



research UPDATE: October 2007

STRENGTHENING THE CASE AGAINST PREGNANCY AND SMOKING



Bettye Flowers, RN, Research Nursing Supervisor for the Arkansas Center for Birth Defects Research and Prevention, collects a hair sample from a non-smoking mother of a child with a heart defect participating in Dr. Malik's study.

Each year in the United States, an estimated 36,000 infants are born with a heart defect. During the first year of life, approximately one in four of these infants require invasive medical and/or surgical treatment, and one in eight will die. Maternal smoking is known to increase the risk of prematurity, low birth weight, and cleft palate. At ACHRI, a pediatric cardiologist and public health specialist, Dr. Sadia Malik, MD, MPH, is investigating the association between congenital heart defects and maternal smoking and/or exposure to passive smoking.

Under a two-year grant (R03) from the National Institute of Child Health and Human Development (NICHD), Dr. Malik is examining nicotine levels in the hair of 50 mothers with infants with congenital heart defects and 50 mothers of infants with no birth defects. "The heart forms in the first trimester," she says, "and mothers may be smoking or exposed to cigarette smoke before they know they're pregnant."

For most human studies it is neither efficient nor possible to measure exposure to nicotine during the early periods of pregnancy before the outcome of the pregnancy is known. Limited research resources do not allow for the enrollment of thousands of women prior to conception and for the necessary follow-up required to identify those that will have an adverse pregnancy outcome. Therefore, novel approaches are needed to measure exposures during early stages of pregnancy and embryogenesis that may

be associated with adverse reproductive outcomes such as heart defects. To measure exposure to nicotine during the period corresponding to the first trimester of pregnancy, participants in Dr. Malik's R03 study are providing 10 centimeters of hair after their infants are born. In collaboration with researchers in California and New Zealand, hair samples are analyzed in such a way as to determine the exact timing of exposure to nicotine. The hair shaft provides a "journal" of nicotine exposure during pregnancy. If hair nicotine levels corresponding to key periods of heart development are higher in mothers of infants with congenital heart disease, this will provide evidence that tobacco exposure may be causally related to congenital heart disease.

The majority of congenital heart defects require only a visit to the pediatric cardiologist for diagnostic tests, such as an echocardiogram, and medication. However, some heart defects will require multiple surgeries and may result in lifelong limitations in daily activities or even in death. Heart defects range from simple problems, such as "holes" between the chambers of the heart, to severe malformations, such as a very small heart chambers or valves. "I want to help find a cure for the cause of this so other families don't have to go through what we're going through," says Amanda, a non-smoking mother of a child with a heart defect participating in Dr. Malik's study. Getting her hair clipped for the study, Amanda adds, "I want to get the word out about what causes these problems."

It is important to make physicians and patients aware of all the detrimental effects of maternal smoking on the developing fetus so women can make informed lifestyle decisions prior to becoming pregnant. Twenty-eight percent of Arkansas women smoke and 20% continue to smoke during pregnancy; nationally, 25% of women smoke and 12% continue while pregnant. The results of Dr. Malik's study may provide evidence that will compel some women to stop smoking during their reproductive years.

Dr. Malik's NICHD R03 complements her other research funded by the Arkansas Biosciences Institute, the major research component of the Tobacco Settlement Proceeds Act of 2000. She also receives funding from the American Heart Association's Heartland Affiliate Beginning Grant-in-Aid Program, which promotes the independent status of promising new scientists in research related to cardiovascular function and disease. Since joining the UAMS faculty in 2002, Dr. Malik has received support from the Arkansas Center for Birth Defects Research and Prevention, one of nine cooperative research centers funded by the Centers for Disease Control and Prevention to increase the understanding of the causes and potential preventions of birth defects.



CONGRATULATIONS

Ron Scott, Research Custodian, was honored as ACHRI's Environmental Services Employee of the Year during ACHRI's observance of Environmental Services Week. Blake Harrison, Director of Animal Operations, and Sarah Jones, Environmental Services Supervisor, presented a plaque to Ron at a luncheon on October 3 for the Environmental Services personnel. "He has perfect attendance and an outstanding work ethic," says Sarah about Ron's recognition. Of his initiative, Sarah adds, "He also does work that he doesn't have to be asked to do...no questions asked." Blake also recognized Ron's award at the recent Investigators Meeting speaking to Ron's many attributes that make him a respected and valued employee. Ron has worked at ACH for 16 years with the last 10 years located at ACHRI. Congratulations, Ron! We're proud to be on the same team as you!

Sarah Jones presents a plaque to Ron Scott to recognize him as ACHRI's Environmental Services Employee of the Year during ACHRI's observance of Environmental Services Week.

PRESIDENT'S CHOICE

Stop by the bulletin board outside the research administration offices to see the poster featuring this month's President's Choice publications. The following articles were selected as this month's feature publications

- Shirm S, Liggin R, Dick R, Graham J. Prehospital preparedness for pediatric mass-casualty events. *Pediatrics*. 2007 Oct;120(4):e756-61.
- Tilford JM, Aitken ME, Goodman AC, Fiser DH, Killingsworth JB, Green JW, Adelson PD. Child health-related quality of life following neurocritical care for traumatic brain injury: an analysis of preference-weighted outcomes. *Neurocrit Care*. 2007 Aug;7(1):64-75.

ACHRI would like to know about your published findings, as your articles are published, please email or mail a copy to [Phaedra Yount](#) (mail slot 842). The number of publications by our researchers is reported to hospital and ACHRI boards, so it is important that we receive an accurate count of the publications your research produces.

NEW INDUSTRY-SPONSORED PROJECTS

PI	Agency	Project Period	Total Cost
Steve Schexnayder	AstraZeneca	8/07 - 5/08	\$33,875
Kimo Stine	BMS	9/07 - 9/14	\$24,375
M. Ilyas	Merck	9/08 - 9/08	\$42,742

RECENT GRANT AWARDS AND SUBMISSIONS**Awarded**

PI	Agency	Project Title	Project Period	Total Funding (All Years)
Mary Aitken	Allstate Foundation	Building Consensus for Graduate Drivers License for Teen Drivers	8/1/07-7/30/08	\$49,997
John Carroll	NHLBI/Yale Sub	Mechanism of Perinatal-hyperoxic Suppression of Chemoreceptor Function	7/5/07-6/30/12	\$862,500
Rosie Simmens	NIH Supplement	Research Supplement to Promote Diversity in Health-Related Research	2/1/07-1/31/08	\$25,626

Awarded ACHRI/ABI

PI	Agency	Project Title	Project Period	Total Funding (All Years)
Mohy Morris	ACHRI/ABI	Dynamic and Static Lung: Volumes at raised lung volume in Healthy and Wheezy Infants	10/1/07-9/30/09	\$50,000
Reza Hakkak	ACHRI/ABI	Effects of dehydroepiandrosterone (DHEA) as an anti-obesity dietary supplement on breast cancer development in pre and postmenopausal women using the obese Zucker rat model	7/1/08-12/1/09	\$50,000
Rosie Simmen	ACHRI/ABI	Kruppel-Like Factor 9 and Development of Uterine Endocarcinoma	7/1/08-6/30/10	\$50,000
John Fowlkes	ACHRI/ABI	Focus Group Initiatives in Diabetes and Endocrinology	7/1/07-6/30/08	\$125,000
Judy Weber	ACHRI/ABI	Arkansas Childhood Obesity Research and Policy Program	10/1/07-9/30/08	\$125,000
Kathleen Gilbert	ACHRI/ABI	Developing an Immunotoxicology Center in AR	7/1/08-6/30/09	\$125,000
Laura James	ACHRI/ABI	Mechanism-Based Methods for Determination of Acetaminophen Toxicity	7/1/08-6/30/09	\$109,730
Shanmugam Nagarajan	ACHRI/ABI	Request for acquiring an X-ray irradiator to increase the capacity of the Animal Core Facility at Arkansas Children's Hospital Research Institute	10/1/07-9/30/08	\$110,925
Nicolaas Deutz	ACHRI/ABI	Amino acid intake to counteract muscle wasting in children with chronic and acute disease	7/1/08-6/30/10	\$124,984

Submitted

PI	Agency	Project Title	Project Period	Total Funding (All Years)
William Dougherty	Department of Defense /Harvard Sub	Cell Seeded Scaffolds to Regenerate Tissues for Combat Injuries	7/1/08-6/30/13	\$801,000
Jill James	Department of Defense	Redox Abnormalities as a Vulnerability Phenotype for Autism and Related Alterations in CNS Development	6/30/08-6/30/11	\$536,250
Laura James	NICHD	Identification of new Mechanistic Biomarkers of Adverse Responses to Acetaminophen in Children and Adolescents	7/1/08-6/30/13	\$2,061,683
Martin Ronis	NIH/NIAAA	Alcohol: Direct and Indirect Effects on Bone Formation Post-Lactation	4/1/08-3/31/13	\$1,787,500

UPCOMING EDUCATION OPPORTUNITIES

For a complete listing of research education opportunities at ACHRI, please visit our [Research Education Calendar of Events](#) on the ACHRI Web page.

October 25-26, 2007, in Nashville, Tennessee: "Clinical Site Coordinator/Manager Workshop for Site Coordinators, Research Associates, Study Nurses and Site Managers." This conference is presented by the Society of Clinical Research Associates (SoCRA), with meetings to be held at the Radisson Hotel, Opryland, 2401 Music Valley Road, Nashville, TN, (615) 889-0800. The topics will include: elements of informed consent; the reporting requirements involving IRBs; how to submit a protocol to an IRB; the ICH definitions of adverse events (AE) and serious adverse events (SAE); the rationale and issues surrounding the monitoring visit and the audit process from a site, a sponsor and a regulatory perspective; and related areas. Contact Conference Registrar, SoCRA, 530 West Butler Avenue, Chalfont, PA 18914 at (800) 762-7292 or send an email to: Office@SoCRA.org or visit their website at www.SoCRA.org.

FUNDING OPPORTUNITIES

The National Association of Children's Hospitals (NACH) prepares and distributes upcoming funding opportunities every two weeks. Funding opportunities recently distributed by the NACH are available on the ACHRI web site (http://achri.archildrens.org/resources/funding_opp.htm). This file will be updated twice monthly. Bookmark the page! The listing of funding opportunities is located on the intranet; you must have access to ACH webapps to open the file.

GRANT PREPARATION TIP: E-MAIL NOTIFICATIONS FROM GRANTS.GOV

When you download the electronic application package and instructions from Grants.gov, are you also signing up for e-mail notifications from Grants.gov about any changes to the opportunity? If you've downloaded the Parent R01 application package and registered for these emails, you should have received an email from support@grants.gov this week.

This e-mail to R01 applicants directs them to download the application package again. If you're an R01 applicant submitting a revised application next month, don't scream. In the case of this e-mail, NIH in an [official notice](#) directs you to disregard the message. This is not always the case; there are occasions when you may have to download the application package again.

When you do receive a Grants.gov e-mail, review the announcement (in this case [PA-07-070](#)); and look for the subheading "Update" under "Announcement Type". Review any updates to see how they may affect the status of any downloaded application package. Grants.gov only sends the e-mails, direct your questions about the revised application to NIH. Contact the Office of Extramural Research (grantsinfo@od.nih.gov or 301-435-0714) for clarification and questions regarding your electronic submission.

So, how will you know if the electronic application package for an opportunity you're responding to changes? Sign up for the email notifications at the Download Opportunity Instructions and Applications screen for the opportunity at Grants.gov. (Any other person helping you assemble the application can register for these emails as well.) On this screen you have the opportunity to provide an e-mail address if you would like notification of any changes to this particular opportunity. Applicants to NIH and other PHS agencies are strongly encouraged to complete this information so the agency can use it to provide additional information to prospective applicants. To sign up for the Parent R01 e-mails, [click here](#).

If you're considering an opportunity and didn't register for e-mails, how will you know if a new electronic application package is now required? Consult the announcement for any updates or notices. The Grants.gov page for the opportunity does not acknowledge any revised packages. You can direct any questions regarding the status of an electronic application package to the Office.