

## **BCERP Growing Up Female**

### **Speaker: Dr. Frank Biro Director, Adolescent Medicine, Cincinnati Children's Hospital Medical Center**

Dr. Biro presented an update of the work done by the Breast Cancer and Environmental Research Centers (BCERC) and the Breast Cancer and Environmental Program (BCERP).

The BCERC network included four centers (The University of Cincinnati and Cincinnati's Children's Hospital Medical Center, The Fox Chase Cancer Center at the University of Pennsylvania, The University of California San Francisco, and Michigan State University). Each Center had its own biological research project and a community outreach and translation core (COTC). Three of the Centers, including the Cincinnati Center, had epidemiological studies.

Last year the Centers became the BCERP, which is comprised of the three original sites that conducted epidemiology projects. The epidemiology projects had been and continue to be in New York City, the San Francisco Bay area and Greater Cincinnati. The Cincinnati study involves participants in southeast Indiana, northern Kentucky and the Cincinnati metro area.

The work Dr. Biro's team has done as a part of the BCERC and is doing as a part of the BCERP involves looking at the relationships between factors associated with the onset of puberty, environmental impacts that occur during this time period, and the risk of developing breast cancer later in life.

Some biological factors that occur during puberty and are associated with a high risk of developing breast cancer are

- the age menstruation begins
- the age a girl experiences peak height velocity (PHV) - the point in puberty when the rate of growth is at its highest

Along with biological processes, environmental factors experienced during puberty can have an impact of breast cancer risk. This may specifically be related to breast cancer risk because while the breast may not be apparent visually in girls who have not yet reached puberty, breast stem cells are dividing rapidly in the process of maturation. These cells are biologically at greater risk for environmental exposures or other factors that can lead to health changes.

## **BCERC and BCERP Research Update**

The research has included working with a cohort of young females that the team

saw every 6 months. In the over 3,000 total visits, blood and urine samples were taken to help assess when the girls were reaching puberty. Across the three Centers, the teams found significant differences in the rates of maturity, including breast development. The African-American participants matured a little earlier than the Hispanic participants, and the Hispanic participants matured a little earlier than the Caucasian participants. The team also found that the girls who had developed breasts by age 7 had a higher body mass index (BMI).

The specific aims of the BCERP's Growing Up Female 2, which began this year, are to

- continue to look at the age menstruation starts because the vast majority of girls in the study haven't had their first periods yet
- look at timing of the development of the breast in relation to the time the girls have their first periods
- examine PHV
- study body composition and fat distribution
- examine the rate at which bone mineral develops – the team has added performing DEXA scans to look at bone mineral accumulation during puberty because higher bone mineral density levels are associated with breast cancer
- examine the physical and social environment of the girls and the impact these have on the onset of puberty
- look at what the girls do: what they eat, how they eat and the levels of physical activity
- continue to study urine and blood samples for endocrine disruptive chemicals and look at the relationship of the chemicals that are known as endocrine disrupters

Finally, the researchers are developing materials about lifestyle choices and health risks of exposures regarding breast cancer. They also continue to look at enhancing the protocols they use to report their research results back to the girls and their families.