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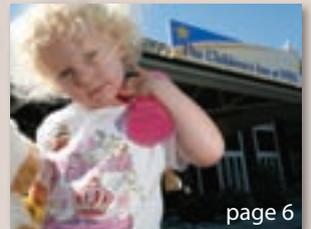
Fall 2006

the magazine

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U.S. Sen. Tom Harkin of Iowa (left) and FNLN Chairman Paul Rogers converse at a recent Friends function at the National Library of Medicine.



Welcome to *NIH MedlinePlus* magazine. We are extremely gratified by the response we received from consumers, doctors and other health professionals to the pilot issue that debuted this summer. We heard directly from many of you and received requests for thousands of additional copies of the publication.

That is exactly the kind of response we hoped to receive. We have one goal—to provide you with a gold standard of reliable, understandable and up-to-date health information. Each issue offers the latest advice on prevention, diagnosis, treatment and research findings direct from the scientists and medical experts who work for you at the world's leading medical and health research organization, the National Institutes of Health.

Reading the magazine will also help you take advantage of all the free medical information and health resources available online at MedlinePlus.gov. Millions of Americans have come to rely on this Web site to answer their health questions, knowing they can trust the information, based on the latest research, that they find there.

On behalf of the Friends of the National Library of Medicine, we hope that you enjoy this issue of *NIH MedlinePlus*. And if you have comments about this issue or ideas for topics to be covered in future issues, we would love to hear from you. You can write us at the address below.

Sincerely,
Paul G. Rogers
Chairman
Friends of the National Library of Medicine

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The major objective of the Friends of the National Library of Medicine is to educate the health, corporate and public communities about the Library and to do this by building a coalition of financial and other supporters.

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by health care professionals, scientists and the general public.

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NIH MedlinePlus®

the magazine

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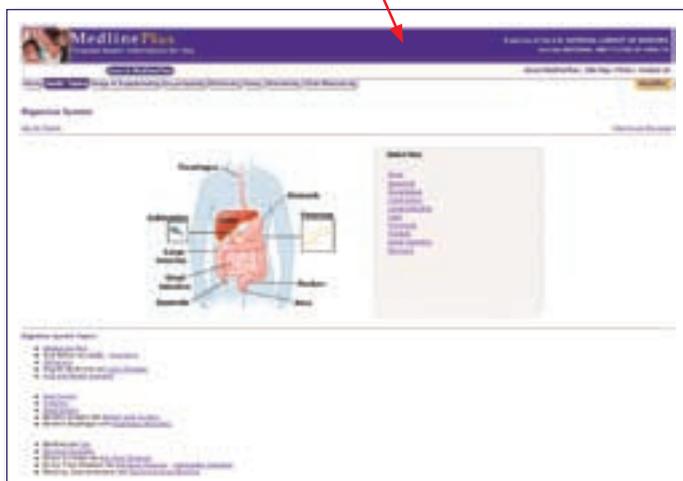
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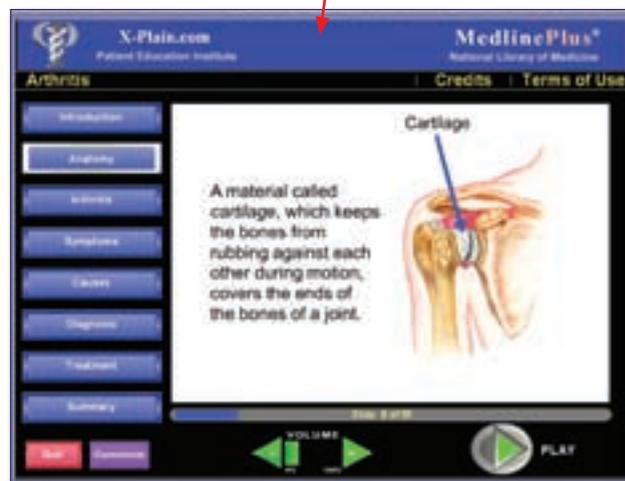
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From the Directors

“Think of Exercise as a Lifestyle”

NIH institute directors understand the important health benefits of an active, exercise-based lifestyle. The following commentary is taken from NIH Director Zerhouni’s exercise video on NIHSeniorHealth.gov.

Exercise is extremely important as a regular part of your life, and we at the National Institutes of Health (NIH) take that very seriously in our own lives. Exercise is not something that you only do when you’re young. You have to think of it as a lifestyle that allows you to maintain both physical fitness and mental fitness at all ages of life.

Throughout my life, I’ve been a swimmer. I began swimming when I was 3 or 4 years old, and, later, I was a competitive swimmer in high school and college. Growing up, I had some problems with my knees, and I couldn’t run. So, my mother said, “Well, if you can’t run, you have to go and swim.” And the doctor

agreed: “You know, swimming would be good for you.” I excelled at swimming, and I still love swimming today.

One of the reasons I like swimming is because it’s a time of quiet thinking. It’s one of those times when you can think about something. As with running or biking—you can really be with yourself, and you don’t have the pressures of the outside world. That’s a moment when you’re also able to think through things, to be in touch with your own soul, which is very important. Exercise does that. It’s the only time when you can actually do that. You feel your body, and it’s refreshing. You feel like you’re in touch with yourself.

Make exercise a part of your lifestyle. It will reward you every day.

NIH Director Elias A. Zerhouni, M.D., leads the nation’s medical research agency and oversees the NIH’s 27 Institutes and Centers and more than 17,000 employees.



*The photos at right are from videos on the medlineplus.gov Web site, showing several NIH directors as they exercise to stay physically and mentally healthy. To see more videos, go to medlineplus.gov and click on **NIHSeniorHealth** at lower right; on the next screen, press the **Click to Begin** button and then click on **Exercise for Older Adults**.*



Richard J. Hodes, M.D.
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Patricia A. Grady, Ph.D., R.N.,
Director, National Institute of Nursing
Research & **Anthony Fauci, M.D.,**
Director, National Institute of Allergy
and Infectious Diseases



New Vaccines Help Protect You

Important new vaccines have recently been approved for use and are already making a significant impact in the fight against diseases.

Chances are that you have never come down with a case of diphtheria, smallpox or tetanus. It is more than good fortune or genetic luck of the draw. That's the result of decades of vaccine research and implementation, much of it directed or funded by the National Institutes of Health (NIH). Vaccines take advantage of your body's natural ability to learn how to eliminate almost any disease-causing germ, or microbe, that attacks it. What's more, your body "remembers" how to protect itself from the microbes it has encountered.

Vaccines are a safe, cost-effective and efficient way to prevent sickness and death from infectious diseases. Innovative technologies have made great contributions to recent advances, including the ability to "read" and analyze the genomes of disease-causing organisms. This new knowledge and technology are instrumental in assisting scientists in creating improved vaccines, designing new strategies and identifying new candidates to prevent diseases for which no vaccines currently exist.

More than 30 vaccines are presently available for protection against infectious diseases. Edward Jenner produced the first vaccine against smallpox in 1798, and, today, children in the United States routinely receive many vaccines in their first few years of life. (See table.)

Recently, new vaccines have been announced for a variety of diseases, including the following:

Protect Your Children

Listed below is the basic immunization schedule pediatricians follow. For a complete schedule, visit www.cdc.gov and click on "Vaccines & Immunizations."

Age	Vaccine
Birth	Hep B
1 to 4 months	Hep B
2 months	DTaP, Hib, IPV, PCV
4 months	DTaP, Hib, IPV, PCV
> 6 months	Influenza
6 months	DTaP, Hib, PCV
6 to 18 months	Hep B, IPV
12 to 15 months	Hib, MMR, PCV
12 to 18 months	Var
12 to 23 months	Hep A
15 to 18 months	DTaP
4 to 6 years	DTaP, MMR, IPV
11 years	MCV4
11 to 12 years	Tdap
College entrants	MCV4

DTaP: Diphtheria, tetanus and acellular pertussis, **Hep A:** Hepatitis A, **Hep B:** Hepatitis B, **Hib:** Haemophilus influenzae type b, **Influenza:** Flu, **IPV:** Inactivated poliovirus, **MCV4:** Meningitis, **MMR:** Measles, mumps and rubella, **PCV:** Pneumococcal conjugate, **Tdap:** Tetanus, diphtheria and pertussis booster, **Var:** Varicella (chickenpox)

Shingles

Shingles is an outbreak of rash or blisters caused by the varicella-zoster virus, the same virus that causes chickenpox. Following an attack of chickenpox, the virus lies dormant in the nerve tissue, with

the potential of reactivating later in life. When the varicella-zoster virus reactivates, the viruses multiply and the characteristic rash erupts. The first symptom of shingles is often burning or tingling pain in one location or a specific side of the body. Anyone who has had chickenpox is at risk for shingles. This year, more than 500,000 people will develop shingles.

In May 2006, the Food and Drug Administration (FDA) approved use of a vaccine to prevent shingles. The vaccine is recommended for people 60 years of age and older who have had chickenpox but who have not had shingles. Researchers estimate the vaccine could prevent 250,000 cases of shingles that occur in the United States each year and significantly reduce the severity of the disease in another 250,000 cases annually.

The Shingles Prevention Study, one of the largest adult vaccine clinical trials to date, found that a vaccine against shingles prevented about half the cases of shingles and reduced its severity and complications in vaccinated populations that contracted the disease. The trial was conducted over more than 5 years at 22 study sites nationwide and led by the Department of Veterans Affairs in collaboration with the National Institute of Allergy and Infectious Diseases (NIAID).

Stephen E. Straus, M.D., an infectious diseases specialist at NIAID and Director of the NIH National Center for Complementary and Alternative Medicine, who participated in the design,

oversight and conduct of the trial, says, “These striking results indicate for the first time that we can use a vaccine to prevent shingles. And among vaccine recipients who did get shingles, the episodes generally were far milder.”

Pneumonia

Pneumonia is an inflammatory lung disease caused by a variety of viruses, bacteria and even fungi. Pneumococcal pneumonia is an infection in the lungs caused by bacteria called *Streptococcus pneumoniae*, also called pneumococcus. These bacteria can infect the upper respiratory tracts of adults and children and can spread to the blood, lungs, middle ear or nervous system.

There are no generally effective treatments for most types of viral pneumonia, which usually heal on their own. The pneumococcal vaccine protects against 23 types of pneumococcal bacteria populations and is effective in approximately 80 percent of healthy adults.

The Centers for Disease Control and Prevention (CDC) estimates pneumococcus causes 40,000 deaths and 500,000 cases of pneumonia annually in the United States. Annually, there are twice as many cases of pneumococcal pneumonia in African Americans than in whites. The disease is responsible for 3,000 cases of meningitis (inflammation of the lining of the spinal cord), 50,000 cases of bacteremia (bacteria in the blood) and 7 million cases of otitis media (inner ear infection) in the United States.

Human papillomavirus (HPV)

On June 8, 2006, the FDA approved the use of the first vaccine, Gardasil, to prevent infection from four types of the human papillomavirus (HPV), which causes

cervical cancer.

HPV is one of the most common causes of sexually transmitted infection (STI) in the world. Health experts estimate there are more cases of genital HPV infection than any other STI in the United States. According to the CDC, approximately 6.2 million new cases of sexually transmitted HPV infections are reported every year. At least 20 million people in this country are already infected.

“Cervical cancer is the No. 2 cancer in developing countries, whereas it is a less common cancer in the U.S. and other developed countries,” says Douglas Lowy, M.D., deputy director of the National Cancer Institute’s (NCI) Center for Cancer Research. “The principal difference is attributable to having high quality Pap screenings in the developed world, whereas this is not available in developing countries.”

A second HPV vaccine, Cervarix, will be considered by the FDA soon.

Rotavirus

“Rotavirus is the leading cause of severe gastroenteritis in infants and young children worldwide” says Dr. Anne Schuchat, director of CDC’s National Immunization Program. “Nearly every child in the United States is infected with rotavirus by age 5 and most will develop gastroenteritis, leading to a large number of physician visits, emergency room visits and hospitalizations, with a few deaths. Therefore, this vaccine will help reduce one of our most common and potentially severe childhood illnesses.”

Each year, rotavirus is responsible for more than 400,000 doctor visits, more than 200,000 emergency room visits, 55,000 to 70,000 hospitalizations, and between 20 and 60 deaths in U.S. children

younger than 5 years of age. In developing countries, rotavirus is a major cause of childhood deaths.

Rotavirus vaccine will not prevent gastroenteritis caused by other viruses, but is very effective against rotavirus disease. In clinical trials, the vaccine prevented 59 percent of all causes of gastroenteritis hospitalizations, which highlights the important role of rotavirus in severe childhood gastroenteritis. Complications with previous rotavirus vaccines have been completely resolved.

Flu

FDA’s Vaccines and Related Biological Products Advisory Committee (VRBPAC) met earlier in 2006 to select, in conjunction with the CDC, the influenza virus strains to be included in the influenza vaccine for use in the 2006–07 U.S. influenza season. During this meeting, the advisory panel recommended that vaccines to be used in the 2006–07 season in the United States contain the following: an A/New Caledonia-like virus, an A/Wisconsin-like virus and a B/Malaysia-like virus.

The influenza vaccine composition to be used in the 2006–07 season in the U.S. is identical to that recommended by the World Health Organization. ■

Need more information?

- www.niaid.nih.gov, the Web site for the National Institute of Allergy and Infectious Diseases (NIAID)
- www.vrc.nih.gov, the Web site of NIAID’s Dale and Betty Bumpers Vaccine Research Center

The Place Where



Hope Lives:

The Children's Inn Comforts Kids and Their Families



Three-year old Channing O'Halloran is one of many children who stay temporarily at the Children's Inn at NIH, a home-away-from-home environment, while they are treated for a serious disease at NIH.



Asleep in the Children's Inn: On a sunny Wednesday morning, Channing is in dreamland in one of the 59 guest rooms at the Children's Inn. The private, nonprofit facility on the NIH campus in Bethesda, Md., is unique in the United States. Its philosophy is that families make a difference in the treatment of patients, and that the health care team must care for the patient and his or her family as one.



Riding the shuttle: Channing and her toy cat Snowman take the short bus trip from the Children's Inn to the NIH Clinical Research Center, where she'll have her checkup.

The Children's Inn at NIH is a unique home-away-from-home for children with serious illnesses and their families.

Meet Channing O'Halloran. Before she was 1 year old, she was diagnosed with cystinosis, a genetic illness that used to be a death sentence for kids before they reached age 10. But her family wouldn't accept that scenario. To get better access to top doctors, the O'Hallorans moved to the Gainesville, Fla., area. They also started clicking away on the Internet, determined to become cystinosis experts.

Their online sleuthing kept pointing to the name of NIH researcher Dr. William Gahl, a leader in the treatment of cystinosis. In November 2005, the O'Hallorans traveled to NIH in Bethesda, Md., and met with Dr. Gahl, who prescribed the therapy that has allowed Channing to thrive. Today, she takes tap and ballet, and plays the guitar. But she's still a little girl in danger. Four times a day, she must take Cystagon, a drug that rids the body of the harmful crystals that are the hallmark of cystinosis. On a recent visit to see Dr. Gahl, Channing and her mom stayed at NIH's Children's Inn, which houses children (and their families) undergoing newly developed therapies at the NIH Clinical Center.



With Dr. Gahl: Dr. William Gahl (right) of the National Human Genome Research Institute meets with Lanna (left), Channing's mom, to discuss her daughter's condition. Pediatric nurse practitioner Gretchen Golas keeps Channing entertained. Gahl is encouraged by Channing's progress and tells Lanna that they don't need to come back for two years. Gahl is considered the nation's expert on cystinosis. "Of the 500 or so patients in the world who have been identified with the disease, NIH has put me in the position to see more than 200," says Dr. Gahl. "That's remarkable. A researcher needs to have access to the people who have the illness. Here at NIH, the children can come for free, stay for free and be treated for free. There's nothing to compare to that anywhere else." Without The Inn, many of NIH's larger pediatric studies simply couldn't be done.

11:30 a.m.



Drawing Blood: The blood drawn from Channing will show how much cystine is in Channing's white blood cells. If there's too much, crystals form in the patient's organs and shut down their function. Today, Channing's cystine counts are in the "normal" range.

11:45 a.m.



Channing hugs fellow cystinosis patient, Alex: They could almost pass for twins. After seeing the doctor, Channing hugs Alex Weaver of Mechanicsville, Va., who also has cystinosis and has also just seen Dr. Gahl. The families of the two children became friends while staying at The Children's Inn.

About the Children's Inn

The Children's Inn at NIH is a private, non-profit, family-centered residence for pediatric outpatients and their families. Its purposes are to keep children together with their families during serious illness, reduce their stress and facilitate their healing through mutual support. The Children's Inn opened its doors in 1990 to receive pediatric patients and their families. Since then, The Inn has been in continuous operation: 24-hours-a-day, seven days a week, 365 days a year. During the past 16 years, nearly 6,000 seriously ill children and their families have made almost 40,000 visits to The Inn. For more information, call (301) 496-5672 or toll free 800-644-4660 or visit www.childrensinn.org/.



12 p.m.

Medicine and mom: The emotionally taxing Clinical Center visit is over, and Channing collapses into a nap. Still, Lanna must stay on the clock. At the stroke of noon, as she does every 6 hours, she prepares to give 200 milligrams of life-saving Cystagon to Channing, by mouth. "I told the doctors, tell me what to do to save my child and I'll do it. I'm going to do it better than anyone."



2 p.m.

A sunnier Channing emerges after the Clinical Center business: As mom makes the bed, preparing the room for the next guest, her elfin daughter dashes around the room. We're going home!



3 p.m.

Headed home: Late in the afternoon, mother and daughter await a ride to the airport, on a bench in front of The Children's Inn. They'll return tonight to Hawthorne, Fla., and to husband and father Channing James O'Halloran. The day has been hectic but the medical report good. The Children's Inn has helped provide them a home-like haven during their stay at NIH.

Story by Melanie Modlin
Photography by Veronika Lukasova

Two Other Family Residential Programs

Ronald McDonald House

The three core programs of the Ronald McDonald House Charities (RMHC)—the Ronald McDonald House, Ronald McDonald Family Room and Ronald McDonald Care Mobile—are focused on helping families in need. The cornerstone Ronald McDonald House program began in 1974 based on a simple idea: Provide a “home-away-from-home” for families of seriously ill children receiving treatment at nearby hospitals. Since that time, more than 10 million families around the world have benefited from the comfort provided by a Ronald McDonald House.

The Ronald McDonald Family Room program extends the comfort of a Ronald McDonald House to a hospital setting. The Family Room provides a place to escape the stress and tension of the hospital. For more information, visit www.rmhc.org.

Fisher House

The Fisher House program is a private-public partnership that supports America's military in their time of need. Because members of the military and their families are stationed worldwide and must often travel great distances for specialized medical care, Fisher House Foundation donates “comfort homes,” built on the grounds of major military and VA medical centers. These homes enable family members to be close to a loved one at the most stressful times—during the hospitalization for an unexpected illness, disease or injury. For more information, visit www.fisherhouse.org.

A Relentless Illness—

Fighting Diabetes

One of America's most talented and popular actresses is also one of the world's leading champions in the fight to control and cure type 1 diabetes.

Mary Tyler Moore and participants at the Juvenile Diabetes Research Foundation's 2005 Children's Congress, held in the nation's capital.



As international chairman of the Juvenile Diabetes Research Foundation (JDRF) for more than 20 years, Mary Tyler Moore has helped achieve remarkable advances in the understanding and treatment of type 1 diabetes—even as she has fought to control her own type 1 diabetes. Her frequent visits to lobby Congress on behalf of research and her highly visible public service campaigns have helped to increase JDRF’s commitment to research from a total of \$25 million in 1984 to more than \$1 billion today.

Recently, Moore joined with NIH and the Friends of the National Library of Medicine (FNLM) to help introduce *NIH MedlinePlus* magazine on Capitol Hill to gain even more visibility for the www.medlineplus.gov Web site and its extensive diabetes educational and clinical information resources.

Today, many people call JDRF (www.jdrf.org) “Mary’s Foundation,” the leading charitable funder and advocate of type 1 diabetes research.

How has diabetes affected your life?

Nearly 40 years have passed since I was diagnosed with type 1 diabetes. During this time, I have tried to take “control” of this relentless illness. The millions who suffer from diabetes still confront the specter of devastating complications, despite our best efforts. Insulin is not a cure—it is life support, enabling us to live our lives until a cure is found.

What are the symptoms of type 1 diabetes, and how can I get additional information about this disease?

Type 1 diabetes, unlike type 2 diabetes, strikes suddenly and cannot be ignored. At the time of onset, a person with type 1 diabetes feels terribly tired and off kilter. Symptoms of the disease can vary from person to person and include extreme thirst, frequent urination, drowsiness, sudden vision changes, an increased appetite, sudden weight loss, heavy breathing, sweet-smelling breath and even unconsciousness. People who suspect that either they or someone they care for might have diabetes should get to a doctor immediately.

As for additional resources, I champion the efforts that are being made through *NIH MedlinePlus* to provide easily understandable and reliable information on behalf of all people and their families affected with diabetes. I am honored to be part of the launch of this new publication. It will have a positive impact on the diabetes community by providing patient education, information about federally and privately supported

clinical research in human volunteers, and directories of health care services and facilities.

When you were diagnosed with type 1 diabetes, did it take a while for the reality to sink in?

I was incredulous at first. I was, after all, a very healthy and active adult, and I didn’t ever expect something like that to happen to me. That may be why, initially, I wasn’t receptive to the regimen my doctors told me I had to follow. But they worked hard to make me understand that diabetes is a serious disease. When

*From Mary ...
a personal perspective on living
with diabetes.*

Wanted:

*People of ability in mathematics
possessing knowledge of nutrition
who willingly take direction
and strive for precision.*

*Must deny the relentless calls
of the bakery
And be prepared to face failure
each day without losing heart.
All others need not apply.*

Types of Diabetes

Type 1 Diabetes

Type 1 diabetes, formerly called juvenile diabetes or insulin-dependent diabetes, is usually first diagnosed in children, teenagers or young adults. Treatment for type 1 diabetes includes taking insulin shots or using an insulin pump, making wise food choices, exercising regularly, controlling blood pressure and cholesterol, and islet cell transplantation (an experimental method to help control blood glucose levels without insulin injections).

Type 2 Diabetes

Type 2 diabetes, formerly called adult-onset or noninsulin-dependent diabetes, is the most common form of diabetes. People can develop type 2 diabetes at any age. Being overweight and inactive increases the chances of developing type 2 diabetes. Treatment includes taking diabetes medicines, making wise food choices, exercising regularly, taking aspirin daily, controlling blood pressure and cholesterol, and use of oral or injected insulin.

Gestational Diabetes

Some women develop gestational diabetes during the late stages of pregnancy. Although this form of diabetes usually goes away after the baby is born, a woman who has had it is more likely to develop type 2 diabetes later in life.

—from *National Diabetes Information Clearinghouse, National Institute of Diabetes and Digestive and Kidney Diseases, NIH*

Preventing Diabetes

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) suggests these steps to prevent or control type 2 diabetes:

- **Reach and maintain a reasonable body weight**—Losing even a few pounds can help reduce your risk of developing type 2 diabetes because it helps your body use insulin more effectively. People who lose between 5 and 7 percent of their body weight significantly reduce their risk of type 2 diabetes. For example, if you weigh 200 pounds, losing only 10 pounds could make a difference.
- **Avoid crash diets.** Instead, eat less of the foods you usually have. Limit the amount of fat you eat.
- **Increase your physical activity.** Aim for at least 30 minutes of exercise most days of the week.
- **Set a reasonable weight-loss goal, such as losing 1 pound a week.**
- **Take a hard look at the serving sizes of the foods you eat.** Reduce serving sizes of main courses (such as meat), desserts and foods high in fat. Increase the amount of fruits and vegetables. Limit your fat intake to about 25 percent of your total calories. Your doctor or dietitian can help you with a meal plan that emphasizes weight loss.
- **Keep a food and exercise log.** Write down what you eat, how much you exercise—anything that helps keep you on track.
- **Take your prescribed medications.** Some people need medication to help control their blood pressure or cholesterol levels. If you do, take your medicines as directed. Ask your doctor whether there are any medicines you can take to prevent type 2 diabetes.

that sank in, then I became vigilant about managing my diabetes.

You also took the step to make your diagnosis public. Why did you decide to do that?

When I was first diagnosed, I debated about how up front I should be about my diabetes, and whether telling colleagues might hinder my work as an actor. But I also realized that if I did speak out, I might be able to help others better cope and manage their diabetes. This was my thinking when I accepted the invitation to be the International Chairman of JDRF in 1984 and be in the vanguard of their efforts to find a cure for diabetes and its complications through the support of research.

My association with JDRF has enabled me to both increase diabetes awareness and to address and improve its course for others and myself. Through testimony before congressional committees, public service announcements, appearances in JDRF video reports and in person, I am proud to use my visibility to highlight the seriousness of diabetes and the critical need for increased support of research. What continues to give me great hope and optimism is my confidence that, through research, we can find a cure. In fact, for those interested in learning more about my life with diabetes, I am writing a new book that will be available in the spring of 2008.

When it comes to managing your diabetes, what part of it depends on your attitude and will power? How has your natural discipline and

determination helped you in the long run?

I think that attitude and will power have an enormous effect on diabetes management. I'm fortunate to have had professional training as a dancer—which nurtured the “natural discipline” you describe. Diet and exercise were areas where I could and did exert control, with positive results. And in getting myself on the right track, I also credit the support and encouragement of my physician and best friend, my husband Robert.



Mary's husband, S. Robert Levine, M.D., has chaired JDRF's Government Relations and Clinical Affairs Committees of the Board and recently was honored by Research!America for his volunteer and advocacy for medical and health research.

How has diabetes research affected your life and those of other diabetes sufferers?

Important research contributions from the government and public, private and not-for-profit sectors conducted over more than 35 years have made a real difference in the lives of many people—including me. For example, research, some of which was supported by JDRF, has helped to develop laser photocoagulation surgery, which arrests the progress of diabetic retinopathy and has saved me from blindness.

Research has identified a class of drugs to treat, possibly even reverse,

diabetic complications of the kidney. And the magic of genetic engineering has led to the development of nerve growth factors, which may one day be the answer to painful neuropathy. There is even good reason to believe that we are not too far from being able to replace our destroyed insulin producing cells with new ones.

Also of great interest is the very promising area of diabetes research that actually involves delaying the onset of the disease itself. JDRF-funded researchers in Europe have shown that short-term treatment with an antibody, called anti-CD3, can preserve enough insulin-producing cells and simultaneously decrease the body's need for insulin for at least 18 months—possibly much longer—in children and

adults with recent-onset type 1 diabetes. This “bench to bedside” research represents an important step forward in finding ways to prevent and stop type 1 diabetes by changing the clinical course of the disease.

What does the future hold for you in terms of your advocacy on behalf of Americans with diabetes?

I continue to be heartened and reassured by the responsiveness of our legislative leaders and their willingness to address the great needs we bring before them. By highlighting the staggering



Mary Tyler Moore (center) cuts the ribbon to kick off JDRF's Walk to Cure Diabetes.

personal and financial costs of diabetes and the promise of a cure through research, JDRF's message is very effective and positive, and so very rewarding for me to share with members of Congress and have it heeded. ■

Type 2 Diabetes Widespread in Adults

One-Third of People with Type 2 Still Don't Know They Have It

By Harrison Wein, Ph.D.

In a new analysis of national survey data, researchers found that the prevalence of diabetes in U.S. adults is continuing to rise. And despite efforts to raise awareness of the problem, about a third of adults with diabetes still don't know they have it. Diabetes is a group of diseases marked by high levels of glucose in the blood. Persistent high levels can lead to blindness, kidney failure, amputations, heart disease and stroke.

Researchers at NIH and the Centers for Disease Control and Prevention (CDC) recently analyzed data from a national sample of U.S. adults 20 years old and over who took part in the National Health and Nutrition Examination Survey.

The researchers found that the prevalence of diagnosed diabetes in U.S. adults rose from about 5.1 percent in the years 1988–1994 to 6.5 percent in 1999–2002. About 2.8 percent of U.S. adults, a third of those who have diabetes, don't even know they have it. The study also found that about a quarter of U.S. adults have impaired fasting glucose, a form of pre-diabetes. People with pre-diabetes have an increased risk for developing type 2 diabetes, the most common form of diabetes, and for heart disease and stroke. If you have pre-diabetes, you may be able to prevent or delay type 2 diabetes by cutting calories and increasing your physical activity to lose a modest amount of weight. A major study of people with pre-diabetes showed that lifestyle changes leading to a 5-7 percent weight loss lowered diabetes onset by 58 percent.

If you have diabetes, controlling your blood glucose, blood pressure and cholesterol will prevent or delay the complications of diabetes.



Need more information on Diabetes?

From www.MedlinePlus.gov:

- **Interactive Tutorials:** Click on **Interactive Tutorials** at upper right; on the next screen, under **Diseases and Conditions**, click on any of **four interactive tutorials on diabetes**.
- **Health Topics:** Click on **Health Topics** at upper left of main screen; on the next screen at lower right, click on **Easy To Read**; on the following screen, click on the **"D"** in the alphabetical listing; scroll down the next screen to find 30 articles, many also in Spanish, about diabetes.



Linda Saisselin, a hiker once more, got relief from her osteoarthritis primarily from lifestyle changes, including weight loss.

Easing Arthritis

Research offers new hope for people with common joint disease.

When Linda Saisselin was diagnosed with arthritis 10 years ago, she managed pretty well despite pain and swelling, which at that time was confined to her hands. She continued to fill out the paperwork required by her job as a social worker. She played the piano in her free time. But four years later, when arthritis affected her knees, pain plagued her every step. Living in New York City, Saisselin relied on walking and public transportation to get her everywhere. But walking became more and more difficult. Getting on and off the subway was even worse. Medicines to control the pain affected her concentration at work. Finally, when she could bear the pain no more, she had a total joint replacement—surgery to replace her own damaged joint with a new artificial one—on the more painful of the two knees. Today, at 65, Saisselin enjoys hiking with her husband and holding her new grandson. Except for occasional swelling and pain in her hands, she is practically pain free.





Today, Linda Saisselin takes joy in holding her new grandson—pain free.

Forms of Arthritis

Osteoarthritis (OA)—the form of arthritis typically occurring during middle or old age, this is a joint disease that mostly affects cartilage, the slippery tissue that covers the ends of bones in a joint. In OA, the top layer of cartilage breaks down and wears away. This allows bones under the cartilage to rub together. The rubbing causes pain, swelling and loss of motion of the joint.

Rheumatoid Arthritis (RA)—a usually chronic disease that is considered an autoimmune disease—caused by a person's immune system attacking his or her own body tissues. It causes pain, stiffness, inflammation, swelling and, sometimes, destruction of joints.

Gout—a form of arthritis that occurs when uric acid, a bodily waste product, deposits as sharp crystals in the joints. Some 2.1 million Americans have gout.

Lupus—a form of arthritis, like rheumatoid arthritis, in which the immune system attacks the joint tissue. In lupus, the attack may also affect the skin, blood, nervous system and internal organs. Lupus affects 9 to 10 times as many women as men. It typically begins during the early-adult years.

Juvenile arthritis—arthritis that is diagnosed before age 16. The most common form of juvenile arthritis, juvenile rheumatoid arthritis, affects between 30,000 and 50,000 children nationwide.

A Common and Growing Problem

Linda Saisselin is one of an estimated 43 million Americans with arthritis, a problem that is becoming more common as the population ages. By 2030 as many as 67 million Americans (one-fourth of the adult population) will have arthritis, according to CDC estimates. For many, that will mean daily pain, high medical costs and difficulty holding a job or doing everyday tasks, such as going up stairs, getting in and out of chairs, opening jars and buttoning shirts.

Although commonly referred to as if it were a single disease, arthritis is actually a term used for more than 100 conditions that cause pain, swelling and stiffness in the joints. (See “Forms of Arthritis,” at left.) Osteoarthritis (OA), the type Saisselin has, is the most common of the diseases. It affects 21 million Americans—about 10 times as many people as the second most common, rheumatoid arthritis (RA). RA is more common in women than men. It usually starts in the middle adult years. OA affects both sexes almost equally. It grows more common with age. One-third of people 65 and older have OA of the knee that can be seen on X-ray.

In OA, joint cartilage—the smooth, spongy tissue that covers the ends of the bones where they meet to form joints—breaks down. Bony growths, called spurs, form in the joints. The joints most likely to be affected are the hips and knees and those of the fingers, neck and lower back. In RA, the body's immune system—which normally defends us against invaders such as viruses and bacteria—attacks the membrane lining the joints. The joints usually affected are those of the hands, wrists, shoulders, elbows, knees, ankles and feet. If not stopped, this attack can

cause joint damage and deformity.

In recent years, research has led to great advances in treating RA. For many people, drugs that modify the immune system improve symptoms and prevent joint damage. But for OA, treatment does little to help the disease's progression. For most people, treatment consists of medicine to control pain followed by surgery when pain is no longer controllable.

But there's hope on the horizon. Many scientists, including David T. Felson, M.D., MPH, chief of the Boston University Clinical Epidemiology Research Training Unit, believe research holds clues for better treating the disease and perhaps more importantly, preventing its development.

“I was always interested in things that were really common and where prevention was possible,” says Dr. Felson, who has authored some 140 published studies on OA. Most of those studies were funded by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). “That wasn't possible in rheumatoid arthritis, although rheumatoid arthritis treatment is quite wonderful now. In osteoarthritis, treatment isn't so wonderful now, but prevention is a bigger opportunity.”

The good news, says Dr. Felson, is that strategies to prevent the disease are the same ones that may help prevent its progression. In most cases the best medicine for osteoarthritis isn't medicine at all, but measures you can take and lifestyle changes you can make yourself.

Non-Medicine Relief

For Saisselin, improvement came not just from her surgery, but from the physical therapy and lifestyle changes that followed. “I saw so much benefit from physical therapy that the physical therapist

Arthritis researchers like Dr. David Felson are encouraged by the positive effects lifestyle changes can have, especially in the treatment of osteoarthritis.



suggested it would be good for me to join a gym,” she says. “Then, after I joined the gym, I started thinking, ‘I just exercised for an hour, and now I’m going to put a cookie in my mouth?’”

As a result of her new exercise program and approach to eating, Saisselin lost 25 pounds. By the time she went back to the doctor for her six-month check-up, she realized the pain in the knee not replaced was gone, too.

Arthritis specialists, including Dr. Felson, say weight loss is one of the best things people can do for OA—either to prevent or ease it. “What we have found is that at every level of weight, a little bit higher increased the risk of OA for women,” he says. “So if you take normal-

weight women and compare them to very thin women, normal-weight women are at higher risk.” Conversely, he says, at every level of weight, if you lost a little weight, it would decrease your risk. And if you had pain in your knees it would likely help with that.

What’s Ahead?

Other key areas of NIAMS-supported OA research involve understanding the basic processes of the disease and looking for drugs that might help rebuild lost joint cartilage. Researchers are also working to identify biomarkers—signs in the body’s tissues, blood or cells that can enable doctors to determine what is happening or going to happen in the body. Dr. Felson

believes one day doctors will be able to tell from biomarkers—such as a specific gene or low vitamin K levels—who is at greatest risk of suffering joint damage. Then they can prescribe preventive therapies for those people.

In the meantime, preventive measures such as losing weight (if necessary), exercising and eating more broccoli are good ideas for everyone. And, says Dr. Felson, they may well prevent more than arthritis. ■

Need more information on Arthritis?

From www.MedlinePlus.gov:

- For a slideshow with sound and pictures: Click on **Interactive Tutorials** at upper right; on the next screen, under **Diseases and Conditions**, click on **Arthritis, Rheumatoid Arthritis, or Osteoarthritis**.
- For more on Arthritis: Click on **Health Topics** at upper left of main screen; click on **A**, scroll down to **Arthritis**. Under **From the National Institutes of Health**, click on **Do I Have Arthritis?**

What you can do for OA

Promising and potential OA therapies include:

Strengthening exercises: Research has shown a connection between the risk of knee OA and the strength of the quadriceps, the long muscles of the thighs. Exercise to strengthen those muscles can not only reduce the risk of OA but can ease the pain of existing OA. Swimming, walking and weight lifting are good exercises.

Braces, sleeves and taping: When muscles alone can’t properly support the knees, research shows that neoprene sleeves, braces and taping can relieve OA pain.

Medicines: For pain relief, doctors usually start with acetaminophen because the side effects are minimal. If acetaminophen does not relieve pain, then non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen and naproxen may be used. In addition, the COX-2 inhibitor celecoxib may be used. These medicines reduce inflammation similarly to traditional NSAIDs, but they cause fewer gastrointestinal side effects. However, these medications occasionally are associated with harmful reactions ranging from mild to severe. Corticosteroids, hyaluronic acid and topical creams are also used.

Eastern medicine: NIAMS-supported research has shown that acupuncture—the placement of thin needles at specific points on the body—is effective for OA pain.

Understanding

Flu

By Bonny McClain





Whether the topic is seasonal influenza, bird flu or something called a pandemic, everyone seems to be searching for answers about how to avoid them all. One of your best defenses is to understand them.

The cooler evenings, changing of the leaves and return to school signify that autumn is upon us. They also mean that more people are thinking about the coming flu season. It is time to gear up for seasonal influenza and to make sure you understand all the talk about bird (avian) flu and pandemics.

The flu season in the United States typically ranges from November through March, but it is never too early to be prepared.

Influenza, or the flu as it is often called, is a contagious disease caused by the influenza virus. Influenza attacks the respiratory tract in humans (nose, throat and lungs), has the potential to cause mild to severe illness and at times can lead to death. The flu is different from a cold, and typically comes on suddenly and may include the following symptoms:

- fever (usually high)
- headache
- extreme tiredness
- dry cough
- sore throat
- runny or stuffy nose
- muscle aches
- stomach symptoms, such as nausea, vomiting and diarrhea, also possible; more common in children than adults

According to the Centers for Disease Control and Prevention (CDC), influenza accounts for approximately 36,000 deaths and more than 200,000 hospitalizations

every year in the United States. It is among America's most lethal killers simply because the virus infects so many people—some 5 to 20 percent of the U.S. population every year. (For information on new influenza vaccines, see page 5 in this issue.)

Influenza Viruses

There are three types of influenza viruses with the ability to infect humans. They are designated A, B and C. Only influenza types A and B cause epidemics of illness that typically occur every winter.



Is It a Cold or the Flu?

Symptoms	Cold	Flu
Fever	Rare	Usual; high (100°F to 102°F; occasionally higher, especially in young children); lasts 3 to 4 days
Headache	Rare	Common
General Aches, Pains	Slight	Usual; often severe
Fatigue, Weakness	Sometimes	Usual; can last up to 2 to 3 weeks
Extreme Exhaustion	Never	Usual; at the beginning of the illness
Stuffy Nose	Common	Sometimes
Sneezing	Usual	Sometimes
Sore Throat	Common	Sometimes
Chest Discomfort, Cough	Mild to moderate; hacking cough	Common; can become severe
Treatment	Antihistamines Decongestant Nonsteroidal anti-inflammatory medicines	Antiviral medicines—see your doctor
Prevention	Wash your hands often Avoid close contact with anyone with a cold	Annual vaccination; antiviral medicines—see your doctor
Complications	Sinus congestion Middle ear infection Asthma	Bronchitis, pneumonia; can be life threatening

U.S. Department of Health and Human Services
National Institutes of Health
National Institute of Allergy and Infectious Diseases

www.niaid.nih.gov



Dr. Richard Webby is part of a research team studying the development of new strains of flu, including avian (bird) flu.

Influenza type C usually does not cause symptoms or may cause a very mild respiratory illness. This type does not have the severe public health impact of types A and B. Efforts to control the impact of influenza are directed at types A and B.

Currently, different strains circulate globally: three type A viruses and one type B. Type A viruses are divided into subtypes based on differences in two viral proteins called hemagglutinin (H) and neuraminidase (N). The current subtypes of influenza A are designated A(H2N1) and A(H3N2).

Influenza type A viruses undergo

two kinds of changes. One is a series of mutations that occur over time and cause a gradual evolution of the virus. This is called antigenic “drift.” The other kind of change is an abrupt change in the hemagglutinin and/or the neuraminidase proteins. This is called antigenic “shift.” In this case, a new subtype of the virus emerges suddenly. Type A viruses undergo both kinds of changes; influenza type B viruses change only by the more gradual process of antigenic drift.

This constant changing of the virus allows it to evade the immune system of its host, so that people are susceptible to influenza virus infection throughout their lifetime. For example, a person infected with influenza virus develops antibodies against that virus. An antibody is a protein produced by the body’s immune system. The protein recognizes and helps fight infections, such as the influenza virus and other foreign substances in the body. As the virus changes, the “older” antibody no longer recognizes the “newer” virus, and infection can occur again. The older antibody can, however, provide partial protection against the virus and may result

in a milder infection.

Influenza viruses can also emerge that have the ability to infect species other than their natural reservoirs, such as migratory birds. These viruses can infect domestic poultry or pigs, and rarely, humans. When animal viruses develop the ability to infect humans, these infections usually are not easily spread into the human population. However, the virus has the ability to mutate in a manner that may allow human-to-human transmission to occur more easily. The concern is that an animal and human influenza may infect a person or animal simultaneously, allowing the genes between the viruses to be exchanged. This would potentially yield a virus that would be readily transmitted between humans, but the human population would have no immunity. This example of antigenic shift is the likely source of a global influenza pandemic.

What Is Bird Flu?

The National Institutes of Health (NIH) has increased influenza research at least five-fold, from \$20.6 million in 2001 to approximately \$119 million in 2005.

How Does Seasonal Flu Differ From Pandemic Flu?

Seasonal Flu	Pandemic Flu
Outbreaks follow predictable seasonal patterns; occurs annually, usually in winter, in temperate climates	Occurs rarely (three times in 20th century—last in 1968)
Usually some immunity built up from previous exposure	No previous exposure; little or no pre-existing immunity
Healthy adults usually not at risk for serious complications; the very young, the elderly and those with certain underlying health conditions at increased risk for serious complications	Healthy people may be at increased risk for serious complications

For additional information on seasonal flu visit: <http://www.hhs.gov/flu/>.

Research efforts have discovered three known “A” subtypes of influenza viruses (H1N1, H1N2 and H3N2) currently circulating among humans. It is likely that some genetic component or components of current human influenza A viruses originally came from birds. The risk from avian influenza is generally low for the majority of people because the viruses do not usually infect humans. H5N1 is one of the few avian influenza viruses to have crossed the species barrier to infect humans, and it is the most deadly of those that have crossed the barrier.

Most cases of H5N1 influenza infection in humans have resulted from contact with infected poultry (e.g., domesticated chicken, ducks and turkeys) or surfaces contaminated with secretion/excretions from infected birds. Currently, the spread of H5N1 virus from person to person has been limited and has not continued beyond one person. Because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus one day could be able to infect humans and spread easily from one person to another.

“The avian flu interacts in a way that human influenzas do not,” says Richard Webby, Ph.D., a research scientist at St. Jude Children’s Research Hospital in Memphis, Tennessee. He is part of a highly regarded research team, funded in part by the NIH’s National Institute of Allergy and Infectious Diseases (NIAID), that is studying emerging flu viruses and the development of flu vaccines to stop them.

Currently, H5N1 is transmitted to humans through close contact with infected chickens. But if the virus acquires a mutation that enables it to pass directly from person to person like the annual human influenza does, the resulting pandemic could be disastrous, notes



Preventing Influenza

Because flu viruses spread in respiratory droplets distributed by coughing and sneezing, they readily spread from person to person. Additionally, people may become infected by touching surfaces contaminated with flu virus and then touching their mouths and noses. Most healthy adults may be able to infect others as soon as one day before symptoms develop and up to five days after actually becoming sick. That means that you can pass on the flu to someone else before and after you know you are sick. It is important to **avoid close contact** with people who may have influenza. **If you are sick, keep your distance from others** and, if possible, stay home from work, school and other activities. You will help prevent the spread of germs and protect others from catching the flu. **By covering your mouth and nose with a tissue** when coughing or sneezing, you may help prevent those around you from getting the flu. **Frequent hand washing** will also help protect you and others from germs. In the United States, the primary option for reducing the effect of seasonal influenza is through **annual vaccination**.

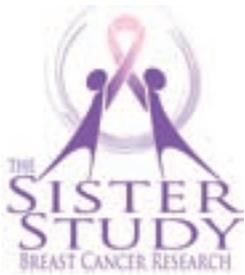
Robert G. Webster, Ph.D., a colleague of Dr. Webby’s and co-author of a recent research paper on H5N1.

“Our findings tell us that the best way to prevent such an outbreak is to control H5N1 at its source—domestic poultry in southern China,” Webster says. “Early detection of the virus and large-scale culling of infected poultry is one of the key strategies for controlling highly pathogenic strains of H5N1. Control measures have been less effective in China, Indonesia and Vietnam; and the problem that has allowed the virus to take root in those countries and repeatedly jump from poultry to other species, including humans, has not been solved.” ■

Need more information on Flu?

MedlinePlus.gov:

- For a slideshow with sound and pictures: Click on **Interactive Tutorials** at upper right; on the next screen, under **Diseases and Conditions**, click on **Influenza**.
- For treatment of Flu: Click on **Health Topics** at upper left of main screen; click on **F**, scroll down to **Flu**. Under **Treatment**, click on **Flu Drugs**.



Tina (left) and Wanda Hall

One Sister's Story

By Tina Hall
Sister Study participant

One day in April, after my sister returned from a trip, she called to inform me that she had discovered a lump under her left arm. She made an appointment to have it checked out and, after two weeks, my sister had confirmation that it was, in fact, breast cancer. We discussed the treatment recommended by her doctor.

By Dale Sandler, Ph.D.

All in the Family:

The Sister Study

For thousands of women whose sisters have or have had breast cancer, the Sister Study is helping uncover clues that may ultimately eliminate this dreaded disease.

We all know that breast cancer does not discriminate. Whether a woman is in her 30s or over 65, Asian American or African American, executive or laborer, this disease is a major health concern for women everywhere. When diagnosed most women ask, "Why and how did I get this disease? Is it something I did or was exposed to?"

Unfortunately, as of today, there is no clear answer. Wouldn't you like to know if breast cancer is caused by something women come in contact with at work, at home or in their communities? That's what the Sister Study is trying to answer.

The Sister Study is a nationwide research study of sisters of women who have had breast cancer, being conducted by the NIH's National Institute of Environmental Health Sciences (NIEHS). The purpose of the Sister Study is to learn how the environment and genes may interact to affect the chances of getting breast cancer. This long-term observational study is specifically looking at variations in genes that affect the biologic response to exposures to certain chemicals, foods and hormones. Sisters of women with breast cancer have a special interest in participating because they have about twice the risk of developing breast cancer themselves, compared with the general population.

We've enrolled more than 27,000 participants, but need thousands more. With a goal of enrolling 50,000 women by September 2007, our team of researchers cannot find the causes of breast cancer without the participation of a diverse cohort of women. We are committed to enrolling women from all backgrounds, occupations, races, ethnicities and regions.

Dr. Anna Nápoles-Springer, assistant adjunct professor at the University of California, San Francisco, learned about the Sister Study at a meeting for Redes En Acción, an organization battling cancer among Latinos. "I was greatly encouraged to learn of the tremendous efforts being made by the Sister Study,

nationally and at the grassroots level, to enroll ethnic minority women, since historically we have not been well represented in research," says Dr. Nápoles-Springer. "Only by participating can we be confident that the results will apply to women such as ourselves, so that our communities can benefit."

Women ages 35 to 74 may be eligible to join the Sister Study if (1) their sister (living or deceased), related to them by blood, had breast cancer; (2) if they themselves have never had breast cancer; and (3) if they live in the United States or Puerto Rico.

The Sister Study has made participation as convenient as possible. At the beginning, participants answer telephone and written surveys and provide blood, urine, household dust and toenail samples. The study is the first of its kind to collect such extensive and detailed information about environmental exposures. After that, our researchers contact participants once a year, for 10 years or more, to learn about changes in their health, lifestyle or environment. Participants are not required to take any medications, undergo any treatments, or make any changes in their daily lives.

We are inviting women and physicians to help us spread the word to those affected by breast cancer. The study's researchers and participants want to find the causes of breast cancer so that future generations, including the daughters, granddaughters and nieces of women, don't have to experience the disease.

The Sister Study has free, multiethnic brochures available for distribution, and is available in English and Spanish.

Want to Volunteer for the Sister Study?

To volunteer or learn more about the Sister Study, visit the Web site www.sisterstudy.org; for Spanish, visit www.estudiodehermanas.org. A toll free number is also available: 1-877-4SISTER (877-474-7837). Deaf or hearing-impaired women may call 1-866-TTY-4SIS.



Principal Investigator, The Sister Study
Chief, Epidemiology Branch
The National Institute
of Environmental Health Sciences (NIEHS)

continued from page 22

At that time, I was the strong and supportive sister. Once I hung up the phone, I began to wonder, “Will I have to take care of her; Will my two nephews come to live with me or go live with their father; are my sister’s affairs in order? We had been through this with our mother, who had been diagnosed with colon cancer. And our lives had changed rapidly in order to provide the care our mother needed in the months before she passed.

I started to think of how similar our health issues are among the

things we share. We were both being monitored for colon cancer. I didn’t know what to expect, but I did know that I would be there for her. My sister was a trouper. She kept her head up and maintained a positive attitude. She used humor to deal with the hard things, like the loss of her hair. We began to increase our phone calls and had a few more visits than in the past. I reassured my sister of how proud I was of her and how beautiful she is.

Now, Wanda has completed her chemotherapy and radiation

treatments. Her hair is growing back, and she has regained her figure. My sister is very active in her local chapter of Sisters Network, Inc.

I became involved in the Sister Study at the invitation of my sister. Wanda cares enough about me and other women that she would like to ensure that all women are aware of the importance of prevention, treatment and cure. We talk about the need for women to know that breast cancer can be hereditary, and that early detection is vital through

Preventing Breast Cancer:

By Michael Miller

Making Progress

In 2006, an estimated 213,000 women will have been diagnosed with invasive breast cancer, and nearly 41,000 women will die from the disease. Although breast cancer can strike any woman, it is older women, African Americans, the poor and those with limited health care access who are disproportionately affected.

Over the past three decades, intensive research by NIH’s National Cancer Institute (NCI) has been applied to all aspects of breast cancer and led to many important discoveries:

- how a healthy breast cell becomes cancerous
- how breast cancer spreads
- why some tumors are more aggressive than others
- why some women suffer more severely and are more likely to die of their disease

Many of the lessons learned have been applied to understanding ways to prevent the disease before it even starts. One

of the best ways to prove that a drug or therapy can prevent a disease is to conduct a large, randomized trial. Often these trials require the enrollment of thousands of women to make certain that the results are valid and can be applied to most women.

Since the 1980s, the NCI, in conjunction with the National Surgical Adjuvant Breast and Bowel Project (NSABP), has undertaken two large-scale trials for the prevention of breast cancer.

First was the Breast Cancer Prevention Trial (BCPT), which included more than 13,000 women at increased risk for breast cancer. The BCPT demonstrated the value of the drug tamoxifen in reducing the number of new cases of the disease. The final study analysis was released in November 2005.

“The BCPT should be viewed not only as the first study that demonstrated that breast cancer can be prevented, but also as the beginning from which a new paradigm for breast cancer prevention evolved,” says Bernard Fisher, M.D., principal investigator for the trial. “Groups of women at increased risk

breast self-examination and regular mammograms.

This research is especially important for women of color, whether African American, Hispanic, Native American or Asian American. There is not enough information about minority women, so we are unsure of what to do, we are afraid of not understanding what the doctor is telling us, and we infrequently participate in research studies. Breast cancer doesn't have to be a death sentence. The more researchers know,

the better they can predict or prevent this from affecting so many women. Sisters have a common bond in their genetic makeup.

The Sister Study enables researchers to look at the environmental and genetic issues that may contribute to the development of breast cancer. This research is only beneficial if they have committed participants. I invite you to get involved, not only for yourself but for generations of women to come. ■

Need more information on Breast Cancer ?

From www.MedlinePlus.gov:

- **For a slideshow with sound and pictures:** Click on **Interactive Tutorials** at upper right; on the next screen, under **Diseases and Conditions**, click on **Breast Cancer**.
- **For more on Breast Cancer:** Click on **Health Topics** at upper left of main screen; click on **B**, scroll down to **Breast Cancer**. Under **From the National Institutes of Health**, click on **What You Need to Know about Breast Cancer**.

for breast cancer, who could derive a net benefit from receiving tamoxifen, have been clearly defined."

The study also showed proof of a benefit from tamoxifen beyond the time a woman is taking the pills, notes Leslie Ford, M.D., associate director for NCI's Division of Cancer Prevention and co-author of the study.

Based on the success of the BCPT and results of reports in the medical literature, the Study of Tamoxifen and Raloxifene (STAR) trial was started in 1998. That study enrolled more than 19,000 women to compare the effects of these two drugs in reducing the incidence of breast cancer, and found a reduction in risk of developing breast cancer for both drugs similar to the reduction found for Tamoxifen alone in the BCPT.

Studies, such as BCPT and STAR, involve women who have not had breast cancer, but are at high risk of developing the disease. Most breast cancer prevention research, thus far, has been based on evidence

Genetic Testing

Approximately 5 to 10 percent of women who develop breast cancer have a hereditary form of the disease. Alterations in certain genes make some women more susceptible to developing breast and other types of cancer. Inherited alterations in the genes called BRCA-1 and BRCA-2 (short for breast cancer 1 and 2) are involved in many cases of hereditary breast and ovarian cancer. Testing is available that will determine if there are changes in the BRCA-1 or BRCA-2 genes. For more information, go to www.medlineplus.gov and type "BRCA" in the Search box.

linking the development of this disease, in many cases, with exposure to the hormone estrogen. The focus of recent breast cancer prevention studies has been on testing the effectiveness of drugs called selective estrogen receptor modulators (SERMs). SERMs are drugs that have some anti-estrogen properties and some estrogen-like properties. Their anti-estrogen activity may help reduce the risk of breast cancer by blocking the effects of estrogen on breast tissue.

Now that the BCPT and STAR have shown that SERMs can effectively reduce the risk of developing breast cancer, NCI and NSABP are developing a trial to see if a newer type of drug, called an aromatase inhibitor, can do an even better job of preventing breast cancer than the SERMs. Aromatase inhibitors stop an enzyme called aromatase from turning androgen into estrogen. Investigators are currently in

the planning stages of this trial, and enrollment could begin as early as 2007.

The National Network of Libraries of Medicine

Bringing the World of Medical Information to Your Neighborhood

By Angela B. Ruffin, Ph.D.,
Head, NN/LM National Network Office

The world's largest medical library is the National Library of Medicine, located on the 300-acre campus of the National Institutes of Health in Bethesda, Md. Unfortunately, not all people can visit Maryland to use NLM's vast array of books, journals and other resources. But thanks to the Internet, people around the country can access an amazing amount of reliable health information from home, work or school, free of charge, 24/7. And the National Network of Libraries of Medicine (NN/LM) exists to help Americans do just that.

NN/LM is a nationwide partnership of health sciences libraries, information centers, public libraries and community-based resource centers. Administered by the National Library of Medicine, the Network consists of eight Regional Medical Libraries, 160 Resource Libraries and over 5,000 members. Together, Network libraries strive to improve the health of all American citizens.

"The World Wide Web lets us share reliable health information with people around the world through MedlinePlus," says NLM Director Dr. Donald A.B. Lindberg. "But we have another important 'web' that is not as well known, and that's the National Network. The Network's partner libraries give NLM a vast reach, from cities to rural areas and even across oceans to our users in Alaska, Hawaii and the territories. The members help spread the word that good information is available, and there's a ripple effect as that

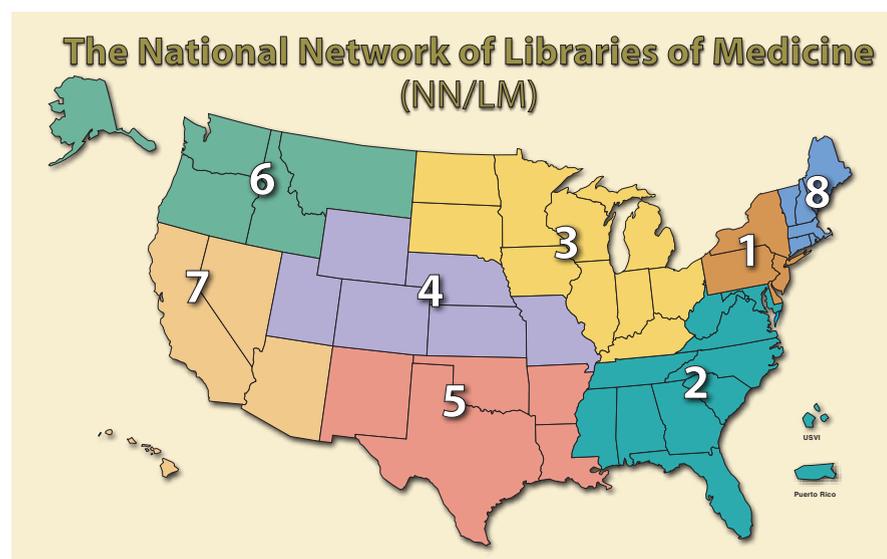
word goes out to consumers and health professionals nationwide."

NN/LM Network members work together to make sure that the latest and most accurate biomedical information is available to both health professionals and the public.

The Regional Medical Libraries (see map) coordinate a variety of services for the Network's eight geographic regions. Working cooperatively with the members of the Network as well as community-based organizations, faith-based organizations, tribal colleges, public health agencies and other institutions, they

promote good health information and the many online resources of the National Library of Medicine, such as MedlinePlus. Free RML-sponsored MedlinePlus workshops and presentations introduce health professionals and the public to a wealth of reliable and timely biomedical information in English and Spanish. ■

For further information on the National Network of Libraries of Medicine call 1-800-338-7657, which will connect you to your Regional Medical Library, or visit the NN/LM Web site at <http://nmlm.gov>.



- | | | | |
|--|--|---|--|
| 1 Middle Atlantic Region: New York University | 3 Greater Midwest Region: University of Illinois at Chicago | 5 South Central Region: Houston Academy of Medicine | 7 Pacific Southwest Region: University of California, Los Angeles |
| 2 Southeastern/Atlantic Region: University of Maryland at Baltimore | 4 MidContinental Region: University of Utah | 6 Pacific Northwest Region: University of Washington | 8 New England Region: University of Massachusetts |

imagine stopping the progression of Alzheimer's

I have friends and loved ones suffering from Alzheimer's. But I can imagine ... and hope for ... a world without this terrible disease.

You can help make a difference. A major brain imaging study led by the **National Institutes of Health** may help us learn how to stop the progression of Alzheimer's.

Please consider joining the study if you are between 55 and 90 and:

- are in good general health with no memory problems, **OR**
- are in good general health but have memory problems or concerns, **OR**
- have a diagnosis of early Alzheimer's disease.

For more information, call 1-800-438-4380 or visit www.alzheimers.org/imagine.



stopping the progression of Alzheimer's disease
ALZHEIMER'S DISEASE NEUROIMAGING INITIATIVE



National Institute on Aging

Maya Angelou
author, poet, educator



Photo: Courtesy of DignityCenter.com



NIH Quickfinder

For more information or to contact any of the following NIH institutes, centers and offices directly, please call or go online as noted below:

Institutes

- **National Cancer Institute (NCI)** www.cancer.gov
1-800-4-CANCER (1-800-422-6237)
- **National Eye Institute (NEI)** www.nei.nih.gov
(301) 496-5248
- **National Heart, Lung, and Blood Institute (NHLBI)**
www.nhlbi.nih.gov (301) 592-8573
- **National Human Genome Research Institute (NHGRI)** www.genome.gov
- **National Institute on Aging (NIA)**
www.nia.nih.gov
Aging information 1-800-222-2225
Alzheimer's information 1-800-438-4380
- **National Institute on Alcohol Abuse and Alcoholism (NIAAA)** www.niaaa.nih.gov
(301) 443-3860
- **National Institute of Allergy and Infectious Diseases (NIAID)** www.niaid.nih.gov
(301) 496-5717
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases** www.niams.nih.gov
1-877-22NIAMS (1-877-226-4267)
- **National Institute of Biological Imaging and Bioengineering (NIBIB)**
www.nibib.nih.gov (301) 451-6772
- **National Institute of Child Health and Human Development (NICHD)** www.nichd.nih.gov
1-800-370-2943
- **National Institute on Deafness and Other Communication Disorders (NIDCD)**
www.nidcd.nih.gov 1-800-241-1044 (voice)
1-800-241-1055 (TTY)
- **National Institute of Dental and Craniofacial Research (NIDCR)** www.nidcr.nih.gov
- **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)** www.niddk.nih.gov
Diabetes 1-800-860-8747
Digestive disorders 1-800-891-5389
Overweight and obesity 1-877-946-4627
Kidney and urologic diseases 1-800-891-5390

- **National Institute on Drug Abuse (NIDA)**
www.nida.nih.gov (301) 443-1124
- **National Institute of Environmental Health Sciences (NIEHS)** www.niehs.nih.gov
(919) 541-3345
- **National Institute of General Medical Sciences (NIGMS)** www.nigms.nih.gov
(301) 496-7301
- **National Institute of Mental Health (NIMH)**
www.nimh.nih.gov niminfo@nih.gov
1-866-615-6464
- **National Institute of Neurological Disorders and Stroke (NINDS)** www.ninds.nih.gov
braininfo@ninds.nih.gov 1-800-352-9424
- **National Institute of Nursing Research (NINR)**
www.nih.gov/ninr/ (301) 496-0207

Centers & Offices

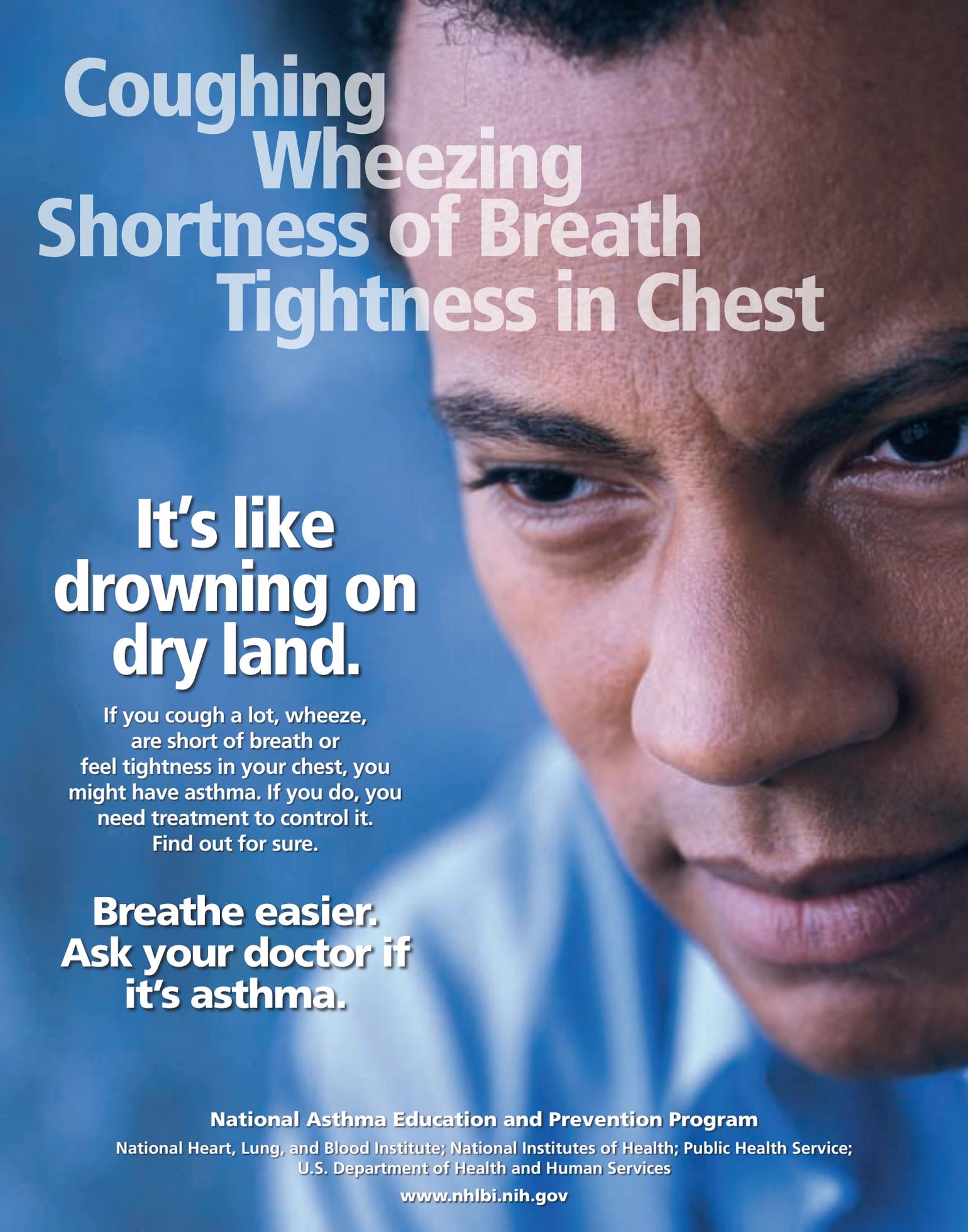
- **National Library of Medicine (NLM)**
www.nlm.nih.gov 1-888 FIND NLM
- **Center for Information Technology (CIT)**
www.cit.nih.gov (301) 594-6248
- **Center for Scientific Review (CSR)**
www.csr.nih.gov (301) 435-1115
- **Fogarty International Center (FIC)**
www.fic.nih.gov
- **National Center for Complementary and Alternative Medicine (NCCAM)**
www.nccam.nih.gov 1-888-644-6226
- **National Center on Minority Health and Health Disparities (NCMHD)** www.ncmhd.nih.gov
(301) 402-1366
- **National Center for Research Resources (NCRR)**
www.ncrr.nih.gov (301) 435-0888
- **Warren G. Magnuson Clinical Center (CC)**
www.cc.nih.gov
- **Office of Research on Women's Health (ORWH)**
<http://orwh.od.nih.gov> (301) 402-1770

In upcoming ISSUES

NIH MedlinePlus magazine will cover the topics and questions that Americans are telling us they want to find out more about, including:

- Women and Heart Disease—
The latest research findings
- New Hope for Back Pain
- Updated Guidelines
for Asthma Treatment
- Hidden Health Dangers
of Acid Reflux
- Talking About Depression
- Treatment for Sleep Disorders
- Warning Signs of Stroke
- On the Frontiers
of Genetic Research
- and much more





**Coughing
Wheezing
Shortness of Breath
Tightness in Chest**

**It's like
drowning on
dry land.**

If you cough a lot, wheeze,
are short of breath or
feel tightness in your chest, you
might have asthma. If you do, you
need treatment to control it.
Find out for sure.

**Breathe easier.
Ask your doctor if
it's asthma.**

National Asthma Education and Prevention Program

National Heart, Lung, and Blood Institute; National Institutes of Health; Public Health Service;
U.S. Department of Health and Human Services

www.nhlbi.nih.gov

Doctor Mom: A little something for your home practice.



Medline*Plus*.gov

MEDLINEplus.gov[®] is a free, comprehensive, up-to-date Web site with health information from the world's largest medical library, the National Library of Medicine of the National Institutes of Health. The library is working with physician groups to encourage their members to "prescribe" MedlinePlus for their patients who need information. Physicians who wish to participate in "InfoRx" can order their MedlinePlus prescription pads and other promotional materials at www.informationrx.org.



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National Library of Medicine, National Institutes of Health