-free numbers: Special Health Issues: 1-800-749-8387 Benefits (including disability compensation): 1-800-827-1000 Exposure to burn pits and other specific environmental hazards:

<https://www.va.gov/disability/eligibility/hazardous-materials-exposure/specific-environmental-hazards/>¹⁴ The PACT Act and your VA benefits:

<https://www.va.gov/resources/the-pact-act-and-your-va-benefits/>¹⁵

Hyperlinks

1. www.cancer.org/healthy/cancer-causes/general-info/determining-if-something-is-a-carcinogen.html
2. www.cancer.org/healthy/cancer-causes/general-info/known-and-probable-human-carcinogens.html
3. www.cancer.org/healthy/cancer-causes/chemicals/agent-orange-and-cancer.html
4. www.va.gov/disability/eligibility/hazardous-materials-exposure/specific-environmental-hazards/
5. veteran.mobilehealth.va.gov/AHBurnPitRegistry/#page/home
6. www.publichealth.va.gov/exposures/burnpits/registry.asp
7. www.publichealth.va.gov/docs/exposures/ten-things-to-know-fact-sheet.pdf
8. www.cancer.org/healthy/find-cancer-early/american-cancer-society-guidelines-for-the-early-detection-of-cancer.html
9. www.cancer.org/healthy/stay-away-from-tobacco.html
10. www.cancer.org/healthy/eat-healthy-get-active/take-control-your-weight.html
11. www.cancer.org/healthy/eat-healthy-get-active/get-active.html
12. www.cancer.org/healthy/eat-healthy-get-active/eat-healthy.html
13. www.cancer.org/healthy/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html
14. www.va.gov/disability/eligibility/hazardous-materials-exposure/specific-environmental-hazards/
15. www.va.gov/resources/the-pact-act-and-your-va-benefits/

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