Community engagement drives new pilot study on fracking and air quality

By Eddy Ball

A team of NIEHS-funded researchers met with citizens of Carroll County, Ohio, Jan. 9 marking one of the first steps in the new one-year, community-engaged pilot study of fracking and air quality.

Haynes is also the director of the NIEHS-funded UC Center for Environmental Genetics Community Outreach and Engagement Core, and director of the Clinical and Translational Research training program. (Photo courtesy of University of Cincinnati)

Linked Audio

Listen as Carroll Concerned Citizens Chair Paul Freezel describes his group's support for the new study (0:25)

Hosted by Carroll Concerned Citizens, *(http://carrollconcernedcitizens.org/)* the team is mounting a recruitment effort for a new NIEHS-funded pilot study of landowners potentially affected by hydraulic fracturing (fracking) in the rural Appalachian Ohio county. The researchers plan to place passive air sampling devices at 4-6 sites on or adjacent to land where gas is being extracted by the unconventional natural gas drilling (UNGD) method (see fact sheet *(http://www.niehs.nih.gov/news/newsletter/2014/2/science-community/file640277.pdf)* (153KB) .

The passive air sampling devices, developed by Anderson's team for monitoring air quality following the Deepwater Horizon oil spill in the Gulf, can be attached to trees, fence and utility posts, or structures, posing no danger to humans, livestock, or crops. The sampling box is in the shape of a T, weighs 3 pounds, and is 29 inches long by 12 inches wide at the T. (Photo courtesy of Kim Anderson)

The researchers from the University of Cincinnati (UC) and Oregon State University (OSU), led by UC Professor Erin Haynes, Dr.P.H., *(http://www.eh.uc.edu/dir_individual_details.asp?qcontactid=687)* are also recruiting individuals to wear wristband personal monitors that can measure their exposure to some 1,000 chemicals in the air, in what has rapidly become the most shale-drilled area in the state.

The study is funded by a grant from NIEHS to the UC Center for Environmental Genetics led by Shuk-Mei Ho, Ph.D. *(http://healthnews.uc.edu/experts/?/2290/)* OSU researchers Kim Anderson, Ph.D., *(http://fses.oregonstate.edu/Kim-Anderson)* and Laurel Kincl, Ph.D., *(http://ehsc.science.oregonstate.edu/Laurel)* are also funded by NIEHS grants.

The community as a research partner

Haynes explained that the study will address the community's concerns about the potential consequences of fracking at the quickly growing number of sites in the county. "As Ohio's shale gas boom continues, thousands of new pads will be installed, many of which will be in close proximity to homes and businesses," she told reporter Bob Downing for a story *(http://www.ohio.com/blogs/drilling/ohio-utica-shale-1.291290/researchers-to-look-at-air-impacts-from-drilling-in-carroll-county-1.455303)* in the Akron Beacon Journal. "Understanding if significant air quality changes occur during the various shale gas operations is important to understanding health risks for humans and livestock."

The small, lightweight personal samplers are made of silicone, which absorbs chemicals in the air. Researchers can then extract and identify these chemicals. As the cartoons show, participants will wear their bracelets 24 hours a day. (Photo courtesy of Kim Anderson)

In planning the study, Haynes and her team have worked closely with residents of Carroll County. Summary data will be shared following the study's completion. Participants will be informed about their individual monitoring results, which will be kept confidential.

"By emphasizing community participation, we'll be bringing cutting-edge science directly to the public, bridging the gap between scientists and their communities," Haynes said. "It is critical that research related to UNGD [fracking] involve key community stakeholders at the outset, as it is their air and water that we're studying."

Looking ahead

According to Haynes, the pilot study should be completed by summer, and she is already working toward funding for a larger follow-up study. "We want to address the question very rigorously and with an open mind," she said. "We're not coming with a conclusion in hand - we actually want to see what the data will reveal." The study will also evaluate the performance of the samplers deployed.

"Additional UNGD research is needed, including water quality, impact on rural roadways and community infrastructure, and UNGD-generated waste transportation and injection into wells," Haynes explained.

Haynes said she hopes to share the data with the Ohio Department of Natural Resources, which regulates oil and gas drilling in the state, as well as the energy industry. "If we do find something, we hope that they [the industry] would make a change."

(This story is based in part on an article by Keith Herrell, a public information officer with healthNEWS, *(http://healthnews.uc.edu/news/?/23699/)* the UC Academic Health Center Public Relations and Communications publication.)

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