

Arkansas Children's Hospital Research Institute

# RESEARCH UPDATE



## Improving the Diagnosis and Management of Pediatric Hypertension



**In the PCRU, Dr. Karen Redwine takes the blood pressure of children participating in a clinical trial.**

High blood pressure is not just a concern for adults. Pediatric hypertension is found in 3% to 5% of children. While some of these children have other medical conditions which cause their high blood pressure, a growing number do not. Though its primary cause is unknown, it is likely related to obesity, genetics, and other risk factors. Approximately 10% of obese children have hypertension and another 25% have pre-hypertension. Children diagnosed with high blood pressure can already have changes in their heart structure and function as well as changes in their blood vessel elasticity. With uncontrolled blood pressure, these children are at significant risk for early heart disease, stroke, and kidney failure as is seen in adults with high blood pressure. Uncontrolled hypertension in adults is the number one attributable risk factor for death according to the World Health Organization.

ACHRI researcher Dr. Karen Redwine is working to generate evidence-based guidelines for the diagnosis and treatment of pediatric hypertension. Dr. Redwine of the Pediatric Nephrology Section of the UAMS

Department of Pediatrics has recently been awarded two

research grants through the UAMS Translational Research Institute (TRI), a NIH-funded center for clinical and translational science. ACHRI participates in the TRI in many ways including providing support for research awards through funds from the Arkansas Biosciences Institute, created as the major research component of the Tobacco Settlement Proceeds Act of 2000. Dr. Redwine's TRI awards are based on the strength of her research findings and activities from clinical trials and ABI awards at ACHRI.

Dr. Redwine is in the final year of a pilot study award designed to measure the presence of pre-hypertension, hypertension, and its associated factors among sixth graders in the Little Rock School District. Enrollment closes in December on the study, and Dr. Redwine anticipates close to 1,000 students will complete the study. Dr. Redwine and her team will measure blood pressure, height, and weight of each participating student. In addition, each student will complete a questionnaire on cardiovascular risk factors such as physical activity levels and smoking. Parents will also participate through a survey in which they provide information concerning family medical history, medications, and tobacco use. Finally, with parental consent, the research team plans to link the student's current findings to state-wide public school BMI data collected since 2003. If a student's initial blood pressure readings are elevated, blood pressure will be retaken at several follow-up visits to confirm that the

student truly has high blood pressure. When a student completes the study, a report will be mailed to the student's home providing information about that student's blood pressure standing.

In a second study, funded through the KL2 Scholars program of the TRI, Dr. Redwine is investigating the management of children with hypertension. She explains that approximately 30% of children with hypertension may be misdiagnosed if only traditional clinic blood pressure measurements are used to evaluate these children. Most of these children have white coat hypertension—a condition where blood pressure is high in the doctor's office but normal elsewhere. Ambulatory Blood Pressure Monitoring (ABPM) is a small portable device that can be comfortably worn by children and adults. It is now widely used in adult hypertension studies. ABPM may sometimes be used when children are first diagnosed with hypertension to help identify those with white coat hypertension. ABPM includes a blood pressure cuff connected to a light-weight monitor that can be worn on a belt for 24 hours. The monitor measures blood pressure and heart rate every 20 minutes during this time. This data is then downloaded by computer and used to determine a child's average blood pressure over a 24-hour period. Adjustments in blood pressure medications for children with hypertension, however, are still typically made based only on clinic measurements. These children are also likely at risk for having discrepancies between clinic and ABPM readings, and thus are at risk for being either under or over-treated based on these differences. As part of this study, Dr. Redwine plans to perform ABPM on children being seen in the hypertension clinic at ACH who are currently taking blood pressure medications. She will compare differences in average blood pressure determined by the ABPM to the blood pressures measured in clinic. She will also compare differences in treatment decisions made by the treating physician at the time of the clinic visit and then with the addition of the data captured by the ABPM. Ultimately, this study will determine whether ABPM is helpful for improving blood pressure control in children on anti-hypertensive medications. As a mentored career award, the KL2 scholars program also provides Dr. Redwine with funds to support further educational efforts and directed career mentoring, both of which will enhance her future research. Dr. Laura James and Dr. Thomas Wells serve as Dr. Redwine's mentors for this award.

Dr. Redwine notes that current guidelines for the diagnosis and management of pediatric hypertension are based largely on expert opinion and epidemiologic normal values as opposed to longitudinal studies which have been performed in adults. Her current research is the beginning of her path to better define these pediatric cardiovascular concerns. She has already applied for a NIH Mentored Patient-Oriented Research Career Development Award to enhance her training and research. Through Dr. Redwine's continued efforts, the diagnosis and management of hypertension in pediatric patients will be improved.

### **President's Choice Publications of the Month**

Stop by the bulletin board located in the first-floor lobby of the ACHRI building to see this month's President's Choice publications. The following articles were selected as this month's feature publications.

- Kim I, Yang D, Tang X, Carroll JL. Reference gene validation for qPCR in rat carotid body during postnatal development. *BMC Res Notes*. 2011 Oct 24;4(1):440. [Epub ahead of print]
- Rank RG, Whittimore J, Bowlin AK, Wyrick PB. In vivo ultrastructural analysis of the intimate relationship between polymorphonuclear leukocytes and the chlamydial developmental cycle. *Infect Immun*. 2011 Aug;79(8):3291-301. Epub 2011 May 16.

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 the hospital and ACHRI boards, so it is important that we receive an accurate count of the publications your research produces.

### Changes for eRequest Expense Codes

- New Expense Code for Participant Incentives (375)

Effective at this time, incentives paid to research study participants will be charged to expense code 375 Study Participant Stipends. Previously, this type of expense was charged to 989 Other Expense. This includes purchases of gift cards that will be distributed to study participants.

Having a separate expense code will allow for budgeting in eRequest for this particular expense and for assisting in easy identification of expenses incurred to-date. This is effective from this point forward. Prior patient incentive expenses will NOT be reclassified.

- Other Supplies (599)

For all supply orders (Office and Lab), please charge to expense code OTHER SUPPLIES (599). In the past Other Expenses (989) has been used.

These changes may require budget revisions. Please review the eRequest budget for your project account and reallocate funds as needed. If you need assistance in re-budgeting, please contact Leslie Montgomery (364-6546) or Inna Hemphill (364-6554).

### NIH Funded Investigators

All publications that result from work funded by NIH are to be deposited to PubMed Central as specified in NIH's Public Access Policy within three months of ACCEPTANCE. Please contact [Phaedra Yount](#) AS SOON AS YOUR ARTICLE IS ACCEPTED by the journal. Phaedra will identify the party (the publisher or the author/PI) responsible for uploading the article to PubMed Central. If the publisher is responsible, she will follow up with the publisher to make sure that the article is deposited in a timely manner. If the author/PI is responsible, she can deposit the article on behalf of the author/PI or assist in the process.

### Upcoming Intramural Grant Program Workshops

ACHRI intramural grant programs provide an opportunity for beginning and established investigators to obtain funding for their research projects and programs. To help investigators of all experience levels, ACHRI will provide workshops on two of its competitive research grant programs soon.

CUMG: Tuesday, December 6, 10:00 am to 11:30 am, Brandon Auditorium

Student/Clinical Staff: Tuesday, January 10, 10:00 am to 11:30 am, Brandon Auditorium

The next application deadlines for these programs are in the spring, but starting on your application early can ensure it is complete and competitive. The upcoming application deadlines are 3/1 for CUMG and 3/15 for Student/Clinical Staff. More information on these programs is available at the ACHRI Web site: [http://achri.archchildrens.org/resources/intramural\\_grant\\_programs.htm](http://achri.archchildrens.org/resources/intramural_grant_programs.htm).

### NIH Seeking Candidates for Director, Center for Scientific Review

NIH has posted a vacancy announcement for the position of Director, Center for Scientific Review. The primary goal of CSR is to see that NIH applications receive fair, independent, expert and timely reviews, free from inappropriate influences, so that NIH can fund the most promising research. See the announcement at our SharePoint site for details.

### Discussion: Managing NIH Funds in Fiscally Challenging Times

Dr. Sally Rockey, NIH's Deputy Director for Extramural Research, recently began a discussion on her blog (<http://nexus.od.nih.gov/all/rock-talk/>) at the OER website on ways to manage NIH resources. The discussion also continues on a new blog entry that also provides additional data and charts.

### Marion B. Lyon New Scientist Development Award

The deadline for the Marion B. Lyon New Scientist Development Award is Wednesday, February 1, 2011.

This program supports highly promising researchers in their efforts to become independent investigators.

Eligibility: MD, PhD, or equivalent doctoral degree earned at application time. Applicants should be full-time faculty/staff member based on the Arkansas Children's Hospital campus and initiating independent research careers, usually at the rank of Instructor or Assistant Professor (or their equivalents). At the time the Scientist Development Award is activated an applicant must not hold or have held any of the following awards: NIH R01, NIH Physician Scientist Award, NIH Independent Scientist Award, NIH Mentored Clinical Scientist Development Award, or NIH FIRST award. The applicant must demonstrate that the institution supports their efforts to become an independent scientist.

Award Amount: \$50,000 for the entire two year period to cover investigator salary, fringe benefits and other project support.

If you are interested in applying please contact Amy Stalls [stallsamyr@uams.edu](mailto:stallsamyr@uams.edu).

### New Industry-Sponsored Projects

PI	Sponsor	Project Period	Total Funding
Ronald Sanders	Pfizer	10/1/11 - 9/30/12	\$109,892
Greg Sharp	Pfizer	10/24/11 - 10/31/12	\$50,742
Kathryn Thrailkill	Sankyo Pharma	10/18/11 - 10/31/12	\$113,800

### Recent Grant Submissions

PI	Agency	Project Title	Project Period	Total Funding
Richard Frye	Autism Speaks/Massachusetts General	Folinic Acid Treatment in ASD: Links to Folate Receptor-x Autoimmunity and Redox Metabolism	4/1/2012-3/31/2013	\$311,615
Reza	NIH	Soy, Isoflavones, Obesity and Breast	8/1/2012-	\$1,850,000

Hakkak		Cancer Risk	7/31/2017	
Tamara Perry	NIH/Unv. of Rochester	School-Based Telemedicine Enhanced Asthma Management (SB-TEAM)	7/1/2012-6/30/2017	\$75,982
Roger Rank	Hartwell Foundation/Duke Univ.	Designed Antimicrobials that Simultaneously Kill Chlamydia and Facilitate the Development of Immunity	4/1/2013-3/31/2015	\$42,007
Karen Redwine	NIH	Blood Pressure Variability and Cardiovascular Risk in Adolescents	7/1/2012-6/30/2017	\$723,119
Martin Ronis	NIH	Prevention of EtOH-induced Promotion of Hepatocarcinogenesis by Genistein/Soy	6/1/2012-5/31/2014	\$407,000
Martin Ronis	NIH	The Role of Retinoids/Wnt in EtOH-induced Promotion of Hepatocarcinogenesis	6/1/2012-5/31/2014	\$407,000

### Grant Writing Tip: Pre-Submission Grant Reviews Are Key to Grant Success

Successful grant writers include others in their writing process. Others you can include in developing and revising your application generally fall into two categories: subject-matter experts and persons like the intended audience. You may find people willing to assist with revision among your colleagues and collaborators at ACHRI, UAMS, and at other institutions. Also, ACHRI provides science writing and editing support for its investigators submitting applications through its offices. If available to you, examine the list of reviewers to get a sense of the makeup of the review committee. You may also avoid a conflict of interest by not sharing your application with a colleague who happens to be on the committee. Occasionally, you may find a list of past reviewers or know colleagues that serve as NIH reviewers. Contact them to see if they can assist you by reviewing your application. Contact these persons well ahead of your submission date to ensure they are available to help you and to provide ample time for a thorough and thoughtful review.

### Attention Grant Seekers!

Each week we will post NIH's Weekly Funding Opportunities and Notices and NACHRI's Funding Finds and Grants Alerts. You can receive immediate notification of additions of postings by using "Alert Me" under Actions at the new [Weekly Funding Opportunities](#) page at ACHRI's Sharepoint site.

### Registering Your Clinical Trial with Clinicaltrials.gov

The link below is a great resource regarding your recent questions about Clinicaltrials.gov. This site will help you determine when and at what institution a research project should be registered.

[http://grants.nih.gov/clinicaltrials\\_fdaaa/](http://grants.nih.gov/clinicaltrials_fdaaa/)

If you will click on the link "Steps to Compliance for NIH Grantees" you will find 2 flow charts that will help you identify an applicable Clinical Trial and Identify the Responsible Party for which the clinical trial should be registered.

It is always important to remember, before the study is started, to know the plans for publications so the registration requirements can be determined. Keep in mind that while retrospective chart reviews and lab studies do not meet the general requirements for registration, the publisher can refuse to publish if it is not registered.

For more information, contact Janet Storment, RN, CCRC, ACHRI Clinical Trials Administrator at 364-2760.

**New UAMS Policies Concerning Clinical Trials**

UAMS has released three new policies that may affect your research. The documents are available at <http://compoint/ACHRI/Lists/Announcements/DispForm.aspx?ID=123>.