



Office of Health Emergency Management

The Facts on RICIN

Because of recent terrorist events, people have expressed concern about the possibility of a terrorist attack involving biological agents such as anthrax, ricin, and smallpox. The Office of Health Emergency Management (OHEM) has prepared several fact sheets to help you understand the different types of biological threats and how they could affect your health.

What is ricin?

Ricin is a poison made from the waste left over from processing castor beans. It can be in the form of a powder, a mist, or a pellet, or it can be dissolved in water or weak acid. It is stable, meaning it isn't affected much by extreme conditions such as very hot or very cold temperatures.

Where is ricin found?

Castor beans are processed throughout the world to make castor oil. Ricin is part of the waste

"mash" produced when castor oil is made. Ricin does have some potential medical uses, such as bone marrow transplants and cancer treatment (to kill cancer cells).

How could I be exposed to ricin?

It would take a deliberate act to make ricin and use it to poison people as accidental exposure is highly unlikely. You could breathe in ricin mist or powder and be poisoned. Ricin can also get into water or food and then be swallowed. Pellets of ricin, or ricin dissolved in a liquid, could be injected into people's bodies.

Depending on the route of exposure (such as injection or inhalation), as little as 500 micrograms of ricin could be enough to kill an adult. A 500-microgram dose of ricin would be about the size of the head of a pin. A greater amount would likely be needed to kill if the ricin were swal-

lowed. However, ricin poisoning is not contagious and cannot be spread from person to person through casual contact.

How does ricin work?

Ricin works by getting inside the cells of a person's body and preventing the cells from making the proteins they need. Without the proteins, cells die. Eventually this is harmful to the whole body, and death may occur. Effects of ricin poisoning depend on whether ricin was inhaled, ingested, or injected.

What are the symptoms of ricin exposure?

Major symptoms depend on the route of exposure and the dose received, though many organs may be affected in severe cases. Initial symptoms from inhalation may occur within 8 hours of exposure. Following ingestion of ricin, initial symptoms typically occur in less than 6 hours.

Inhalation: Within a few

hours of inhaling significant amounts of ricin, the likely symptoms would be respiratory distress (difficulty breathing), fever, cough, nausea, and tightness in the chest. Heavy sweating may follow as well as fluid building up in the lungs. This would make breathing even more difficult, and the skin might turn blue. Finally, low blood pressure and respiratory failure may occur, leading to death. In cases of known exposure to ricin, people having respiratory symptoms that started within 12 hours of inhaling ricin should seek medical care.

Ingestion: If someone swallows a significant amount of ricin, they would develop vomiting and diarrhea that may become bloody. Severe dehydration may be the result, followed by low blood pressure. Other signs or symptoms may include hallucinations, seizures, and blood in the urine. Within several days, the person's liver, spleen, and kidneys might stop working, and the person could die.

Skin and eye exposure: Ricin in the powder or mist form can cause redness and pain of the skin and the eyes.

Death from ricin poisoning could take place within 36 to 72 hours of exposure, depending on the route of

exposure (inhalation, ingestion, or injection) and the dose received. If death has not occurred in 3 to 5 days, the victim usually recovers. However, showing these signs and symptoms does not necessarily mean that a person has been exposed to ricin.

How is ricin poisoning treated?

Because no antidote exists for ricin, the most important factor is avoiding ricin exposure in the first place. If exposure cannot be avoided, the most important factor is then getting the ricin off or out of the body as quickly as possible. Ricin poisoning is treated by giving victims supportive medical care to minimize the effects of the poisoning. Care could include helping victims breathe, giving them intravenous fluids, giving them medications to treat conditions such as seizure and low blood pressure, flushing their stomachs with activated charcoal (if the ricin has been very recently ingested), or washing out their eyes with water if their eyes are irritated.

How would I know if I were exposed to ricin?

A potential clue would be if you and a large group of people who had been close to each other suddenly developed fever,

cough, and excess fluid in their lungs. These symptoms could be followed by severe breathing problems and possibly death. Unfortunately, no reliable test exists to confirm that a person has been exposed to ricin.

How can I protect myself against ricin if I'm exposed?

First, get fresh air by leaving the area where the ricin was released. Moving to an area with fresh air is a good way to reduce the possibility of death from exposure to ricin. If the ricin release was outside, move away from the area where the ricin was released. If the ricin release was indoors, get out of the building. You also may be advised to "shelter in place" inside a building to avoid exposure.

Log onto the CDC's emergency preparation website at www.bt.cdc.gov/index.asp for more information.

For more information on emergency health preparedness, contact the Office of Health Emergency Management (OHEM) at 505/476-7701 or visit our website at www.health.state.nm.us/ohem