

Qualifications of Edward Trapido, ScD, FACE

Edward J Trapido, ScD, FACE, is Associate Dean for Research at the Louisiana State University School of Public Health, Professor and Wendell Gauthier Chair for Cancer Epidemiology at the LSUHSC School of Public Health, and the Deputy Director for Population Science at the Stanley S. Scott Cancer Center at the LSUHSC School of Medicine. He is also Senior Advisor to the Dean of the LSU School of Medicine, for Interprogram Research, which includes coordinating the entire research effort of the LSU Health Sciences Center related to the Deepwater Horizon Gulf Oil Spill. Dr. Trapido is also leading the evaluation of the International Atomic Energy Agency's Program of Action in Cancer Therapy. Prior to joining the faculty of LSUHSC, he was Professor and Acting Division Director for the Department of Epidemiology and Public Health at the University Of Miami Miller School Of Medicine. His leadership experience includes appointments at the NCI as Deputy Director for International Cancer Control in the Office of International Affairs and as Associate Director of the Epidemiology and Genetics Research Program within the Division of Cancer Control and Population Sciences. In addition, he has co-chaired of the Trans-NIH Tobacco and Nicotine Research Interest Group and served as Senior Advisor to the Director of the International Agency for Research, in Lyon, France. He led the Southeast Regional Cancer Information Service and Florida Cancer Data System for many years.

His degrees include a master of science in public health in parasitology from the University of North Carolina, and both a master and doctor of science in epidemiology from Harvard University.

He directs the Louisiana Cancer Research Consortium (LCRC) Population Sciences research program, a joint initiative involving the Stanley S. Scott Cancer Center, the Tulane Cancer Center, Xavier University, and the Ochsner Health System.

Testimony

I have been asked to provide a risk assessment of the BP oil spill from the perspective of a cancer epidemiologist, which I am by training and experience.

Unfortunately, there are essentially no long term epidemiologic studies of persons who have been exposed to oil spills, their clean up, the communities nearby, health care workers, or families of workers. Similarly, population research on the development of cancer when the oil, its breakdown products and dispersants enter the food chain has not been done. So, while there is much talk about this being an unprecedented event, in terms of long term epidemiologic studies providing answers as to what will happen to the long term health of exposed individuals, it is unprecedented. We cannot look to the past and know exactly what to expect.

However, there can be no argument that there are cancer producing chemicals contained within the crude oil that has leaked into the Gulf of Mexico. The International Agency for Research on Cancer (IARC) has determined that some fuel oils (heavy) may possibly cause cancer in humans. Substances found in crude oil, including benzene, benzo (a) pyrene, and arsenic are class 1 carcinogens, meaning they cause cancer in humans. Other chemicals in the oil and dispersants may be carcinogenic as well. These chemicals have been linked with acute myeloid leukemia (AML) chronic lymphocytic leukemia (CLL), multiple myeloma, and lung cancer. In addition, the oil spill and its sequela have considerably raised stress levels among people in the community and the workers. Emerging epidemiologic evidence demonstrates an association between human stress, environment and adverse health effects, such as cancer

We could speculate with some certainty where the oil will go, were it not Hurricane season. Planning for that possibility is an entirely separate and equally important issue, but that is not the topic I was asked to present information on. So, while my approach is largely based on the hope that the Gulf will be spared a hurricane or tropical storm, the cancer issues remain the same, but the potential for the community exposure to oil and associated chemicals increases substantially.

There are other reasons to be concerned- and these are more related to mechanism by which exposure to heavy oil could result in an increased cancer risk. Although I am not a cancer biologist or an environmental epidemiologist, there is literature to suggest that heavy oil is associated with immunosuppression, increased chance of DNA damage, and contaminants may have estrogenic effects.

Because cancer is a disease of long latency, which can take up to twenty or more years to develop, I do not expect to see cancers arising from exposure to chemicals in the oil or dispersant to be evident right away, on the whole. On the other hand, exposures to the chemicals in the oil may hasten the development of cancer in persons who already might be at higher risk, due to past environmental and personal exposures, or inherited genetic characteristics associated with activating carcinogens or detoxifying carcinogens. Not every cancer arising in these populations will be due to exposure to the oil spill, however we know what to expect in terms of cancer occurrence based on existing data from the Louisiana Tumor Registry. Our task is to provide evidence of excess cancers that develop, which are highly likely to be associated with exposure. This is where public health experts predominately environmental health scientists and epidemiologists and prospective population studies come in.

There are many issues that arise and challenges to designing and performing optimal epidemiologic studies in this environment. Particularly, we must have meaningful community involvement, so that their concerns about cancer and other chronic diseases- physical, emotional and behavioral can be addressed.

Populations: We need to conduct a study of oil rig and response workers who were exposed to the oil and dispersant and unexposed workers. In addition, other clean up workers on ships, and on the shore must be included. Other first responders, including health care workers, need to be included. Finally, samples of individuals from the surrounding parishes need to be identified, with special attention to those involved in maritime/marine activities, and their families. Clearly, these need to be recruited in a manner that guarantees the confidentiality of individual, and doesn't jeopardize their future careers, medical care, or legal rights.

Exposure: From my experience as the NCI representative to the World Trade Center follow-up of workers, it is difficult and costly to accurately measure and estimate exposure. However, with the addition of biomonitoring, genotoxicity studies, exposomics, risk assessment, we are better able to determine exposures and their effects, than were studies before. Exposure is time dependent, and we need to identify and enroll the workers, their families, and the communities now, and to collect basic epidemiologic, occupational, and baseline health data, as well as biological samples from participants. These would ideally be blood, a buccal smear, and a urine specimen.

Oil and Chemicals. We need to get samples of the fresh and old oil- from various places, with and without dispersant, crude, light, and weathered, as well as what has been collected in the booms. These need to be collected on a periodic basis.

Follow-Up and Outcomes. We will need to follow persons, exposed and unexposed, at least annually, so that we have a scientifically appropriate comparison group. This will, of necessity, be a long term study- perhaps extending 20 to 30 years from now. Such long term studies are not uncommon in other venues, and have greatly contributed to what we know about the causes of chronic diseases.

We need to simultaneously coordinate our work with hospitals, doctors, and clinics in the area, to set up a system to monitor outcomes, and collect follow-up information and biologic samples. Ultimately, cancers among Louisiana residents will be reported to the Louisiana Tumor Registry, an NCI supported SEER registry housed at the LSU School of Public Health. Coordination with other cancer registries will be required for residents residing in other gulf coast states. However, registries for other chronic diseases (e.g. respiratory) do not yet exist so a robust infrastructure to enable comprehensive follow up is essential.

Conclusion. There are many other issues related to design and analysis of a comprehensive epidemiologic study, but unfortunately there is not sufficient time to present them. However, to end my presentation, I would like to say that there is a genuine reason to have concern about cancer and other diseases of long latency arising from this unfortunate occurrence. In order to address the concern, we need to conduct appropriate population based research. We have the tools and expertise to

perform such studies, and I feel strongly that all parties must act with expedience, thoughtfulness, and commitment to the populations of the SE United States, and not pull these resources from other important research, economic support, clinical care and support.