



# Thurston Today

THE NEWSLETTER *for the* THURSTON ARTHRITIS RESEARCH CENTER *and the*

Spring 2011

*DIVISION of* RHEUMATOLOGY, ALLERGY *and* IMMUNOLOGY *at the* UNC SCHOOL *of* MEDICINE

## Working with our Youngest Rheumatology Patients

A common misconception about arthritis is that it is only an old person's disease. In fact, it can affect children of almost any age. No one knows that better than Dr. Leonard Stein, a pediatric rheumatologist in the Department of Pediatrics at UNC Children's Hospital, Children's Specialty Clinic. It is estimated that nearly 300,000 children in the US have rheumatologic disorders, including the most common one, juvenile rheumatoid arthritis. Childhood arthritis is the #1 cause of acquired disability in children and is the sixth most common childhood disease, following asthma, congenital heart disease, cerebral palsy, diabetes and epilepsy.

Pediatric rheumatologists see children with a range of rheumatic disorders. Traditionally, pediatric rheumatologists mainly cared for childhood chronic arthritis. The discipline has expanded to include a number of disorders. These disorders include juvenile idiopathic arthritis (JIA), previously called juvenile rheumatoid arthritis, childhood lupus, vasculitic disorders, dermatomyositis, post-infectious reactive disorder and auto-inflammatory disorders.

As with adults, it is important that children with arthritis be diagnosed early in order to have the most effective outcomes, but with children, that can sometimes be difficult. First, a parent has to notice that something is wrong. Then, a physician, usually a pediatrician or family practice physician, has to determine that there is arthritis or a potential rheumatic condition and refer the child to a pediatric rheumatologist.

A trained and skilled pediatric rheumatologist can perform a specialized history and physical exam to evaluate the child for arthritis. How easy is this to do? "Well, the answer is that older kids are easier," says Dr. Stein, "and the really young children are more challenging because they have smaller joints and understandably can be less cooperative. With young children, the physical exam may also include engaging the child in playing with puppets or looking for Mickey Mouse partially hidden



*Dr. Stein with 6th grader, Carter Owings-Hurgronje*

on my name tag." A pediatric rheumatologist often has to work around the child's fear and apprehension. "We often employ parents as our assistants in examining their child, sometimes using their laps as our exam table or instructing them on how to move joints with the rheumatologist at a distance," notes Dr. Stein.

"Kids who get chronic arthritis have a number of different manifestations that are uniquely different from adult arthritis," continues Dr. Stein, "they may have different patterns of joints involved and different auto-antibody patterns." Children are growing individuals and arthritis can affect their growth. For example, chronic knee arthritis can cause the involved leg to grow longer than an uninvolved leg. Children with chronic systemic disease may not reach their full potential height. Children with JIA can have eye inflammation that can lead to blindness before there are outward signs of eye redness or inflammation. With early diagnosis, pediatric rheumatologists can recognize the unique needs of the pediatric patient and work with other pediatric specialists to provide the best possible care for their young patients.

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## Dear Friends,

Rheumatic diseases are often associated with older people, our grandparents, maybe even our parents, but not usually our children. Yet, The Centers for Disease Control and Prevention estimates that 1 in 250 children under the age of 18 in the US has been diagnosed with arthritis or another rheumatic condition, such as systemic lupus erythematosus or juvenile dermatomyositis. Pediatric rheumatologists are pediatrician sub-specialists who diagnose and care for children with arthritis and rheumatic conditions.

In this issue of *Thurston Today*, we feature Dr. Leonard Stein, our pediatric rheumatologist in the Department of Pediatrics at UNC Children's Hospital, Specialty Clinic. For the last 25 years, Dr. Stein has not only been a dedicated physician but a true friend and supporter of his patients as shown in the story "A Physician and a Friend." Dr. Stein has also made critical contributions to advance the discovery and use of cutting-edge treatments for children with arthritis and rheumatic conditions.

Taking place this month here at UNC in Chapel Hill is the Fifteenth International Vasculitis & ANCA Workshop. This is a premier meeting of the best minds in the world working together on vasculitis basic science, therapy and clinical care. We at Thurston are proud to be hosting this meeting, along with the UNC Kidney Center and the UNC Department of Pathology. We will bring you news about this workshop in our next issue of *Thurston Today*.

We share with you in this issue information from our Thurston researchers who have recently participated in annual conferences and events, such as the annual American Academy of Allergy, Asthma and Immunology (AAAAI) conference and the Aging Exchange. We have also added a section to inform you about research papers published with research grants and your support.

As always, we at Thurston wish you all the best, and we hope you find our newsletter both informative and enjoyable. We welcome your comments and suggestions, directed to [randy\\_mounce@med.unc.edu](mailto:randy_mounce@med.unc.edu).

Joanne M. Jordan, MD, MPH  
Director, Thurston Arthritis Research Center

## RECENT AWARDS

**Lisa Rothlein**, a second year medical student and research technician in Dr. Teresa Tarrant's laboratory was recently selected for the Chrysalis Project. The Chrysalis Project introduces medical students to training and careers in allergy/immunology. The selected students attend workshops, scientific sessions and social events. They also gain perspective about the field from new and continuing allergist/immunologists.

**Lauren Abbate, PhD, MD**, a former student at the Thurston Arthritis Research Center, who worked on the Johnston County Osteoarthritis Project, has been awarded second place in the Salber-Phillips Award. The award recognizes medical students who carry out the ideals of Dr. Eva J. Salber and Dr. Harry Phillips through community-oriented projects that improve the health or well-being of elderly people.

## Questions and Answers with Dr. Leonard Stein



**Are you currently involved in any clinical trials or studies for juvenile idiopathic arthritis?** We recently completed a ten year, collaborative, multi-institutional study of children with JRA using the medicine etanercept (Enbrel). We

are in the process of becoming part of a multicenter national database study where patients with pediatric rheumatic disease including arthritis, lupus and some other rheumatologic conditions can choose to enroll. These patients can later participate in clinical trials and other types of evaluations. This study is sponsored by the Childhood Arthritis & Rheumatology Research Alliance (CARRA).

**Have you participated in any other studies?** We helped organize and perform a study involving more than 800 practicing pediatricians and family physicians around the country to see how they refer and manage their patients with JRA. For effective treatment, one of the key things is to be able to recognize these disorders early. First, a parent has to recognize that there is a problem, and then

the child has to be assessed by a local doctor. Physicians who determine or suspect joint problems and arthritis can refer the patient to a rheumatologist or take care of the child themselves; most refer the patient. One study we conducted revealed that 88% of family physicians and 82% of pediatricians felt that they were not adequately trained to diagnose and manage patients with JIA.

**UNC is a teaching hospital, so are you doing anything now to provide that needed training?** Yes, we put a lot of emphasis on the training of our pediatric and medicine residents. Most of our residents now select a rheumatology elective because they realize the importance of improving their musculoskeletal (MSK) diagnostic skills and knowledge. As part of the comprehensive one-on-one training, we teach them a systematic approach to the MSK exam. They examine joints side-by-side with a rheumatologist. We believe that this is one of the best ways to develop their diagnostic skills. Our goal is for our trainees to feel as confident examining joints as they are examining children's ears and throats. When residents have finished our elective, our survey indicates that 85% feel comfortable diagnosing and prescribing up-to-date treatments for JIA. Of course, our goal is to make that 100%.

## A Physician and a Friend



*By Jessica Kittelberger*

Eight years ago, at the age of seven, I was diagnosed with juvenile rheumatoid arthritis. After a few different hospital visits, my family and I settled on UNC Children's Hospital as the institution that would support me with my health issues.

There, I first met my rheumatologist-to-be, Dr. Leonard Stein. Throughout my years of battling this autoimmune disease, Dr. Stein has been a very caring, concerned physician who has supported me through my difficulties. I have had numerous procedures and tests, including MRIs, blood work, joint injections, and X-rays, and I am currently on weekly injections of Enbrel. Through it all, Dr. Stein has been more than a physician; he has been a friend.

I like to stay involved, keep active at my school, Ravenscroft School, where I am a ninth grader. I am a percussionist in the band, playing the snare drums, tim-

pani, and mallets. At this year's Central District Bandmasters Association All-District Band event, I placed first in my age group for timpani.

In 2009, my arthritis went into remission, and I was able to begin playing golf competitively on the North Carolina junior circuit. The remission was short lived, and in May of 2010, I suffered one of the worst flares of the disease since my diagnosis. With a lot of help from my physician and family, I am currently clinically free of arthritis and on the road to reducing my Enbrel injections.

In 2010, I felt that it was important to give back to this institution that has supported me over the years. I created and organized a golf fundraiser for NC Children's Promise and NC Children's Hospital. We were happy to be able to present a check for almost \$8,000 to UNC Pediatrics. This year, I am holding my second annual fundraiser/golf tournament on May 2nd at UNC Finley Golf Course. My goal is to raise \$10,000. And, just like last year, Dr. Stein will not only be supporting me as one of his patients, but also at my golf tournament as my friend.

If you would like to make a donation to Jessica's event, go to <http://golfforpromise.kintera.org>.

# NEW FACES AT THE Thurston Arthritis Research Center

## Newest members of the Dr. Leigh F. Callahan research team

Left to right: **Becki Cleveland, PhD**, statistician and epidemiologist. **Kirsten Nyrop, PhD**, research associate. **Xia Li, MPH**, research assistant and doctoral student in Epidemiology.



Left to right: **Deb MacDonald**, social research assistant. **Chivon Mingo, PhD**, postdoctoral fellow. **My-Linh Luong**, First year doctoral student, Health Behavior and Health Education.



## Dr. Maureen Su is building an active research program in autoimmunity

Left to right (standing) **Neil Nagavalli**, research assistant. **Philip Cheng**, research technician. **Fatima W. Larry, PhD**, postdoctoral fellow. **Maureen Su, MD**, principal investigator. **Menglei Zhu, PhD**, postdoctoral fellow.

## Recent Publications

■ Decreased live births in women with systemic lupus erythematosus. Evelyne Vinet, Ann E. Clarke, Caroline Gordon, Murray B. Urowitz, John G. Hanly, Christian A. Pineau, David Isenberg, Anisur Rahman, Daniel Wallace, Graciela S. Alarcon, Ian Bruce, Michelle Petri, **Mary Ann Dooley**, Kenneth Kalunian, Peter Maddison, Cynthia Aranow, Ronald van Vollenhoven and Sasha Bernatsky, *Arthritis Care & Research* 2011 Mar 18.

The study found that women with SLE have fewer live births compared with the general population. Marital status, race/ethnicity, and possibly clinical factors may mediate this effect.

■ Developing and testing the health literacy universal precautions toolkit. Darren A. DeWalt, Kimberly A. Brouckson, Victoria Hawk, Cindy Brach, Ashley Hink, Rima Rudd, **Leigh Callahan**, *Nursing Outlook* 2011 59(2):85-94.

This article reviews the development of the Health Literacy Universal Precautions (HLUP) Toolkit, commissioned by the Agency for Healthcare Research and Quality and designed to help primary care practices structure the delivery of care as if every patient may have limited health literacy.

■ Whole blood lead levels are associated with radiographic and symptomatic knee osteoarthritis: a cross-sectional analysis in the Johnston County Osteoarthritis Project. **Amanda E Nelson, Xiaoyan A Shi, Todd A Schwartz, Jiu-Chiuan Chen, Jordan B Renner**, Kathleen L Caldwell, Charles G Helmick, **Joanne M Jordan**. *Arthritis Research and Therapy* 2011 13(2):R37.

Increases in prevalence and severity measures, for both radiographic and symptomatic knee osteoarthritis (OA) were observed with increasing levels of blood lead, suggesting that lead may be a potentially modifiable environmental risk factor for OA.

■ Impact of obesity and knee osteoarthritis on morbidity and mortality in older Americans. E Losina, RP Walensky, WM Reichmann, HL Holt, H Gerlovin, DH Solomon, **JM Jordan**, DJ Hunter, LG Suter, AM Weinstein, AD Paltiel, JN Katz. *Annals of Internal Medicine* 2011 154(4):217-26.

The number of quality-adjusted life-years lost owing to knee osteoarthritis and obesity seems to be substantial, with black and Hispanic women experiencing disproportionate losses. Reducing mean body mass index to the levels observed a decade ago in this population would yield substantial health benefits.



**Danielle Jordan** is a research coordinator working with Dr. Mary Anne Dooley.

### Emily Elstad, MPH

is a second year doctoral candidate in Health Behavior and Health Education and a research assistant working with Dr. Delesha Carpenter.



**Michael Weeks** works in Dr. Peng Liu's lab as a research technician.

## THURSTON PARTICIPATES IN AGING EXCHANGE

The Aging Exchange was held on April 7, 2011 at The Friday Center at the University of North Carolina at Chapel Hill. The annual event is organized and sponsored by the UNC Institute on Aging. This event celebrates aging research and promotes networking among researchers on the UNC Chapel Hill Campus. During the poster session, researchers from the Thurston Arthritis Research Center presented highlights of their current work.



### Dr. Chivon Mingo, Postdoctoral Fellow

*Perceived Helplessness as a Mediator between Household Income and Health Status in People with Self-Reported Arthritis*

**Chivon A. Mingo, PhD**, UNC Institute on Aging (CPHAR); **Kathryn R Martin, PhD, MPH**, National Institute on Aging; **Britta Schoster, MPH**, and **Leigh F. Callahan, PhD**, Thurston Arthritis Research Center.



### Dr. Mary Altpeter, Institute on Aging and Dr. Leigh Callahan, Thurston Arthritis Research Center

*Comparing the Group Versus Independent Format of the Arthritis Foundation Walk With Ease Program: Do Both Formats Work?*

Mary Altpeter, PhD, MSW, MPA, UNC Institute on Aging; **Jack H. Shreffler, PhD**, **Britta Schoster, MPH**, **Kathryn R. Martin, PhD, MPH**, **Laura O. Houenou**, and **Leigh Callahan, PhD**, UNC Thurston Arthritis Research Center and **Jennifer Hootman, PhD**, CDC Arthritis Program.

## BUSINESS AFTER HOURS

On April 5, 2011, the Johnston County Osteoarthritis Project hosted the Business After Hours event for the Greater Smithfield-Selma Area Chamber of Commerce. This monthly event gives members the opportunity to discuss and share ideas while learning about other local businesses and organizations. The event was well attended by local business people. Dr. Joanne Jordan, principal investigator of the Johnston County Osteoarthritis Project, spoke about the project and the importance of being part of the community.



From left to right: Dr. Joanne Jordan, PI, Johnston County Osteoarthritis Project; Rick Childrey, Executive Director of the Chamber of Commerce; Janice Woodard, Project Manager, Johnston County Osteoarthritis Project.

## AAAAI Meeting

Teresa Tarrant, MD, of the Thurston Arthritis Research attended the American Academy of Allergy, Asthma and Immunology (AAAAI) Annual Meeting held in San Francisco from March 18-22, 2011. Lisa Rothlein, a UNC medical student, and David Fitzhugh, MD, former postdoctoral fellow, presented their work from Dr. Tarrant's laboratory. Dr. Tarrant studies the underlying mechanisms of leukocyte trafficking in vitro and in vivo using molecular biology and inflammatory models of rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and immunodeficiency syndromes (WHIM).



■ *G protein coupled receptor kinase 3 (GRK3) Negatively Regulates CXCL12/CXCR4 Signaling and Tumor Migration in Breast Cancer.* **DJ Fitzhugh, MW McGinnis, R Timoshchenko**, R Lininger, N Demore, J Serody, **TK Tarrant**

■ *G protein coupled receptor kinase 3 (GRK3)—deficient T cells demonstrate enhanced migration to CXCL12 and CX3CL1.* **LR Rothlein, RG Timoshchenko, DJ Fitzhugh, MW McGinnis**, G Laroche, DP Siderovski, **TK Tarrant**

In addition, to the work from Dr. Tarrant's lab, two of our allergy fellows, Dr. Claire Chehrazi and Dr. Elizabeth Duncan attended the meeting and presented current work.

■ *Peripheral Blood Natural Killer Cells from Asthmatic Subjects Respond Differently to Stimulation with Poly(I:C) and Diesel Exhaust Particles.* **C. V. E. Chehrazi**, K. M. Horvath, I. Jaspers

■ *Neutrophil-derived Interferon  $\gamma$  (IFN $\gamma$ ) Controls Inducible Nitric Oxide Synthase (Nos2) During Pneumococcal Pneumonia.* **E. A. Duncan**, J. Martin, C. M. Doerschuk

Dr. Teresa Tarrant discussing poster with Dr. Elizabeth Duncan, 2nd year Allergy Fellow

## JA FACTS

Juvenile arthritis (JA) refers to any form of arthritis or an arthritis-related condition that develops in children under the age of 18.

- Approximately 300,000 children in the US are affected by pediatric arthritis and rheumatologic conditions.
- JA is one of the most common childhood diseases in the US.
- The cause of most juvenile arthritis is unknown.
- There is no single test to diagnose JA. A diagnosis is based on a complete medical history and

careful medical examination. Evaluation by a rheumatologist is often required.

- Arthritis and related conditions, such as JA, cost the US economy nearly \$128 billion per year in medical care and indirect expenses, including lost wages and productivity.

■ For more information visit: [www.arthritis.org/ja-alliance-main.php](http://www.arthritis.org/ja-alliance-main.php).



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**MAY IS NATIONAL ARTHRITIS  
AWARENESS MONTH**

Visit us at UNC Children's Hospital Concourse,  
**May 16-20, 2011**. See our website for scheduled  
events, <http://tarc.med.unc.edu>.

**Thank you for supporting  
arthritis research!**

The UNC Thurston Arthritis Research Center gratefully acknowledges the contributions of the individuals, corporations, foundations and organizations who provide vital support to our goal to find preventions, cures and treatments for arthritis, allergy and autoimmune diseases. For more information on how you can make a gift, contact Randy Mounce at 919-966-9301 or [randy\\_mounce@med.unc.edu](mailto:randy_mounce@med.unc.edu).