



## **Guidance for Providers Caring for Persons Recently Exposed to Jet Fuel**

### **Background**

On May 11, 2017, approximately 94,000 gallons of jet fuel were spilled at the Oceana Naval Air Station. This caused a noticeable odor in neighborhoods bordering London Bridge Road, and residents reported developing symptoms consistent with mild jet fuel exposure, including headaches, nausea, and mucous membrane irritation. This document is to give medical providers guidance as to complaints, findings, and adverse effects that may be caused by recent (not chronic) jet fuel exposure, and information about appropriate diagnostic tests and follow-up.

### **Current Status**

The Navy is acting rapidly to clean up the fuel spill and partnering with the local, state and U.S. EPA officials. It is exploring ways to minimize ongoing exposure of residents while clean-up is being completed. A public meeting was held the evening of May 15, 2017. The Agency for Toxic Substances and Disease Registry (ATSDR) recently (March 2017) published a "JP-5, JP-8, and Jet A Fuels-ToxFAQs" document, which may answer many concerns of those who may have been exposed to Jet Fuel. The Navy has recommended concerned individuals review this document.

### **Clinical Approach to Patients Concerned about Possible Exposures to Jet Fuel**

Patients with concerns about environmental exposures should be evaluated as any other patient. An accurate history, including current symptoms and review of systems, should be obtained. As fuels such as gasoline and kerosene (the main ingredient in jet fuels) are commonly encountered in the environment, a thorough occupational, social, and medical history should carefully explore possible sources of exposure. The distance from the polluted affected waterways, the time and duration of exposure, accompanying symptoms and their duration, and how companions (e.g., family members) were affected are all of interest. Unless there is a clear history of swimming in or drinking unfiltered water from the affected waterways, it is anticipated that all exposures would be relatively low-level fuel vapor inhalations.

Symptoms to be expected include headache, nausea, nasal irritation, sore throat, and irritation of the lungs (cough, burning sensation, and chest pain). More severe symptoms may include dizziness, lightheadedness, drowsiness, irritability, poor coordination, difficulty concentrating, loss of consciousness, nose bleeds, prolonged coughing, shortness of breath, loss of appetite, retching, vomiting, and impaired blood clotting, immunity, and liver function. Those complaints would not be expected in the current situation (although some people may have experienced brief dizziness, lightheadedness, poor coordination, or difficulty concentrating), as these symptoms would normally be expected after prolonged (months to years) exposure or to high level exposures (e.g., ingestion).

The physical examination of patients concerned about exposure(s) should focus on acute respiratory tract and mucous membrane effects (primarily irritation) and, to a lesser degree, neurological effects (primarily balance) and establishing a baseline. Neurological, mucous membranes (eyes, nose, and throat), heart, lung, abdomen, and lymph nodes comprise the minimum exam.

Based on findings from the history and physical examination, further testing may be appropriate, such as a chest X-ray if lower respiratory symptoms or findings (cough, dyspnea) have persisted, or a throat or conjunctival culture if there is purulence or other indication of a bacterial, rather than irritant, etiology. Unless there has been ingestion, blood or urine testing for fuel or any fuel components are not recommended. We cannot recommend other blood or urine testing, imaging, or any invasive testing for adults who are otherwise healthy and have normal examinations. Testing solely to allay patient (or family) concerns is generally not helpful and therefore not recommended. There is no test that can definitively determine if a person will develop chronic effects from jet fuel vapor exposure. Negative findings from exhaustive urine and blood testing or whole-body MRI today do not guarantee future health and may not be adequate to allay all patient concerns. In addition, testing without evidence of disease is likely to result in false positives, leading to further unnecessary and potentially harmful tests and procedures.

Patients who have been involved with the spill or clean-up and who have concerns about occupational exposures may be reassured that the Navy has a robust occupational medical surveillance program. Workers with actual or potential exposures to harmful substances are carefully followed for evidence of unexpected or over-exposures.

## Disposition

Treatment should be appropriate for the working diagnoses, if any, determined by the patient encounter. If mucous membrane irritation has persisted, symptomatic relief with anti-tussives may be helpful. Prophylactic antibiotics are not recommended. Inhaled steroids should be reserved for cases with persistent pulmonary effects. If there is any question that mucous membrane or respiratory irritation have not resolved, frequent (daily at first) follow-up is recommended.

Disposition of patients without abnormal findings should include instructions to receive appropriate immunizations and preventive exams, and to return if signs or symptoms of adverse health effects occur. Patients should be encouraged to refrain from exposure to other respiratory and mucous membrane irritants (e.g., smoking, chewing, or snuff tobacco) and to organic solvents (e.g., ethanol) for at least several days after symptoms have resolved.

## Further Information

The U.S. Preventive Services Task Force's Guide to Clinical Preventive Services contains evidence-based recommendations for prevention and early detection of diseases ranging from cancer to mental health conditions (<http://www.ahrq.gov/clinic/prevenix.htm>). Education to avoid smoking and substance abuse, eat a healthy diet, exercise regularly, limit alcohol intake, and faithfully use respirators and gloves at work if required, etc., is reasonable.

Providers may also contact the NAS Oceana Occupational and Environmental Medicine (OEM) Department at [usn.hampton-roads.navhospporsva.list.nmcp-fuelspillocmed@mail.mil](mailto:usn.hampton-roads.navhospporsva.list.nmcp-fuelspillocmed@mail.mil) or (757) 953-3772.