Meeting Summary

NICHD Preconception Care Research: Improving Birth Outcomes and Reproductive Health Workshop

April 14-15, 2008

The Bolger Conference Center
Potomac, Maryland

The *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Institutes of Health sponsored the Preconception Care Research: Improving Birth Outcomes and Reproductive Health Workshop that was held on April 14-15, 2008 at the Bolger Conference Center in Potomac, Maryland. Co-sponsors included the Office of Rare Diseases, NIH; Centers for Disease Control and Prevention; Society for Maternal-Fetal Medicine; Office of Research on Women's Health, NIH; March of Dimes; Department of Health and Human Services, Office on Women's Health; National Human Genome Research Institute, NIH; and American College of Obstetricians and Gynecologists.

Preconception care is important to women's health across the reproductive life span and is a proven strategy to improve reproductive outcomes. The goal of preconception care is to promote healthy families and facilitate optimal prenatal, intrapartum, and postpartum maternal and fetal health. It is becoming increasingly clear that factors, such as nutrition, exercise, and drug use can influence the quality of male and female gametes perhaps many years prior to conception. Investigators now believe that peri- and post-conception insults to eggs, embryos and fetuses can lead to childhood, adolescent, and adult health disorders and diseases. Since many events before and around the time of fertilization may affect pregnancy outcomes, the focus is on women's health long before pregnancy begins. As a public health strategy, promoting preconception care can have a significant impact on preventable adverse outcomes and the lifetime costs for children and adults, and represents a direct link to improving women's long-term reproductive health and quality of life.

The overarching goals of this issue-oriented workshop were to bring together multidisciplinary elements of preconception research with an eye toward identifying pivotal questions and formulating future projects that cross disease boundaries. The underlying theme encompassed reproductive health and its influences before, after and surrounding conception. The meeting covered a broad range of biological determinants that directly and indirectly influence preconception. To address the full spectrum of research from basic science to behavioral and clinical applications, the workshop examined the diverse components of preconception and its impact on the reproductive system.

The workshop planning committee invited a broad spectrum of experts, including clinicians, basic, translational, and behavioral scientists to define a multidisciplinary

framework for developing a research agenda in preconception. Presenters focused on exploring those factors that compromise reproductive and long-term health outcomes. Associations with fertility, the uterine environment, implantation, fetal-maternal interactions, fetal and maternal health, and pathways that lead to future infant and adult onset diseases were considered. Speakers summarized key basic, translational, behavioral, and clinical findings; addressed emerging issues and continuing gaps in knowledge; and explored future opportunities for research. As a long-term strategy, meeting participants concluded that the workshop could facilitate a natural progression to a coordinated program in preconception care research, as well as stimulate future opportunities for collaboration.

Workshop sessions included the following:

Session I: At the Crossroads: Reproductive Health and Preconception
Session II: Oocyte, Sperm, and Embryo Quality
Session III: Genetics, Epigenetics, and Fetal Growth
Session IV: Environmental Exposures
Session V: Obesity, Exercise, and Nutritional Status
Session VI: Clinical Perspectives
Session VII: Demographic and Socioeconomic Determinants
Session VIII: Study Designs and Methodological Challenges
Session IX: Future Research Directions and Recommendations

The audience consisted of behavioral, clinical, and basic science researchers from diverse backgrounds and disciplines, as well as representation from relevant professional organizations.