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Emma Hitt is a freelance editor and writer for Medscape.

Disclosure: Emma Hitt, PhD, has disclosed no relevant financial relationships.

Dr. Hitt does not intend to discuss off-label uses of drugs, mechanical devices, biologics, or diagnostics not approved by the FDA for use in the United States.

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## From Medscape Medical News CDC and IOM Warn of Adverse Psychosocial, Cancer Effects From Gulf Oil Spill



Emma Hitt, PhD

June 28, 2010 — Psychosocial, as well as medical, effects will be important consequences of the Gulf oil spill, according to experts from the Institute of Medicine (IOM) and the Centers for Disease Control and Prevention (CDC).

The explosion of the Deepwater Horizon oil rig in the Gulf of Mexico took place on April 20, 2010. At the time, the explosion killed 11 workers and injured 17 others, but the long-term effects of the resulting oil spill remain unclear. As of June 25, 2010, 453 oil exposure complaints had been reported to the American Association of Poison Control Centers. Of these, 174 calls came from Louisiana, 111 from Florida, 95 from Alabama, and 38 from Mississippi. Callers reported symptoms including headaches, throat irritation, nausea, vomiting, eye pain, and dizziness.

Crude oil contains a mixture of volatile hydrocarbon compounds — polycyclic aromatic hydrocarbons that typically include the carcinogens benzene, toluene, and xylene. According to the CDC, symptoms of exposure to these compounds include drowsiness, dizziness, rapid or irregular heartbeat, headaches, tremors, confusion, and unconsciousness.

On June 22 and 23, the IOM, part of the US National Academies in Washington, DC, held a workshop in New Orleans, Louisiana, at the request of the US Department of Health and Human Services to discuss health concerns related to the spill.

### Exposure Effects May Follow a Latent Period

Scott Barnhart, MD, MPH, from the University of Washington, in Seattle, noted during his presentation that exposure effects from the oil spill may follow a latent period. "Crude oil contains a complex mixture of heavy metals and volatile and nonvolatile polyaromatic hydrocarbons, with the possibility of carcinogens," he said.

According to Dr. Barnhart, exposure can occur through dermal and inhalational routes and possibly through ingesting oil-contaminated foods. Toxicities are dose-dependent and may include neurologic, renal, hepatic, dermatologic, and hematologic effects.

## Levels of Carcinogens Unclear

Gina Solomon, MD, a senior scientist with the National Resources Defense Council, noted in her blog that British Petroleum (BP) is claiming that "because the air concentrations of carcinogens such as benzene are below [Occupational Safety and Health Administration] limits, the workers involved in cleaning up the Gulf oil spill are not at risk of health effects."

However, she adds that "BP is dismissing the fact that its own data have shown levels of hydrocarbons above BP's 'action level', and have shown levels of benzene and 2-butoxyethanol (the dispersant chemical) above the Recommended Exposure Limit set by the National Institute for Occupational Safety and Health."

## Psychosocial Issues From Spill Are Important

According to Maureen Lichtveld, MD, MPH, professor and chair of the Department of Environmental Health Sciences at Tulane University, in New Orleans, Louisiana, the number one effect that clinicians should look for are the psychosocial consequences.

"Clinically, the immediate effects are irritation and respiratory effects caused by volatile organics," Dr. Lichtveld told *Medscape Medical News*, "but during the IOM meeting we agreed that the psychosocial aspect needs to have a much higher priority than currently is apparent, and often clinicians don't think about that," she said. "It was clear for us, after Katrina, in New Orleans, in fact, that those adverse psychosocial effects are still there." Dr. Lichtveld was a participant at the IOM workshop.

Dr. Solomon noted that follow-up studies after the Exxon Valdez oil spill showed significant increases in mental health disorders in the local population for years after the spill. "There were increases in depression, posttraumatic stress disorder, and other anxiety disorders, as well as generally poorer scores on mental health assessments," she told *Medscape Medical News*. She added that currently there are not enough data to predict whether there could be future elevations in cancer risks, reproductive issues, or neurological sequelae from this oil spill. "Prospective health monitoring will be very important in this population," she added.

## Guidance for Healthcare Professionals

According to Dr. Solomon, clinicians play an important role in providing anticipatory guidance to help protect their patients. "Community residents should not fish in any areas that have been declared off-limits or where they see evidence of oil contamination, and fish or shellfish that has an oily odor should be discarded and not eaten."

In addition, Dr. Solomon said, direct skin contact with contaminated water, oil, or tar balls should be avoided. "If community residents at any time notice a strong odor of oil or chemicals, and are concerned about health effects, they should seek refuge in an air conditioned environment, preferably with the air conditioner on recirculation mode to avoid intake of polluted air.

"Overall, residents can be reassured that the air quality has been generally good on the Gulf coast, and that long-term health effects are unlikely," she said.

The CDC is monitoring potential health threats or conditions that may result human exposure to the oil spill. At this time, 242 CDC and Agency for Toxic Substances and Disease Registry staff members are involved in the response to the oil spill. As of last week, 21 staff members had been deployed to Gulf Coast states.

Information about the oil spill for health professionals is available on the CDC's [Web site](#). Topics include fuel oil toxicity

frequently asked questions, recommendations for taking an exposure history, health surveillance, and fact sheets about dispersants and light crude oil.

The CDC encourages clinicians to [email](#) them with any questions about the 2010 Gulf of Mexico oil spill.

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