Conference highlights the known and unknown in fracking debate

By Kim Eisler

A day-long forum on what is known - and especially what is not known - about the public health impacts of hydraulic fracturing (HF) attracted a blizzard-weary crowd of 190 people to the University of Pennsylvania's (UP) Perelman School of Medicine. The Feb. 18 symposium was sponsored by the UP Center of Excellence in Environmental Toxicology (CEET), which is funded in part by NIEHS and the Center for Public Health Initiatives, and featured presenters from industry, academia, government, and the community.

CEET director Trevor Penning, Ph.D. *(http://www.med.upenn.edu/apps/faculty/index.php/g20000343/p12620)* professor of pharmacology and of biochemistry and molecular biophysics at the UP Perelman School of Medicine, opened the symposium with an outline of current challenges. The event ended some seven hours later, with an acknowledgment by Aubrey Miller, M.D., NIEHS senior medical advisor, about how much critical data is simply missing in action. "What is as important as what we know, is all that we still don't know," Miller said.

Acknowledging deficits in critical baseline measurements of ground, air, and water effects, Miller praised the citizenry that has stepped in, particularly in Pennsylvania's Marcellus Shale region, to create science from the bottom up. (Photo courtesy of Steve McCaw)

Miller's comments came after a day of presentations and discussions by experts, oil industry figures, Pennsylvania state government representatives, and academic and community group leaders. The presentations focused primarily on the Marcellus Shale activities in northern Pennsylvania counties where the politics and science of fracking have clashed most dramatically, and where several new NIH/NIEHS-funded studies of health effects, looking at insurance claims data, hospital records, and community perceptions, are taking shape. Additionally, recent research looking at birth outcomes in Colorado was discussed.

Communities play a leading role

Penning discussed development of CEET's Environmental Health Sciences Core, which has brought together 16 university programs to engage in health research and community outreach. One success of the working group was connecting the academic community to HF-impacted communities, to ensure research is connected to the people most likely to be affected.

"The community should determinate how to disseminate the findings, and the community should be first to hear the results," Penning continued. "People need to know who is funding the research, and we need to determine whether rapid changes are overwhelming the fabric of communities."

According to Penning, one of the priorities is to develop valid indicators of early ground water contamination. He also called for more research on the chemicals used for HF and flowback waters, more study of the damage done by dirt kicked up by diesel trucks, as well as more information about the health effects of exposure to respirable crystalline silica, a mineral used in great quatities at each HF site.

Data gaps remain

In his summation, Miller observed that the key issue here is what's missing. "What do I tell people they should be concerned about? Do we have an answer to their concerns, and if not, why not?"

"With 52,000 wells, how can we have no data on an enterprise of this magnitude?" Miller asked. "There are studies, there are health surveys, but there is not enough hard data to even tell people what the risks are. There is very little representative exposure data from the air, from the water, and from the ground to judge the health risks to workers or communities. Additionally, we need information on the mixed effects that these exposures may have on animals, on livestock, on birds, and on fish."

According to Miller, this situation calls for a paradigm shift in the way data on a national scale is being collected. "Instead of waiting for someone to bring them the news, government agencies, academic researchers, and communities, including citizen scientists, need to pool together to collect the missing data," he said. "Communities and concerned citizens need to take a proactive part in efforts to understanding exposures in their own environment."

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