

## Meeting explores extended environmental exposures in breast cancer

By Eddy Ball

As a fitting way to celebrate its 10th anniversary, the [Breast Cancer and the Environment Research Program \(BCERP\) annual meeting](#)

(<http://www.bcerp.org/2013mtg/index.htm>)

Nov. 7-8 in Madison, Wis. featured a keynote address by NIEHS Director Emeritus Ken Olden, Ph.D., and a concluding session talk by NIEHS and NTP Director Linda Birnbaum, Ph.D.

Olden focused on the original vision for BCERP, which he had a major part in creating in 2003 in response to community and scientific engagement. Birnbaum looked ahead, building on program accomplishments to advance toward a 21st century agenda she will have an important role in setting, while continuing to engage the community and promote the active involvement of the advocacy community in the program.

Both presentations framed an exciting series of talks, by an impressive lineup of experts, about advances in understanding the role of extended environmental exposures in breast cancer and how to launch effective primary prevention measures.

BCERP is supported by the Avon Foundation and NIH, with [NIEHS](#) and the National Cancer Institute overseeing research grants. The meeting attracted some 225 attendees in the university town of Madison.

### Empowering women

As meeting co-organizer Les Reinlib, Ph.D., the NIEHS health scientist administrator who oversees more than 30 breast cancer research grants, said, "We're all about prevention - empowering women to take control of their own risk for breast cancer."

Reinlib's presentation, "BCERC: A First Step Towards Preventing Breast Cancer," opened the first session and focused on the program's initial phase accomplishments, one of the most important of which was a much clearer understanding of risk. Although some established risk factors, such as age and family history, cannot be altered, Reinlib explained, lifestyle choices, such as diet, microwaving food in plastic containers, and alcohol consumption, can be modified.

With better understanding and effective communication, an important part of BCERP, women can also learn how to prevent many environmental exposures, such as radiation, pesticides, and certain hormones and hormone-like substances. "Most of breast cancer risk, particularly in younger women, does not come from family history," Reinlib said, "[so] we've still got 80 percent that has got to be environmental."

The primary focus of BCERP research is on puberty, which Reinlib called one of the best early predictors of breast cancer in women. He said that learning from human and animal studies about how breasts develop, and what exposures influence cancer onset, might lead to an immediate reduction in risk for breast cancer in the future. "In girls we can study risk factors," Reinlib said. "In animals, we can study disease outcomes of those risk factors."

### Other speakers

(<http://www.bcerp.org/2013mtg/speakers.htm>)

on day one of the meeting covered a range of mechanistic and epidemiological research. Among the groundbreaking BCERP research that is taking a divergent approach to risk, according to Reinlib, is work on the role of the adaptive immune system and inflammation in breast cancer development.

The first session of day two featured discussions of the Interagency Breast Cancer and Environmental Research Coordinating Committee (IBCERCC) report.

### IBCERCC and prioritizing prevention

The discussion of the IBCERCC and its implications for BCERP was presented by Gwen Collman, Ph.D., NIEHS Division of Extramural Research and Training director, and Deborah Winn, Ph.D., deputy director of the National Cancer Institute Division of Cancer Control and Population Sciences. Collman is the executive secretary of the committee, and Winn serves as co-executive secretary. The committee held the first of a series of meetings in October 2008.

Based on its review of the state of the science, current programs and investments by federal agencies and nongovernmental organizations, and relevant communication efforts and policies, in February 2013, the IBCERCC issued a comprehensive report to the Secretary of the U.S. Department of Health and Human Services, summarizing its findings and seven recommendations to highlight the need for coordinated, targeted efforts to identify and mitigate the environmental causes of breast cancer.

The report is now available as a four-page [Summary of Recommendations](#), ([http://www.niehs.nih.gov/about/assets/docs/summary\\_of\\_recs.pdf](http://www.niehs.nih.gov/about/assets/docs/summary_of_recs.pdf)) and a 270-page [Full Report](#). ([http://www.niehs.nih.gov/about/assets/docs/ibcercc\\_full\\_508.pdf](http://www.niehs.nih.gov/about/assets/docs/ibcercc_full_508.pdf))

## Building on a decade of research

In the final session of the meeting, Birnbaum made her presentation, "The Future of Breast Cancer Research and Prevention: A 21st Century Agenda." One of her first slides dealt with windows of susceptibility, showing results of a longitudinal study of Japanese women and girls exposed to atomic radiation in Hiroshima and Nagasaki. Risk ratios ranged from a minimal 1.3 for women exposed after age 20 to a dramatic 3.9 for girls exposed prior to age 4.

These and other new insights into breast cancer development are informing a range of NIEHS-supported and NTP-supported basic, translational, and epidemiological studies, representing some \$31 million of support in fiscal year 2012 alone. New directions include the development of innovative models, such as the zebrafish and outbred mice, for higher-throughput testing and greater genetic diversity.

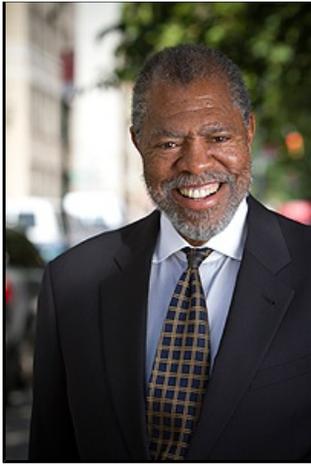
"Further research is needed into individual susceptibility across the lifespan," Birnbaum told the audience, as she pointed to challenges and opportunities ahead.



*Birnbaum identified three important goals for the next phase of BCERP - identifying early biomarkers for breast cancer; better understanding the role of social and cultural factors; and developing preventive health messages and effective routes of communication to medical providers, policymakers, and the public. (Photo courtesy of Steve McCaw)*



*According to Reinlib, the BCERP message is getting out to the public. "If you Google breast cancer and the environment, BCERP always comes up in the top two or three," he said. (Photo courtesy of Steve McCaw)*



*Olden served as NIEHS director from 1991-2005, leading such innovative initiatives as BCERP and environmental justice. (Photo courtesy of City University of New York)*



*As executive secretary of IBCERCC, Collman moderated discussions by a broad range of federal and nonfederal scientists and advocates, helping to achieve consensus on a new federal agenda for breast cancer research. (Photo courtesy of Steve McCaw)*

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