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## Brain Cancer Linked to Nerve Agent in Gulf War Vets

By Liz Szabo, USA TODAY

For the first time, a study has found an increase in brain cancer deaths among Gulf War veterans who might have been exposed to the nerve agent sarin by the destruction of Iraqi weapons in 1991.

About 100,000 of the 350,000 Army soldiers in the Persian Gulf could have been exposed to sarin after soldiers blew up two large ammunition caches in Khamisiyah, Iraq, in March 1991, according to a study commissioned by the military and performed by the Institute of Medicine. The institute advises the government on health policy.

At the time, the military didn't know that the destroyed Iraqi rockets contained sarin, says Michael Kilpatrick, deputy director for the Deployment Health Support Directorate in the Department of Defense. Soldiers showed no signs of exposure to chemical warfare.

Later, however, United Nations inspectors found that some of the weapons contained sarin, which can cause convulsions and death. The military has since contacted about 300,000 veterans who were in or near areas that might have been affected. The potential "hazard area," where shifting winds could have carried traces of chemicals, extended at times as far as Kuwait and Saudi Arabia.

According to the study, soldiers inside the "hazard area" were about twice as likely as those outside it to die from brain cancer. Because the actual number of brain cancer cases was small, the overall mortality rate was the same for veterans in the hazard area and outside the area, according to the study, published in the *American Journal of Public Health*.

Among unexposed soldiers, researchers found a brain cancer death rate of 12 per 100,000 from 1991 to 2000, says William Page, director of the study. Over the same period, researchers found 25 brain cancer deaths per 100,000 veterans who were exposed.

"It's a doubling of risk, but it's still a pretty small risk," says Page, a senior program officer at the Institute of Medicine.

The study did not address "Gulf War syndrome," as some have called the collection of ailments experienced by returning veterans. It examined whether soldiers possibly exposed to the destruction of Iraqi weapons were more likely to die for any reason. They also singled out specific diseases: breathing problems, infections, circulatory problems, digestive ailments, accidents and suicides, as well as four types of cancer.

The study's authors note that sarin has never been shown to cause cancer. Page suggests that researchers follow veterans to see whether the risk of brain cancer, which is believed to develop over 10 to 20 years, changes over time. Page also notes that the study doesn't prove that being in the hazard area caused brain cancer.

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Melissa Bondy, a professor of epidemiology at M.D. Anderson Cancer Center in Houston, questions why only one or two days of exposure would increase brain cancer mortality. Other experts note that the study could shed light on the causes of brain tumors, about which doctors know little.

"It's a very solid study," says Faith Davis, a professor at the University of Illinois-Chicago. "It needs to be taken seriously."