

Leaders address Association of Public Health Laboratories

By Michael Heintz

NIEHS and NTP Director Linda Birnbaum, Ph.D., and Director of Extramural Research and Training Gwen Collman, Ph.D., were featured guests at a gathering of environmental health laboratory professionals from the [Association of Public Health Laboratories](http://www.aphl.org/Pages/default.aspx) (APHL) on June 4 in Raleigh, N.C. (see [text box](#)).

Linked Video

[Watch as APHL Executive Director Scott Becker welcomes attendees to the annual meeting \(0:58\)](#)

As part of the APHL [Annual Meeting and 7th Government Environmental Laboratory Conference](http://www.aphl.org/conferences/proceedings/Pages/2013-APHL-Annual-Meeting.aspx), members of the Environmental Health and Environmental Laboratory Sciences Committees were pleased to host NIEHS leadership for an evening of introductions and discussion. Birnbaum and Collman took the opportunity to familiarize APHL members with the work of NIEHS and NTP. Attendees engaged in a lively discussion following Birnbaum's review of the newly released NIEHS [strategic plan](#) and Collman's overview of the Institute's work on [exposure science](#).

As APHL Executive Director Scott Becker said in his introduction, "NIEHS is most certainly a public health agency and one we believe has significant opportunities for future collaboration with environmental health laboratories." Jyl Madlem, laboratory program advisor at the Indiana State Department of Health put it more directly, wondering aloud, "Where has [NIEHS] been all of our lives?"

Providing the scientific backbone for environmental public health

To answer that question, Birnbaum opened her talk with a discussion of the six themes, 11 goals, and two crosscutting themes of the NIEHS strategic plan. "This is a blueprint for the entire environmental health science community for advancing the basic, clinical, and translational scientific research that can guide the application of public health prevention measures at the grassroots level worldwide," she told the audience, emphasizing the need for scientific excellence to underpin preventive action.

Birnbaum pointed to eight cross-Institute science focus areas where NIEHS-funded research can help inform public health work in the community — epigenetics, inflammation, stem cells, exposome, predictive toxicology, scientific data and knowledge management, website and social media, and global environmental health. According to her, better understanding in each of these areas can translate to practical applications in the field.

Collman's response to the need for APHL to know about NIEHS opened with a discussion of diseases across the lifespan resulting from developmental exposures that can trigger gene mutations and epigenetic modifications. Her discussion of the hidden links of early exposure to conditions that may manifest decades later, in middle or late age, moved into advances in understanding the subtle interactions of genes and environmental exposures in making some individuals more susceptible than others.

NIEHS and APHL — a natural partnership

As a professional association with more than 800 members representing state and local government laboratories, APHL strives for a healthier world through quality laboratory practice. The APHL mission is to promote the role of public health laboratories in shaping national and global health objectives, and to promote policies, programs, and technologies that assure continuous improvement in the quality of laboratory practice and health outcomes. Consisting of government laboratories from across the country, APHL represents the interests of its members through advocacy, policy development, training, networking, and career building.

APHL consists of a number of different [scientific programs](http://www.aphl.org/aphlprograms/Pages/default.aspx) and [committees](http://www.aphl.org/AboutAPHL/committees/Pages/default.aspx) representing all facets of public health laboratory work. However, the intimate gathering of 25, who heard presentations from Birnbaum and Collman, represented the [environmental health program](http://www.aphl.org/aphlprograms/environmental-health/pages/default.aspx) and the two standing committees focusing on testing for chemicals [in people](http://www.aphl.org/aphlprograms/environmental-health/pollution-in-people/pages/default.aspx) and in [environmental samples](http://www.aphl.org/aphlprograms/environmental-health/contaminants-in-the-environment/pages/default.aspx) testing efforts. In addition to addressing areas including biomonitoring and responding to chemical threats, these laboratories also test air, soil, and water samples for harmful contaminants.

Collman provided a host of examples of personal sensor developments that are helping establish connections between a specific exposure, such as tobacco smoke, and effects on gene expression profiles, metabolites, protein adducts, DNA adducts and DNA damage, and other health-related outcomes. She pointed to continuing challenges for exposure biology, such as the lack of comprehensive methods to quantify real time and past exposures, and the potentially synergistic effects of mixtures and multiple exposures. “These are fundamental questions to answer as part of the foundation for developing effective public health prevention measures,” she said.

Looking toward future collaboration

The post-presentation discussion covered a wide range of topics, including NIEHS work with genomics, exposure assessments, research centers, community engagement, and opportunities for collaboration in all of these areas with environmental health laboratories. Remarks by Pamela Higgins, Ph.D., special assistant for laboratory operations at the Pennsylvania Department of Environmental Protection, provided information on her laboratory’s work connected to hydraulic fracturing in the state. Several other audience members addressed the potential environmental health effects associated with nanomaterials.

By the end of the evening, everyone came away with a sense that environmental laboratories can do more to support the work of NIEHS, including the regional research centers. Sanwat Chaudhuri, Ph.D., bureau director of Chemical and Environmental Services at the Utah Unified State Laboratories, said, “I see that we have many common interests, such as in biomonitoring. This looks like a very promising opportunity to collaborate.”

(Michael Heintz, J.D., is a senior specialist with the APHL Environmental Laboratories Program.)



Birnbaum felt right at home at the APHL meeting, where primary prevention was an overarching theme. (Photo courtesy of Steve McCaw)



Collman discussed NIEHS priorities with APHL environmental committees at their annual meeting. (Photo courtesy of Steve McCaw)

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