

## **Big Picture, Small Talk presentation showcases GuLF STUDY**

*By Jordan St. Charles*

A Nov. 18 presentation by NIEHS epidemiologist Richard Kwok, Ph.D., described the efforts of the GuLF STUDY (Gulf Long Term Follow-up Study) to monitor the potential human health effects of the BP oil spill.

The talk was part of the Big Picture, Small Talk lecture series, which is an effort organized by National Toxicology Program (NTP) health scientist [Abee Boyles, Ph.D.](#), to present research done at NIEHS in a form that is more accessible for staff who are not scientists or those who are not specialists in that field.

Peggy Mooring of the Administrative Management Branch introduced Kwok and described her own experiences working at the U.S. Environmental Protection Agency (EPA) during the Exxon-Valdez spill in Alaska in 1989.

[Kwok](#), who is a staff scientist in the NIEHS Chronic Disease Epidemiology group, began his talk with the definition and a brief history of epidemiology. The word epidemiology is derived from the Greek root words epi (among), demos (the people), and logos (study of) and is the study of the distribution and determinants of diseases in populations. Epidemiologic studies can involve determining the sources of illnesses and the health impacts of events such as large oil spills.

### **Deepwater Horizon oil rig explosion triggers massive undersea oil spill**

The Deepwater Horizon exploded on April 20, 2010, leading to the largest maritime oil spill in U.S. history. Crude oil gushed from what Kwok described as a mile long steel drinking straw connecting the Deepwater Horizon to the well head located 5,000 feet under the surface of the ocean. “When the Deepwater Horizon exploded and sank, it bent the straw, rupturing the pipe and causing hundreds of millions of gallons of crude oil to spill out into the Gulf of Mexico,” he said.

The cleanup for the spill started almost immediately with BP hiring thousands of contractors to assist in the effort. The objective of the [GuLF STUDY](#) (<https://gulfstudy.nih.gov/en/index.html>) is to determine if those cleanup workers have suffered or will suffer any adverse health effects.

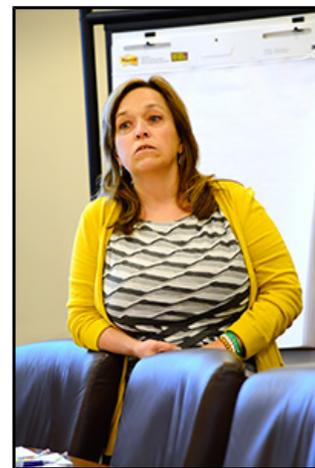
“We hypothesize that the cleanup workers have the highest potential for physical contact with the oil and dispersant. These are the folks who are on the beaches and boats picking up the tar balls and pulling up the oiled boom,” Kwok explained.

The GuLF STUDY is a prospective study, meaning that participants are enrolled before they start experiencing any adverse long-term effects. More than 32,000 adults nationwide have enrolled into the study. Exposure ranges from very low-risk individuals, such as those in logistics support, to high-risk individuals who were working directly with the cleanup at the source of the spill. The idea is that the study will consist of a gradient of exposures that can then be correlated with observed health effects.

### **Reaching out to cleanup workers**

The GuLF STUDY team is following the participants with a combination of telephone interviews, home visits, and clinical screenings in order to document any potential adverse physical or psychological effects. Their preliminary findings show that oil spill workers were more likely to report wheezing and coughing two years after the spill. These same workers are also scoring higher on standardized measures for depression and post-traumatic stress disorder.

The goal is to follow these participants over ten years or more, in order to see what future health complications might arise. Any knowledge gained in these studies may affect organization of cleanup efforts and public health responses to any future spills. More information on the GuLF STUDY can be found at its [website](#). (<https://gulfstudy.nih.gov/en/index.html>)



*Mooring introduced Kwok and described her own experiences with the Exxon-Valdez spill while she worked at an EPA site that was one of the first responders to that disaster. (Photo courtesy of Steve McCaw)*



*Kwok described the science of modern epidemiology beginning with its origin during a cholera epidemic in London during the 1800s and ending with the GuLF STUDY. (Photo courtesy of Steve McCaw)*

(Jordan St. Charles, Ph.D., is an Intramural Research and Training Award fellow in the DNA Replication Fidelity Group at NIEHS.)



*A diverse audience attended the Big Picture, Small Talk lecture, including NTP toxicologist Cynthia Ryder, Ph.D., center, and contract scientific program analyst Yuxia Cui, Ph.D., right, of the NIEHS Division of Extramural Research and Training. (Photo courtesy of Steve McCaw)*



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