

FREQUENTLY ASKED QUESTIONS:

PFAS and Covid-19

These FAQs are intended to answer questions that tend to come up in discussions of PFAS and Covid-19. It is not intended to be quoted or used for messaging. Please refer to the “PFAS + Covid-19 Messaging” internal reference document for that resource. While things are changing and continually developing, this document contains the information we know now. We will continue to update this document as we get more research. Use our Science Review document on PFAS, the immune system, and Covid-19 for further reference. To add additional questions to this FAQ document, please contact Stephanie Stohler at sstohler@toxicfreefuture.org.

Does PFAS exposure make people more vulnerable to getting infected with Covid-19?

While we can't say this definitively because there hasn't been research on this specific connection, the fact that PFAS appears to weaken the immune system suggests the answer is yes.

An increasing number of scientists have made strong statements of concern based on the studies showing that PFAS can weaken the immune system and make people more likely to catch infectious diseases like colds and stomach bugs. PFAS exposure may weaken infectious disease resistance, meaning that people are more likely to get sick from viruses after being exposed. In June, U.S. Senators wrote to the National Institutes of Health, expressing concern about the potential for PFAS exposure to increase the risks of contracting Covid-19 and asking the agency to study the

issue. While we wait for this research to be conducted, the fact that PFAS exposure has been shown to lower resistance to infectious disease is very troubling in this time of the Covid-19 global pandemic.

PFAS aren't the only chemicals that adversely affect the immune system. Such impacts have been detected in people with higher levels of mercury, arsenic, lead, PCBs, and organo-chlorine pesticides. Many of these same toxic chemicals affect people of color and low-income communities disproportionately.



Will people with higher exposures to PFAS have worse outcomes if they get Covid-19?

This is a hard question to answer without specific investigations, but people with higher exposures to PFAS may be more susceptible to worse Covid-19 outcomes.

First, the Centers for Disease Control (CDC) has stated that “people with weakened immune systems are at higher risk of getting severely sick” from Covid-19. There is evidence that people with higher PFAS exposure have weaker immune systems, which can make them less able to fight off viral infections and become more severely ill when they do get infected. Scientists don’t understand all of the reasons why some people get Covid-19 and are asymptomatic (meaning they experience few or no symptoms) while others fall seriously ill and even die from the disease. It is unclear whether PFAS exposure may or may not be playing a role in some cases. What we do know is that PFAS appears to weaken the immune system, and people with weakened immune systems are likely to have worse outcomes from Covid-19 infection.

Second, while there are not yet studies directly looking at PFAS exposure and Covid-19 mortality, some of the same diseases that are linked to PFAS are associated with higher death rates from Covid-19. For example, PFAS exposure is linked to liver damage, asthma, cancer, and certain kinds of cardiovascular conditions. Recent large studies of Covid-19 patients have shown that people with liver disease, severe asthma, cancer, cardiovascular disease, as well as other health conditions

are more likely to die of the disease. While we don’t have any studies on this specific question, the concern is that people with higher exposures to PFAS could be more likely to die of Covid-19 if they are diagnosed with any of these conditions.

Third, PFAS can impact the fine-tuning of the immune systems, which can cause hypersensitivities like asthma and food allergies, as well as increase risk of developing autoimmune diseases. One type of immune overreaction some people experience during a Covid-19 infection is a “cytokine storm” and it is one of the deadliest conditions related to the virus, causing extensive damage to the lungs. While not very well understood, the tendency for PFAS to lead to immune system overreaction in some people and the fact that immune overreactions in Covid-19 patients can be deadly raises important questions. There hasn’t been any research directly linking these health outcomes but is a key area for further study.

It is also important to note that income and race are also big factors in how vulnerable people are to Covid-19. People of color and low-income communities are at much higher risk of getting sick and are much more likely to die of the Covid-19 infection.

Will a Covid-19 vaccine work for people with high PFAS exposure?

The world is eagerly awaiting a vaccine for Covid-19. While we can't know whether PFAS exposure could interfere with its effectiveness, studies suggest that this is a real concern – especially at high levels of exposure.

Vaccines work by training the immune system: when the body senses the presence of a virus or bacteria that it has been vaccinated for, it is primed to produce proteins known as antibodies that attack that particular type of threat. If the body consistently produces enough effective antibodies after vaccination, then we consider that person “immune” and very likely won't get sick from the disease even if they are exposed.

PFAS can weaken the body's ability to respond to vaccines. Children and adults with higher PFAS exposure have been found to have lower antibody levels after getting vaccinated for such diseases as measles, mumps, rubella, tetanus and the flu. Lower antibody levels mean that the body is less likely to be able to fight off an infection if exposed. Such findings raise concerns that similar effects

from PFAS would be seen after a future Covid-19 vaccination, diminishing its effectiveness in some populations.

PFAS aren't the only chemicals that interfere with vaccine response. Some other persistent organic pollutants such as PCBs show similar impacts, underscoring the importance of addressing toxic exposures more generally. Historically, vaccines have been critical to protecting the public from communicable diseases. We need to do everything we can to control pollutants like PFAS that have such intense and lasting effects on our immune systems, and which reduce the power of this important public health tool. When a safe Covid-19 vaccine becomes available, it will be important to get vaccinated to prevent yourself and others from falling ill from the virus.

Are there things that people can do to protect themselves from Covid-19 if they have been exposed to PFAS and other harmful chemicals?

Following guidelines provided by health officials such as wearing a mask and practicing social distancing is the best thing that anyone can do to protect themselves from Covid-19. It is also important to consider what we can all do together to protect the most vulnerable.

To prevent Covid-19 infection, health officials recommend the following:

- Wash your hands
- Clean and disinfect frequently touched surfaces
- Avoid close contact: put 6 feet in between you and other people
- Cover your nose and mouth with a mask when around others
- Avoid touching your eyes, nose and mouth

- Cover coughs and sneezes
- Monitor your health daily and stay home if you feel sick
- Limit the size of gatherings
- Limit your time spent indoors with other people

Keeping distance from others is especially important for [people who are at higher risk of getting very sick](#). For more information on preventing Covid-19 infection, see guidance provided by health officials from the [California Department of Public Health](#), the [New York State Department of Health](#), and the [Washington State Department of Health](#). Knowing how to prevent infection is important, yet the Covid-19 crisis has highlighted dramatic inequities in people’s ability to protect themselves

from the virus. Not everyone who is high risk is able to work from home or buy groceries online. We need to focus on what we can do to together protect people most vulnerable to Covid-19. Clearly, we each need to follow public health guidelines that tell us to wear masks and avoid close contact. But we also need to control pollution, ensure that everyone has access both to clean and affordable drinking water, and provide effective and affordable health care to all.

Historically, vaccines have been critical to protecting the public—including vulnerable people—from communicable diseases. When the Covid-19 vaccine becomes available, it will be important to get vaccinated to prevent yourself and others from falling ill from the virus.

Are people without water contamination exposed to enough PFAS to impact their immune system and make them more vulnerable to infectious diseases like Covid-19?

Immune system impacts of PFAS has been found in the general population and could make some people more vulnerable to Covid-19 and other infectious diseases.

Nearly all U.S. residents have measurable amounts of PFAS in their bodies. Some of the studies of immune system effects looked at people selected from the general population, meaning people who are probably mostly exposed to PFAS through the contamination in food, food packaging, and consumer products. This means that there is evidence to suggest that people who aren’t drinking contaminated drinking water could indeed experience immune system impacts from PFAS. For example, Germany has determined a safety level of PFAS in their population’s blood that is designed to protect people from immune system impacts and other

PFAS-related health problems; a quarter of Americans have levels of PFAS in their blood that are higher than this safety level.

It is also important to recognize that science evolves and often what used to be considered “safe” is later realized to be unsafe. For example, the “safe” blood level of lead was lowered by 600% between the 1960s and 1991 after there was mounting evidence of harm at lower levels. This trend has continued: today there is no level of lead that is considered safe. Therefore, what is considered to be a “safe” level of PFAS by Germany today may not be considered safe a decade from now.

Are people in the fire service more susceptible to Covid-19 because of PFAS exposures at work? What about other jobs?

We are concerned about people, like firefighters, who are exposed to PFAS through their work. Firefighters also deserve particular attention since they may be more susceptible to Covid-19 for more reasons than just PFAS.

Studies show that having a job (such as fire-fighting) that involves exposure to PFAS can lead to increased levels of these chemicals in the body as compared to people with other kinds of jobs. Generally, people with higher levels of PFAS in their bodies are more likely to experience PFAS-related health impacts. There are many reasons to be concerned that PFAS exposure—particularly high exposure—could make people more vulnerable to Covid-19.

Firefighters are also at higher risk because of the nature of their jobs as first responders:

they are more likely to come in contact with people infected with Covid-19 and other infectious diseases. In addition, firefighters are more likely to be diagnosed with and die of cancer, and there is also evidence that firefighters are more likely to have chronic lung disease and/or decreased lung function. People with cancer and some kinds of lung disease are known to be at higher risk for more severe illness after being infected with Covid-19. Regardless of whether these diseases are caused by PFAS or not, there are specific concerns about the risk of Covid-19 to firefighters.

Is there any relationship between PFAS and other toxic chemicals and the cardiovascular impacts of Covid-19 virus?

While there are many unknowns with both Covid-19 and PFAS, some of the conditions associated with high PFAS exposure also may make people more likely to experience severe illness from Covid-19. The same is true for some other toxic chemicals.

Asthma, cardiovascular disease, and high blood pressure are among the health conditions believed to increase people's risks of becoming severely ill with Covid-19. While information continues to change around Covid-19 (there are now some questions about whether asthma is really a significant risk factor, for example), these are conditions that are also linked with PFAS exposure. PFAS exposure is linked to asthma and certain kinds of cardiovascular conditions such as

high blood pressure in pregnant women. People with high PFAS exposure have also been found to have higher cholesterol, a risk factor for cardiovascular disease. PFAS is far from the only class of chemicals to have these kinds of health effects. For example, elevated levels of mercury are linked to cardiovascular disease and repeated exposure to bleach can cause asthma. Covid-19 is underscoring the importance of reducing our exposures to toxic chemicals that harm our health. ■