

NIAMS IRP Partners

Summer 2008



A newsletter for patients of the Intramural Research Program (IRP), National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

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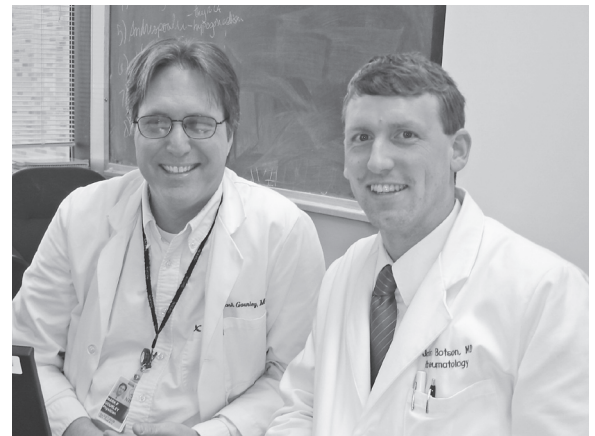
National Institutes of Health



National Institute of Arthritis and Musculoskeletal and Skin Diseases

NIAMS Rheumatology Fellowship Provides Rich and Diverse Clinical Experience

In keeping with the NIAMS mission of training basic and clinical scientists to carry out research in rheumatology, the NIAMS Rheumatology Fellowship Program provides a balance of both academic and practical training for physicians wishing to pursue a career in academic rheumatology medicine. Program participants tend to be recent graduates of 3-year internal medicine residency programs and work as NIAMS clinical fellows for 2 or more years. After 2 years, the fellows have fulfilled the requirements to become board-certified in rheumatology, but many stay on for at least 1 additional year to focus on improving their research skills.



(From left) Dr. Mark Gourley, Director, Clinical Care and Training, and Dr. John Botson, NIAMS clinical fellow

The program is accredited by the Accreditation Council for Graduate Medical Education and led by Mark Gourley, M.D., Director, Clinical Care and Training. Dr. Gourley recently served as a staff clinician at NIH's National Institute of Environmental Health Sciences (NIEHS), where he worked with a team of researchers investigating environmental causes of lupus and other autoimmune diseases. His research interest in lupus began in 1988 when he first joined NIH/NIAMS. He left NIAMS in 1996 to open the greater Washington, D.C., area's first lupus clinic at the Washington Hospital Center.

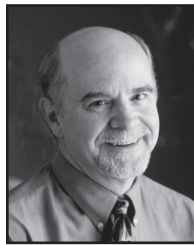
There are currently four first-year fellows in the NIAMS Rheumatology Fellowship Program. The fellows gain practical knowledge by completing clinical rotations in consultative practice, pediatric rheumatology, and community-based rheumatology practice. This combination provides them the opportunity to enhance their clinical skills. The fellows also participate in clinical conferences, core rheumatology lectures, and weekly clinical and basic science journal clubs, in addition to taking full advantage of the wealth of academic opportunities available on the NIH campus. Fellows are also encouraged to attend local and

From the Scientific and Clinical Directors...

We are pleased to bring you the Summer 2008 issue of *IRPartners*. In this issue, you'll learn about the NIAMS Rheumatology Fellowship Program for physicians pursuing a career in academic rheumatology medicine. You'll also learn about the Institute's partnership with the Montgomery County (Maryland) Police Activities League (PAL) to introduce area children to the basic elements of research and science education.

In addition, you'll get an inside look at the NIAMS Cardozo Community Health Center and our new laboratories in the NIH Clinical Center. We also

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feature IRP staff members who have recently been honored and a synopsis of IRP research highlights from the past several months.

We're excited about a new segment that spotlights a member of the NIAMS Health Partnership Program. In this issue, we feature the District of Columbia Office on Latino Affairs. Lastly, we introduce you to new health information resources and welcome new staff members to the NIAMS team.

We hope you enjoy this issue, and we look forward to sharing future highlights and advances with you.

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RHEUMATOLOGY FELLOWSHIP, *continued from page 1*

national scientific meetings, which help them acquire insights into clinical research and scientific investigation.

Under the NIAMS Health Partnership Program, fellows also work at the NIAMS Community Health Center (CHC) in the Cardozo/Shaw neighborhood of northwest Washington, D.C. The CHC was established in 2001 as a collaborative effort between the local community and NIAMS to provide area residents access to cutting-edge specialty care and scientifically-based health information, while offering clinical fellows a unique community-based learning experience in rheumatic diseases. The CHC also operates as an extension of the rheumatology research program at the Institute and allows NIAMS researchers access to patients most affected by rheumatic diseases.

Dr. John Botson, a first-year fellow, enjoys the opportunity at the CHC to make a primary diagnosis for his patients and recommend clinical interventions. Initially trained as a pharmacist in his home state of Ohio, he then chose to pursue further training at Ohio State University where he received his medical degree. Prior to accepting a fellowship position at NIAMS, Dr. Botson completed a residency program in internal medicine at Dartmouth-Hitchcock Medical Center in New Hampshire.

According to Dr. Gourley, "The NIAMS CHC provides rheumatology fellows a bread and butter training experience, while at the same time utilizes the

armamentarium of the NIH Clinical Center's intellectual expertise, diagnostic capabilities, and state-of-the-art therapeutic interventions."

Besides gaining clinical experience at NIH, fellows may request clinical electives that are available through many of NIAMS' partner institutions in the Washington metropolitan area, such as Georgetown University, George Washington University, and Washington Hospital Center.

During the first year, these fellows devote most of their time toward developing clinical competency (skills) in the practice of rheumatology, under the direct supervision of NIAMS attending physicians. The fellows select a research mentor and spend approximately 20 percent of their time initiating research projects. For instance, Dr. Botson is currently working 1 day per week in Dr. Richard Siegel's lab studying tumor necrosis factor receptor superfamily, which is involved in the pathogenesis of a number of rheumatic diseases.

In the second year, fellows are more directly involved in rheumatology and immunology research, with approximately 80 percent of their time devoted to research training. An important feature of the research experience is that fellows maintain close, daily interactions with their research mentor and receive individualized instruction. About 20 percent of their time is spent working in clinics for increased clinical exposure.

Fellows who continue through the third year usually conduct more focused research study. Fellows who are interested in advanced training in clinical research may also apply to participate in the NIH-Duke Training Program in Clinical Research at this time. Dr. Grant Louie, a third-year fellow, is currently enrolled in the course. The courses he is taking include research design, statistical analysis, health economics, research ethics, and research management. Dr. Louie completes his coursework primarily through videoconferences with faculty at Duke University Medical Center. Dr. Gourley considers this course a great opportunity for the fellows to receive a master's degree in health sciences while receiving training at NIH. Those with interest in laboratory-based investigation are able to pursue endeavors in the laboratory primarily after the first year of training.

Since 2003, 18 fellows have successfully completed their training at NIAMS. Equipped with the knowledge and skills gained at NIH, they have gone on to embark on different career paths in basic lab research, clinical trial research, academic rheumatology, and private clinical practice. ▲

NIAMS Partners with Montgomery County Police Activities League (PAL)

The NIAMS Intramural Research Program (IRP) recently developed a partnership with the Montgomery County (Maryland) Police Activities League (PAL) to work with at-risk children, age 11 to 16. The arrangement provides students with an overview of NIH and NIAMS, while exposing them to the basic elements of



Students from the Montgomery County PAL view protein complexes in an electron microscope

research and science education. Program participants are introduced to research scientists who serve as positive role models and learn about careers, training opportunities, and internships that are available.

Under the direction of Career Development Section Chief Mario Cerritelli, Ph.D., PAL students have participated in guided tours of several NIAMS state-of-the-art research facilities and received classroom instruction and laboratory experience from a host of scientists, including NIAMS Scientific Director John O'Shea, M.D.; Richard Siegel, M.D., Ph.D.; and Charles Smith.

According to Dr. Cerritelli, "The goal in many of our outreach efforts is to encourage young students to pursue careers in the biomedical sciences and to create a workforce at NIAMS that reflects the rich diversity of our nation. It was great to see the glow of excitement in the faces of these children as they toured NIAMS laboratories, attended a lecture on the immune system, and constructed 3-D models based on virus design." ▲

Community Caring: A Look at the NIH-Cardozo Program

In 2000, NIAMS, under the leadership of Dr. Stephen Katz and in an effort to facilitate research on health disparities in rheumatic diseases, established a community partnership, the Health Partnership Program (HPP). The HPP includes about 68 community partners representing various sectors of the African American and Latino communities within Washington, D.C. Its guiding principles include openness about its plans and actions, inclusiveness of all constituents in partnership activities, and responsiveness to community needs and concerns, as well as those of NIH. The community is involved in both program development and the NIH research agenda, and a core group meets regularly to provide advice about outreach, research, and education activities, as well as to review research proposals.

According to Dr. Barbara Mittleman, former NIAMS director of scientific interchange and current director of the NIH Office of Science Policy's public-private partnership program, the idea for the NIH-Cardozo relationship came in 2000. The idea of an ongoing NIH research clinic tied to on-campus research activities with movement of patients and staff between locations was quite novel at the time, she

said. Unlike volunteer medical activities in local clinics, which doctors and fellows often seek out to keep up and sharpen their skills, staff at NIAMS' Community Health Center (CHC) conduct official NIH duties.

"The clinic was the result of everyone's desire to do the right thing and make it happen," Mittleman said, noting that she met biweekly for at least a year with Clinical Center (CC) department directors to set things up in a way that served patients, staff, the Cardozo community, and NIH research needs all at the same time. In addition, all aspects of NIAMS—intramural, extramural, and the director's office—all worked together. "We had to have an interdisciplinary, multicultural research team, with every participant adding their unique talents to the mix, for this to succeed," Mittleman said.

A major component of the HPP was the establishment of the NIAMS' CHC, an outreach site located within the Upper Cardozo Health Center, which is operated by Unity Health Care, Inc., a nonprofit organization providing health care to uninsured and underinsured D.C. residents. The CHC provides a venue for community-based research on clinical aspects of rheumatic diseases, health education programs, and training for NIH staff. Located in the historically African American Cardozo/Shaw neighborhood, CHC's patient population is equally divided between African Americans and Latinos. "If we only studied the people showing up at the NIH Clinical Center, we'd never be able to study health disparities. We had to go out into the community to get the participants," Mittleman said.

Cardozo's partners in both the Hispanic and African American communities embraced the CHC. Jesus Lopez with the United Planning Organization said his group has been involved since the clinic opened. "It offers comprehensive services to benefit people who suffer from arthritis and other health conditions. By accepting and including people from diverse racial and ethnic backgrounds and by maintaining a high standard of professionalism, the clinic plays a key role in our community's success."

One of the first research protocols conducted with Cardozo directly benefited its members, as well as NIH, by increasing both groups' understanding of the health behaviors and beliefs of minority patients with rheumatic disease. Rheumatic conditions are among the most common health problems in the United States, and there are marked differences in the incidence,



A mural in the Cardozo/Shaw neighborhood painted by participants in the 2001 summer youth program sponsored by the Latin American Youth Center, an HPP partner since 2000

prevalence, severity, processes of care, and health outcomes among racial and ethnic groups compared to white Americans. Although the effects of the disease may be modifiable by lifestyle changes, such strategies are often difficult for patients to accomplish and may be ineffective in minority communities because of differences in culture and environment and the lack of culturally sensitive materials and approaches. Dr. Gwenyth Wallen, chief of the Research and Practice Development Service, and Dr. Migdalia Rivera-Goba, CC senior nurse specialist within CC Nursing and Patient Care Services, conducted a protocol exploring how health beliefs and behaviors may contribute to health disparities. The part involving patients is completed, and they are analyzing the data they collected, but the Cardozo community invited them to complete another clinical trial in the future. Wallen and Rivera-Goba hope to apply what they learned about what works best within the community by conducting an intervention study focusing on nutrition, physical education, and social support.

"It's all about trust when you're working in the community," Wallen said. "The community told us, 'Don't just come here to gather the information you want and leave. Come back and feed something positive back into the community with what you've learned.'" Sometimes the giving back involves teaching, other times it involves providing access to health care treatments and medications that wouldn't otherwise be available. The result is a win-win for both sides. "The NIH-Cardozo relationship helps to improve the health status and quality of life for the community residents. Researchers receive insights into a population that otherwise would not have the option to participate in clinical trials," Wallen said.

This story was excerpted from an article by Jenny Haliski in the April 2008 issue of NIH's Clinical Center News. ▲

Genes Implicated in Ankylosing Spondylitis

Michael Ward, M.D., and an international team of researchers recently identified two genes associated with an increased risk of ankylosing spondylitis, a disease that causes inflammation of the tendons and ligaments around the bones and joints in the spine. Their research, published in *Nature Genetics*, used the genome-wide association approach, which makes it possible to analyze between 300,000 and 500,000 single nucleotide polymorphisms (SNPs, or small differences in DNA that are distributed throughout a person's genetic code). An analysis of DNA samples from 1,000 individuals with ankylosing spondylitis and 1,500 healthy controls identified variations in two genes – *ARTS1* and *IL238* – that were associated with an increased risk of the disease.

Burton PR et al. Association scan of 14,500 nonsynonymous SNPs in four diseases identifies autoimmunity variants. *Nature Genetics*. 2007; 39(11): 1329-1337.

New Test for Joint Infection Could Spare Some Patients an Unnecessary Procedure

Rocky Tuan, Ph.D., chief of the NIAMS Cartilage Biology and Orthopaedics Branch, and his colleagues recently identified a potential diagnostic test that could help surgeons confirm or rule out the presence of infection-causing bacteria in prosthetic joints that require surgical revision. The test, described in the *Journal of Bone and Joint Surgery*, could spare a subgroup of people who need the surgery a time-consuming and costly treatment for infection, while helping to ensure that people who need the procedure get it. Tuan and his team used a process called reverse transcription polymerase chain reaction (RT-PCR) to directly quantify viable bacterial mRNA in synovial fluid samples. The test, which is currently being evaluated using clinical samples, would help physicians identify or rule out infection before proceeding with joint revision surgery.

Birmingham P, et al. Simulated joint infection assessment by rapid detection of live bacteria with real-time reverse transcription polymerase chain reaction. *Journal of Bone and Joint Surgery. American Volume*. 2008; 90(3): 602-608.

Cellular Defect Identified in Job's Syndrome

IRP scientific director John O'Shea, M.D., and a team of investigators from the National Institute of Allergy and Infectious Diseases (NIAID) have made an important discovery regarding Job's syndrome, which helps to explain why people with this rare immunodeficiency condition suffer from recurrent outbreaks of abscesses. Their finding, reported in *Nature*, was the result of a collaborative effort between the NIAMS Molecular Immunology and Inflammation Branch and the Human Immunology Section of the NIAID Vaccine Research Center. O'Shea and his colleagues found that people with Job's syndrome are unable to produce T_H17 helper cells, which fight infection by producing a protein called interleukin-17. The discovery builds on previous NIH work that found that people with Job's syndrome have defects in STAT3 (signal transducer and activator of transcription 3), a gene responsible for the differentiation of T_H17 cells.

Milner JD, et al. Impaired T_H17 cell differentiation in subjects with autosomal dominant hyper-IgE syndrome. *Nature*. 2008; 452: 773-776.

Discovery Sheds Light on Muscle Physiology

Investigators from the NIAMS Laboratory of Muscle Stem Cells and Gene Regulation, led by Vittorio Sartorelli, M.D., have gained valuable insights regarding the process of gene expression in skeletal muscle. Their discovery centers around MyoD, a master regulatory gene that controls the expression of other genes that directly impact skeletal muscle. Sartorelli and his colleagues found that the occurrence of a natural chemical modification of the MyoD protein at different stages of muscle development influences its effect on gene expression. This discovery may ultimately help to explain the occurrence of certain muscle defects and result in the development of therapeutic strategies to enhance muscle function and repair.

Di Padova M, et al. MyoD acetylation influences temporal patterns of skeletal muscle gene expression. *Journal of Biological Chemistry*. 2007. 282(52): 37650-37659.

Scientists Identify New Pathway Related to Autoimmune Disease

Researchers from the NIAMS Molecular Immunology and Inflammation Branch, led

by John O'Shea, M.D., and an international team of investigators used a mouse model to identify the pathway by which interleukin-10 (IL-10) is produced. (IL-10 is a cytokine with immunosuppressive properties, so stimulating its production could help to moderate inflammatory responses.) Their findings were reported in *Nature Immunology*. O'Shea and his team demonstrated that IL-27 and IL-6 induced T helper type 1 and type 2 cells, as well as T helper cells that produce IL-17, to secrete IL-10. Understanding of this pathway should shed further light on the mechanisms involved in the development of autoimmune disease and may ultimately result in new treatment approaches. The work was a collaborative effort between NIAMS, the University of Pennsylvania, Ludwig Institute for Cancer Research (Australia), and Amgen, Inc.

Stumhofer JS, et al. Interleukins 27 and 6 induce STAT3-mediated T cell production of interleukin 10. *Nature Immunology*. 2007; 8(12): 1363-1371. ▲

NIAMS Labs Open with Ribbon-Cutting Ceremony

On March 28, the NIAMS Intramural Research Program held a ribbon-cutting ceremony and open house to introduce the new home of four laboratories within the Molecular Immunology



Present at the ribbon-cutting ceremony (from l.), Gilbane senior project engineer Earl Gilliam; NIAMS scientific director Dr. John O'Shea; ORF research space coordinator Cyrena Simons; and NIAMS director Dr. Stephen Katz

and Inflammation Branch and the Autoimmunity Branch. The new state-of-the-art facilities, located on the 13th floor of NIH's Building 10, will allow researchers within the groups of Dr. John O'Shea, Dr.

Juan Rivera, Dr. Richard Siegel, and Dr. Rafael Casellas to conduct cutting-edge research in an environment that promotes interaction and collaboration. ▲

Kastner Recognized as NIH Distinguished Investigator

Daniel L. Kastner, M.D., Ph.D., clinical director and chief of the NIAMS Genetics and Genomics Branch, IRP, has been

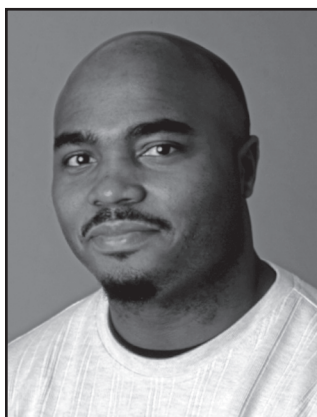


awarded the position of NIH Distinguished Investigator. The honorific Intramural Professional Designation recognizes current NIH senior investigators for their career achievements and impact on the scientific field. It is reserved for tenured intramural senior investigators at the highest level of accomplishment—

the top 2 or 3 percent of all senior investigators at NIH. Congratulations, Dr. Kastner! ▲

Scott Heading to Chapel Hill

Congratulations to NIAMS postbaccalaureate fellow Eric Scott on his recent admission to the biological and biomedical sciences graduate



program of the University of North Carolina (UNC) at Chapel Hill school. Scott grew up in rural North Carolina with his parents and two brothers. Following high school, he served 6 years in the U.S. Air Force and later graduated from the University of North Carolina at Pembroke with a biology degree. According to Scott, "I am the first of my family to have

received a baccalaureate degree." He is grateful for his experience in the NIAMS Molecular Inflammation Section. Best wishes to Eric and his family! ▲

NIAMS HPP Spotlight: DC Office on Latino Affairs

The District of Columbia Mayor's Office on Latino Affairs (OLA) was established in 1976 to work with the Council of the District of Columbia, government agencies, community-based organizations and businesses to ensure that, among many other benefits, "a full range of health services" are available to all Latino residents living in the nation's capital.

Honoring this maxim and along with NIAMS' best interest to address health disparities in rheumatic diseases, OLA joined NIAMS in February 2000 as a partner in the Health Partnership Program (HPP), a community-based research initiative that made possible the establishment of the Community Health Center in Washington, D.C.

As a partner, OLA continues to provide NIAMS with insight into the Latino community's needs and concerns about health care and research. They also share resources to help the HPP operate effectively in the metro area. "NIAMS is a great information resource for our community that is not otherwise easily accessible," remarks Kathy Ruffner, senior community outreach specialist at OLA. "NIAMS also provides a wonderful opportunity for networking between nonprofit agencies through the annual Community Partnership meetings at the Cardozo Clinic. It is a great venue to get a clear picture of the initiatives that are targeting the Latino community." OLA's sponsorship of numerous community events throughout the year offers NIAMS a wonderful opportunity to disseminate health information and clinical studies recruitment materials in both English and Spanish.

To learn more about the DC Office on Latino Affairs, please visit www.ola.dc.gov. ▲

NIAMS Community Health Center

The Institute has set up the NIAMS Community Health Center to help doctors and scientists understand the causes of rheumatic diseases and why many of these diseases occur more often and more severely in certain minority communities.

With this information, we can find better ways to treat and prevent these diseases. There are no experimental treatments or medications being used at the Community Health Center. For information, please call 202-673-0000.

NIAMS Introduces Easy-to-Read Health Information CD-ROM

NIAMS has developed a new CD-ROM for clinicians and individuals seeking easy-to-read information on musculoskeletal, rheumatic, and skin diseases. The CD contains print-friendly copies of select NIAMS publications in English, Spanish, and Chinese.

Easy-to-Read Health Information on Bones, Muscles, Joints, and Skin in English, Spanish, and Chinese contains health information on a variety of topics, including:



- back pain, osteoarthritis, osteoporosis, and scoliosis
- rheumatoid arthritis, fibromyalgia, and scleroderma
- acne, psoriasis, and rosacea.

The CD-ROM also contains links to NIAMS and NIH resources as well as to voluntary nonprofit organizations.

The CD is available at no charge. To order by phone or inquire about bulk orders for health forums or fairs, please contact the NIAMS Information Clearinghouse at 877-22-NIAMS (226-4267) or NIAMSinfo@mail.nih.gov. ▲



Need an NIH Speaker?

The NIH Speakers Bureau is a service that lists NIH researchers, clinicians, and other professionals who are available to speak to school groups and other

local and national organizations. Speakers have expertise in such areas as arthritis, osteoporosis, autoimmunity, and several dozen other topics covered by NIH. To find out more about this service, sponsored by NIH's Office of Science Education, visit its Web site at <http://science.education.nih.gov/spkbureau.nsf>.

NIAMS Welcomes New Staff Members

NIAMS welcomes new staff members to the Health Partnership Program and Cardozo Community Health Center (CHC):



Isabel Ochoa joined NIAMS this year as a nurse assistant in the NIAMS Cardozo Community Health Center.

Ochoa wears many hats at the CHC. Her duties include being medical assistant, phlebotomist, and patient liaison for those patients who have specialty appointments. She also assists NIAMS fellows with Spanish translations as needed. Ochoa came to the United States from El Salvador and has been working with the Hispanic/Latino community since 1985. Her most recent experience was working at the Spanish Catholic Center's Catholic Communities Services in the Washington, D.C., metro area where she worked for 19 years as a medical assistant.



Sara Rosario Wilson recently joined NIAMS as a writer-editor in the Office of Communications and Public Liaison.

Wilson comes to NIAMS after 7 years at the National Institute on Drug Abuse (NIDA) where she served as deputy press officer and lead staffer for Spanish-language translations. She began her career at NIH as an intern through the Hispanic Association of Colleges and Universities. She received her bachelor's degree in public communication from the University of Puerto Rico. As a native Spanish speaker, Wilson will help manage NIAMS' Spanish-language publications, coordinate the national and local exhibit program, and assist with activities related to the Health Partnership Program and the Multicultural Communications Initiative among other projects.

Questions To Consider Before Joining a Study

- What is the purpose of the study?
- What is required of me?
- Will the study benefit me or others?
- Are there risks? If so, what are they and what are the chances that they will occur?
- What discomforts are involved?
- How long will the study last?
- What will happen if I decide to leave the study?

NIAMS Has Free Health Information

NIAMS has free health information (some in Spanish) available to the public, health professionals, and organizations. Information is available on arthritis, lupus, and other rheumatic diseases, skin disorders, joint problems, and musculoskeletal diseases.

Contact NIAMS at 1-877-22-NIAMS (free call), TTY: 301-565-2966. Check our Web site at www.niams.nih.gov/hi/. Many of our publications can be printed directly from our site.

Free information on osteoporosis, Paget's disease of bone, osteogenesis imperfecta, primary hyperparathyroidism, and other metabolic bone diseases and disorders is also available from the NIH Osteoporosis and Related Bone Diseases ~ National Resource Center (NIH ORBD~NRC). Contact the NIH ORBD~NRC at 1-800-624-BONE, TTY: 202-466-4315, or at www.osteoporosis.org. ▲

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