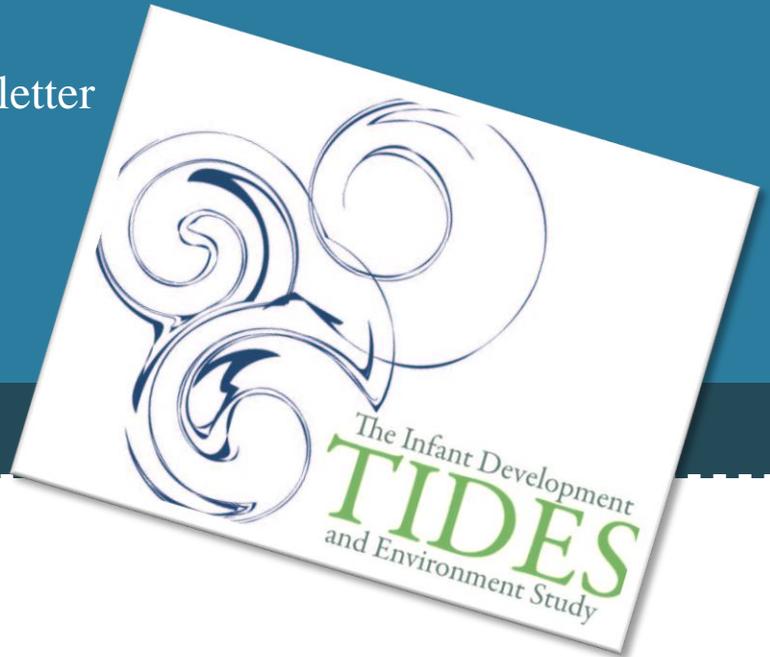


The Current Wave

TIDES Newsletter

Fall 2015



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The Infant Development and Environment Study (TIDES) enrolled participants between 2010 and 2012 in four locations across the US. We have centers in Rochester, NY; Minneapolis, MN; Seattle, WA; and San Francisco, CA. The purpose of our research is to explore the relationship between everyday chemicals and children's health and development. Since our last newsletter we have completed all one-year visits and questionnaires. The TIDES team has begun to analyze the data generated from your participation. Several academic papers have been published, and we have received funding to continue following our TIDES families. We want to thank you and all of the TIDES families for your important contribution to this research. Without your dedication to TIDES, none of this would be possible! Your continued participation will help us to better understand how chemicals in the environment affect children's health.

Thank you for your continued
participation in TIDES!





A Letter from Shanna Swan

Dear TIDES Participant,

I am writing to thank you for your participation in The Infant Development and the Environment Study (TIDES) and to update you on the progress of TIDES.

This newsletter will tell you about some of our results and publications, as well as news about our plans for future follow-up of TIDES children. You may remember that TIDES was designed to look at how pregnant

women's exposure to environmental chemicals is related to how their children developed during pregnancy and after. Over two years and in four US cities (San Francisco, CA; Minneapolis, MN; Rochester, NY; and Seattle, WA) 894 women enrolled and completed a questionnaire in the first trimester. 962 women gave a urine sample in the first trimester and 755 gave a urine sample in each trimester of pregnancy. At birth or shortly after, 758 children born to TIDES participants had a TIDES birth exam.

The first chemicals that we have measured in the prenatal urine samples are called phthalates. Phthalates are widely used plasticizers, substances added to plastics to make them more pliable, and are found in many household products and food. They also are added to cosmetics and personal care products to hold fragrance and increase absorption. The Centers for Disease Control has shown that close to 100% of the US population has measurable levels of phthalates. In the first published TIDES paper, we examined women's concerns about chemicals in their environment and how these concerns affected the product choices women made. Our second paper looked at whether women's eating patterns affected the levels of phthalates measured in their urine. You can read more about these studies in the newsletter.

We recently completed our one-year follow-up, for which you probably completed a questionnaire- thank you-and may have brought your child in for a physical exam. We are currently analyzing those data.

The first five years of our study has led to a number of important results. Our work suggests that prenatal exposure to common chemicals (phthalates) in our diet and homes may affect the reproductive tract development of boys but not that of girls. These results were affected by the amount of stress that the mom reported during pregnancy. We also found that a women's attitudes about phthalates and other environmental chemicals vary widely and can influence their consumer choices and the amount of these chemicals to which they are exposed. Because of the success of our study and the importance of these and other findings, The National Institutes of Health has funded the continuation of TIDES (which we call the next phase, TIDES II) which will allow us to continue to follow your TIDES children and see how early exposures shape development in the preschool years. I hope that you will continue to be a part of this important and innovative study.

Best,
Shanna Swan, Principal Investigator of TIDES

Phthalate measurements

The Centers for Disease Control has measured the concentration of byproducts (metabolites) of phthalates in the urine samples that TIDES mothers gave us when they were pregnant. These provide important information on pregnant women's exposure to these common chemicals, how levels vary with what women believe about the risk of chemicals and their behavior during pregnancy. We are also looking at links between these exposures and outcomes in the children.

Women who held that belief were more likely to choose organic foods and foods packaged in safe plastics, to use chemical-free personal care products, and to limit their intake of fast foods.

We concluded that women's attitudes about environmental chemicals may impact their choices during pregnancy.

(Barrett, E.S., et al., Environmental health attitudes and behaviors: findings from a large pregnancy cohort study. *Eur J Obstet Gynecol Reprod Biol*, 2014. 176: p. 119-25.)

TIDES PUBLISHED PAPERS

Environmental health attitudes and behaviors in TIDES women

In 2014 we published the first results from TIDES. This article describes the study and our TIDES population. It also examines whether sociodemographic variables predict environmental health attitudes and behaviors and whether women's attitudes about environmental chemicals affect their lifestyle behaviors, particularly diet and personal care product use.

Among the 894 women who completed the first TIDES questionnaire, the mean age was 31.3 years, 78% were white and not Hispanic, 73% had graduated college and 73% were employed. Overall 59% of women agreed that environmental chemicals are dangerous and 25% felt they were impossible to avoid.

Women who were more educated were significantly more likely to believe that environmental chemicals are dangerous.

Behavioral practices and phthalate body burden in TIDES women

In 2014 we also published a study about how women's behavior during pregnancy affected the concentration of phthalates (common plasticizers) in their urine. This analysis included 656 TIDES women who had phthalates measured in their first trimester urine sample. Several practices were associated with lower levels of one or more phthalate; use of eco-friendly, chemical-free and environmentally friendly personal care and household products, consumption of homegrown foods and limiting frozen fruits and vegetables. Further study is needed to examine whether changes in behavioral practices are feasible in the general population for reducing phthalate exposure.

(Serrano SE, Karr CJ, Seixas NX, Nguyen RHS, Barrett ES, Janssen S, Redmon JB, Swan SH, Sathyanarayana S. Dietary Phthalate Exposure in Pregnant Women and the Impact of Consumer Practices, *International Journal of Environmental Research and Public Health* ISSN 1660-4601.)

TIDES PAPERS TO BE PUBLISHED

Genital measurements in TIDES

We recently submitted a paper on the genital measurements we made on TIDES babies. This paper reports on the methods we used to obtain these novel measurements accurately. We will give the range, mean and variability of the measurements in girls and boys and discuss what factors (like baby's age and size at exam) predict them.

Genital measurements and prenatal phthalate exposure

We are also publishing a paper that examines how genital measurements at birth are related to the mother's phthalate exposure in early pregnancy. We are discussing how these associations differ with the sex of the baby and the time the urine sample was collected.

Stay tuned- More results to come!

Future TIDES Activities

We have recently received funding to continue to follow TIDES families in the coming years. We hope to meet with you when your child is between 3 and 5 years old. If your family has agreed to allow us to contact you, we may ask you to come in for a visit. At the visit, you may be asked to answer some questions and bring your child for a physical exam. At the physical exam, we will measure things like your child's height and weight. We are also interested in your child's brain development, so she or he may be asked to complete some simple tasks and answer some questions. We look forward to seeing you and your family again soon!

