

**INTERIM SMALLPOX FACT SHEET****SMALLPOX VACCINE AND HEART PROBLEMS:  
INFORMATION FOR PEOPLE WHO HAVE RECENTLY RECEIVED THE  
SMALLPOX VACCINE**

As someone who has recently received the smallpox vaccine, you should know about new developments involving smallpox vaccination and heart problems. There is evidence suggesting that smallpox vaccination may cause cases of heart inflammation (myocarditis), inflammation of the membrane covering the heart (pericarditis), and a combination of these two problems (myopericarditis). A few cases of heart pain (angina) and heart attack also have been reported following smallpox vaccination. It is not known at this time if smallpox vaccination causes angina or heart attacks.

**RECENT DEVELOPMENTS**

**Regarding Heart Inflammation:** Careful monitoring of smallpox vaccinations given over recent months has suggested that the vaccine may cause myocarditis, pericarditis, and/or myopericarditis. Experts are exploring this more in depth.

Among the large number of people (military personnel and civilians) who have recently received the smallpox vaccine, a few cases of myocarditis and/or pericarditis have been identified:

- In the civilian vaccination program, 25,645 persons had been vaccinated as of March 21, 2003. Two cases of myopericarditis have been reported. Onset of these occurred 2 days and 17 days after vaccination. Each of the patients has recovered.
- Between December 13, 2002 and March 31, 2003, approximately 325,000 troops received the smallpox vaccine. Eleven cases of myocarditis and/or pericarditis have been reported; all were in people receiving the vaccine for the first time. These events occurred at a rate of 1 in every 20,000 individuals vaccinated for the first time. Onset of the cases occurred 6 to 12 days after vaccination. One of the cases became severely ill with heart failure on March 27, 2003 and remains hospitalized as of March 31, 2003. The other 10 patients had mild to moderate disease and are reported to have recovered fully. No cases of myocarditis or pericarditis were detected among approximately 100,000 people in the military program who had been vaccinated before.

**Regarding Angina and Heart Attack:** Two cases of angina (chest pain caused by lack of blood flow to the heart) and 3 cases of heart attack have been reported among the 25,645 civilians vaccinated as of March 21, 2003. Two of the people with heart attacks have died. Four

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(continued from the previous page)

of these 5 patients, including the 3 people with heart attacks, had clearly defined risk factors for coronary artery disease known in their medical history. The 5 patients had illness onset from 4 to 17 days after vaccination. It is not known at this time if smallpox vaccination caused these problems or if they occurred by chance alone (heart problems are very common). Reported events are not necessarily caused by the vaccine, and some or all of these events might be coincidental. Experts are investigating this question.

### **WHAT THIS MEANS FOR YOU**

As someone who has received the smallpox vaccine, you should see a health care provider right away if you develop chest pain, shortness of breath, or other symptoms of cardiac disease.

If you have been diagnosed by a doctor as having heart disease or risk factors for heart disease, and have concerns, contact your heart disease specialist or your regular health care provider. All people with heart disease or risk factors should receive the routine care recommended for persons with these conditions.

For more information, visit [www.cdc.gov/smallpox](http://www.cdc.gov/smallpox), or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY).