

# NIH MedlinePlus®

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Fall 2012

the magazine

*Preventing & Managing*

## **Diabetes Complications**



*Movie and TV Star*

## **Anthony Anderson**

*Educating About the Dangers of Diabetes*

*Anthony Anderson and Tempestt Bledsoe  
star in the new NBC situation comedy,  
Guys with Kids.*

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# 2012 Awards Gala Event!

In mid-September, the Friends held its annual Awards Gala to celebrate advances in public health, medicine, and health communications, as well as the individuals and organizations dedicated to these causes. The 2012 Gala brought together representatives from the public, professional, and business sectors in health care to show their support for the Library.

Sincerely,  
Glen P. Campbell, Chairman  
Friends of the National Library of Medicine

►Glen Campbell, FNLM Chairman, receives the Distinguished Health Communications Award for Karen Hunter, Senior Vice President Global Academic & Customer Relations, Elsevier, who was unable to attend. Hunter's award recognized her for leadership in electronic delivery of information to libraries.

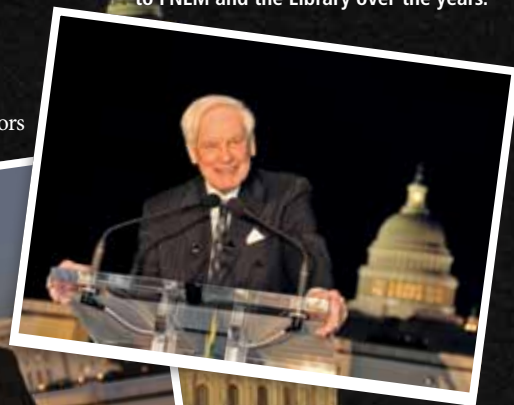
Photos: Michael Spencer, NIH



▲Anna Ercoli Schnitzer (center), MLIS, Disabilities Librarian, Taubman Health Sciences Library, University of Michigan received the Michael DeBakey Library Services Outreach Award from FNLM President Barbara Redman (left), PhD, and FNLM Board member Lucretia McClure, MA. Schnitzer was honored as a distinguished health sciences librarian serving special needs of the public.



▲The Honorable John Edward Porter (right), former U.S. Congressman from Illinois and currently Chair of Research!America and Vice-Chair of the Foundation for the NIH, received the Paul Rogers Award for Public Service from FNLM Executive Committee Chairman Ken Walker, MD. Porter was honored for his efforts to increase Congressional support of health research.



▼Outgoing FNLM Chairman and President Donald West King, MD, received a standing ovation for his many services to FNLM and the Library over the years.



▲Alfred Sommer (left), MD, MHS, Professor, Johns Hopkins Bloomberg School of Public Health, receives the Distinguished Medical Science Award from Joseph Perpich, MD, FNLM Vice President. Dr. Sommer developed the use of Vitamin A to reduce childhood mortality in developing countries.

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**2** AIDS research leader Dr. Anthony Fauci (left) and music legend Sir Elton John have long worked to reduce and, ultimately, end the AIDS pandemic.

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**10** Television and movie star Anthony Anderson—whose new television series, *Guys with Kids*, debuted in September—is active in helping to educate the public about the dangers of type 2 diabetes.

**Photos:**

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(Middle) Boomer Esiason Foundation,

(Bottom) Robert Trachtenberg/NBC

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The National Institutes of Health (NIH)—the Nation's Medical Research Agency—includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical, and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit [www.nih.gov](http://www.nih.gov).

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Photo: NIH

# Turning the Tide Against

# AIDS

A Q&A with Anthony S. Fauci, M.D.,  
Director, National Institute of Allergy and Infectious  
Diseases (NIAID)

**Dr. Anthony S. Fauci** heads research to prevent, diagnose, and treat infectious diseases such as HIV/AIDS, influenza, tuberculosis, malaria, and illness from potential agents of bioterrorism. He serves as one of the key advisors to the White House and U.S. Department of Health and Human Services on global AIDS issues, and on initiatives to bolster medical and public health preparedness against emerging infectious disease threats. At the 19th International AIDS Conference in Washington, DC, last July, he spoke of a new breakthrough in treatment as prevention and a possible end to the AIDS pandemic.

## What is the current state of the HIV/AIDS epidemic?

Globally, more than 34 million people are infected with HIV. That includes more than 1.1 million people in the United States. Since the early 1980s, when the first cases of what came to be known as AIDS appeared, roughly 30 million people worldwide have died, including more than 600,000 people in the U.S. More than 50,000 people become infected with HIV in this country every year.

## Why are you optimistic about ending AIDS?

A landmark clinical study funded by NIAID convincingly showed that treating individuals infected with HIV—sooner rather than later—can

have a major impact on reducing HIV transmission. The infected participants—both men and women—reduced the risk of transmitting the virus to their uninfected sexual partners by taking oral antiretroviral medicines when their immune systems were still relatively healthy.

## How does early “treatment-as-prevention” work against AIDS?

Early antiretroviral treatment helps an HIV-infected person stay healthy by suppressing his or her level of virus. With lower levels of virus, the HIV-infected person is less likely to infect his or her sexual partners. Antiretroviral treatment dramatically decreases morbidity and mortality of

HIV-infected individuals. Earlier treatment also saves money because it prevents expensive-to-treat opportunistic infections and halts transmission of the virus to uninfected individuals.

## Are there enough drugs to do the job?

There are nearly 30 approved antiretroviral drugs. Used in combination, these medications can dramatically improve a person's health and longevity. Studies have also shown that people at high risk of HIV infection can reduce their risk by taking an antiretroviral pill daily. This method is known as PrEP (for pre-exposure prophylaxis). The Food and Drug Administration recently approved a pill combining two antiretrovirals to use as PrEP. It is intended for certain high-risk groups to use together with condoms and other prevention tools.

## A two-in-one pill for HIV sounds easy. Is it?

The effectiveness of PrEP is directly related to how well people adhere to the prescribed regimen. This underscores that behavioral factors must be addressed when rolling out new prevention methods. Biologically and behaviorally based advances are both needed in the fight against AIDS.

NIAID Director Anthony S. Fauci, M.D., and music legend Sir Elton John (right) have both worked tirelessly to help end the HIV/AIDS epidemic. ▶

(Photo: Michael Kovac/Getty Images North America)



### After more than 30 years, aren't most people getting proper treatment?

Nearly half of the HIV-infected people living in low- and middle-income countries who are eligible for therapy still are not receiving needed medicines. Only a fraction of the people infected with HIV worldwide, including those living in wealthy countries, can effectively navigate the HIV care process from testing to obtaining medical care and sustained treatment.

### Is there a way of improving the treatment process?

Yes, through community-based programs. For example, one program in rural Rwanda treated and monitored 92 percent of its HIV-infected patients for two years. At the end, almost all of the patients had minimal HIV levels. We need to figure out how to duplicate this success on a much broader scale and in different settings.

### What are some of the scientific research hurdles?

Major research challenges remain, notably in developing a vaccine and a cure for HIV. But even without a vaccine or a cure, science has given us the tools we need to dramatically change the course of the HIV/AIDS pandemic and ultimately lead to the end of AIDS. Any argument that this cannot be achieved because we do not have evidence-based tools is no longer valid. Science has given us the tools. Now they must be applied.

### What will it take to end AIDS?

We will not end AIDS without a major global commitment. We have a historic opportunity—with science on our side—to make an AIDS-free generation a reality. It will require continued basic and clinical research, and the

implementation of testing, as well as treatment and HIV prevention measures; and, importantly, scaling up this implementation on a global level.

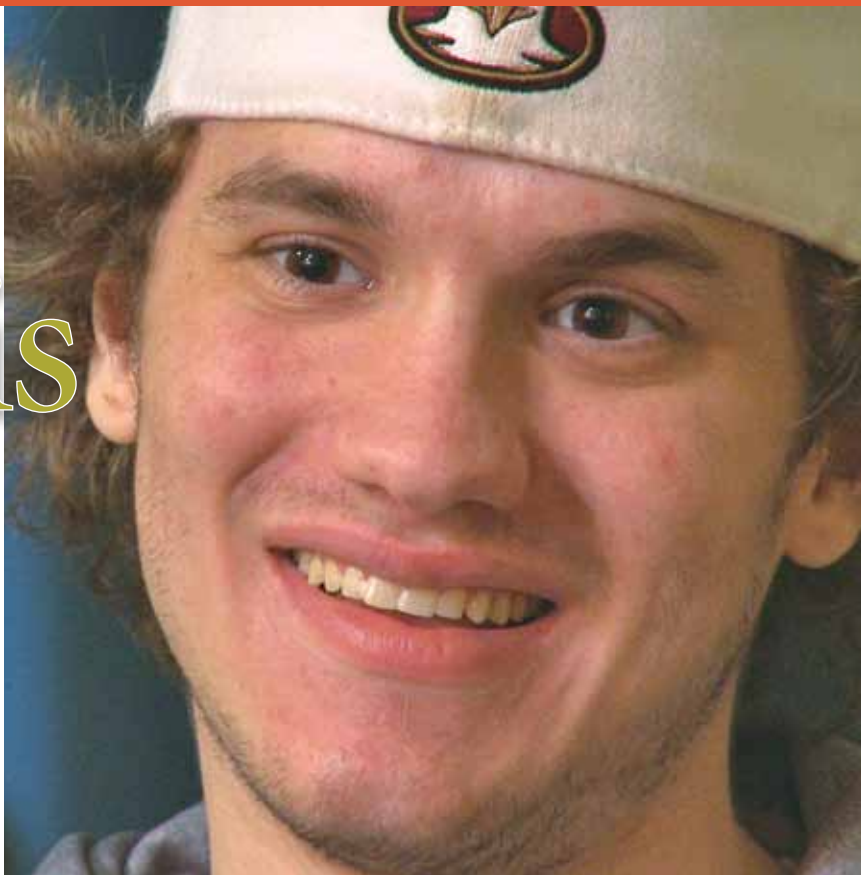
We must enhance what works and eliminate what does not. And, we must overcome legal and political barriers, and remove the stigma associated with HIV. **MP**

## Find Out More...

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- AIDSInfo  
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- NIH Office of AIDS Research  
[www.oar.nih.gov/](http://www.oar.nih.gov/)
- U.S. Government  
[www.aids.gov](http://www.aids.gov)

# Steady Advances Against Cystic Fibrosis

**Cystic fibrosis (CF) is a genetically inherited chronic disease of the mucus and sweat glands. It affects the lungs and digestive system of about 30,000 U.S. children and adults in the United States and some 70,000 people worldwide.**



▲ 21-year-old Gunnar Esiason, son of former all-star NFL quarterback and current NFL commentator Boomer Esiason, hasn't let cystic fibrosis (CF) keep him from being active in sports.

No one is a better example of improvements in cystic fibrosis (CF) research and treatment than Gunnar Esiason. The 21-year-old Boston College senior is living proof that while this genetic disease may still be incurable, it is not the death sentence it was for so long.

He and his parents—Cheryl Esiason and former NFL quarterback Boomer Esiason—are helping to fund research and support the CF community through the Boomer Esiason Foundation (BEF). Although Gunnar was diagnosed with the disease at age 2, he grew up playing everything from football and lacrosse to ice hockey and golf. And his family's foundation has become a leading voice in the battle against CF.

“Because of BEF, I have been able to reach out to the CF community and try to reassure everyone who has been affected by this disease that CF isn't the end of the world, if they don't want it to be,” says Gunnar. “That has been my main goal.”

From 1985 to 2005, predicted survival of people with CF in the U.S. increased from age 25 years to age 37 years. That progress continues today.

“I believe that we are experiencing something of a medical miracle now in cystic fibrosis research,” says Boomer Esiason. “I fully expect Gunnar to outlive me.”

Although a cure still eludes researchers, improvements in the diagnosis and treatment of the disease are dramatically changing the landscape for those with CF and their loved ones.

“I want to try and have the most ‘normal’ college experience possible,” says Gunnar. “I hope to graduate on time, and then potentially move on to post-graduate studies.”

► Gunnar was diagnosed with CF at age 2; his parents launched a foundation to raise money for CF research and to support the CF community.



Photos: Boomer Esiason Foundation



## What Is CF?

CF makes mucus thick and sticky. The mucus clogs the lungs. This causes breathing problems and makes it easy for bacteria to grow. This leads to repeated lung infections and damage, and other problems.

The symptoms and severity of CF vary widely. Some people have serious problems from birth. Others have a milder form that doesn't show up until they are teens or young adults.

There is no cure for CF but treatments have improved greatly in recent years. Today, some people are living into their forties, or older.

## Who's At Risk?

Cystic fibrosis affects males and females from all racial and ethnic groups. It is most common in Caucasians, followed by Latinos and American Indians, especially the Pueblo and Zuni. It is less common among African Americans and Asian Americans.

Although more than 10 million Americans carry a faulty CF gene, many don't know they are CF carriers.



## Fast Facts!

- ▶ **Cystic fibrosis (CF) is a genetic disease that primarily affects the lungs and digestive system.**
- ▶ **30,000 Americans have CF and another 1,000 are diagnosed each year.**
- ▶ **Symptoms vary from person to person.**
- ▶ **Research has led to better understanding of the causes and complications of CF.**
- ▶ **Although there is no cure, people are living longer than ever due to advances in treatment.**

**Symptoms** One of the first signs of CF is that a baby's skin tastes salty, or the baby doesn't pass stools when first born. Other signs occur later and vary in number, frequency, and severity from person to person. They are related to how CF affects the respiratory, digestive, or reproductive systems.

### Respiratory

- Frequent coughing that brings up thick sputum (spit) or sometimes bloody mucus.
- Lung infections caused by a bacteria common in people with CF; such infections may be a sign of CF.
- Frequent sinus infections.
- Repeated bouts of bronchitis and pneumonia, leading to long-term lung damage.
- A collapsed lung, in which buildup of air puts pressure on the lung, so it cannot expand as much as it normally does when taking a breath.
- Widened, flabby, scarred airways. Eventually, air fails to move in and out of the lungs and the body's vital organs do not receive enough oxygen.

### Digestive

- Ongoing diarrhea or bulky, foul-smelling, greasy stools.
- Intestinal blockages, especially in newborns; too much gas or severe constipation may cause stomach pain and discomfort.
- Poor weight gain and growth in children because they are unable to absorb fats and proteins.
- Pancreatitis, in which the pancreas becomes painfully inflamed.
- Frequent coughing or difficulty passing stools may cause rectal tissue to move out of the rectum.
- Liver disease.
- Diabetes.
- Gallstones.

### Reproductive

Adults who have CF can expect to have normal sex lives. Although CF can cause fertility problems, men and women who have the disease should still have protected sex to avoid sexually transmitted diseases.

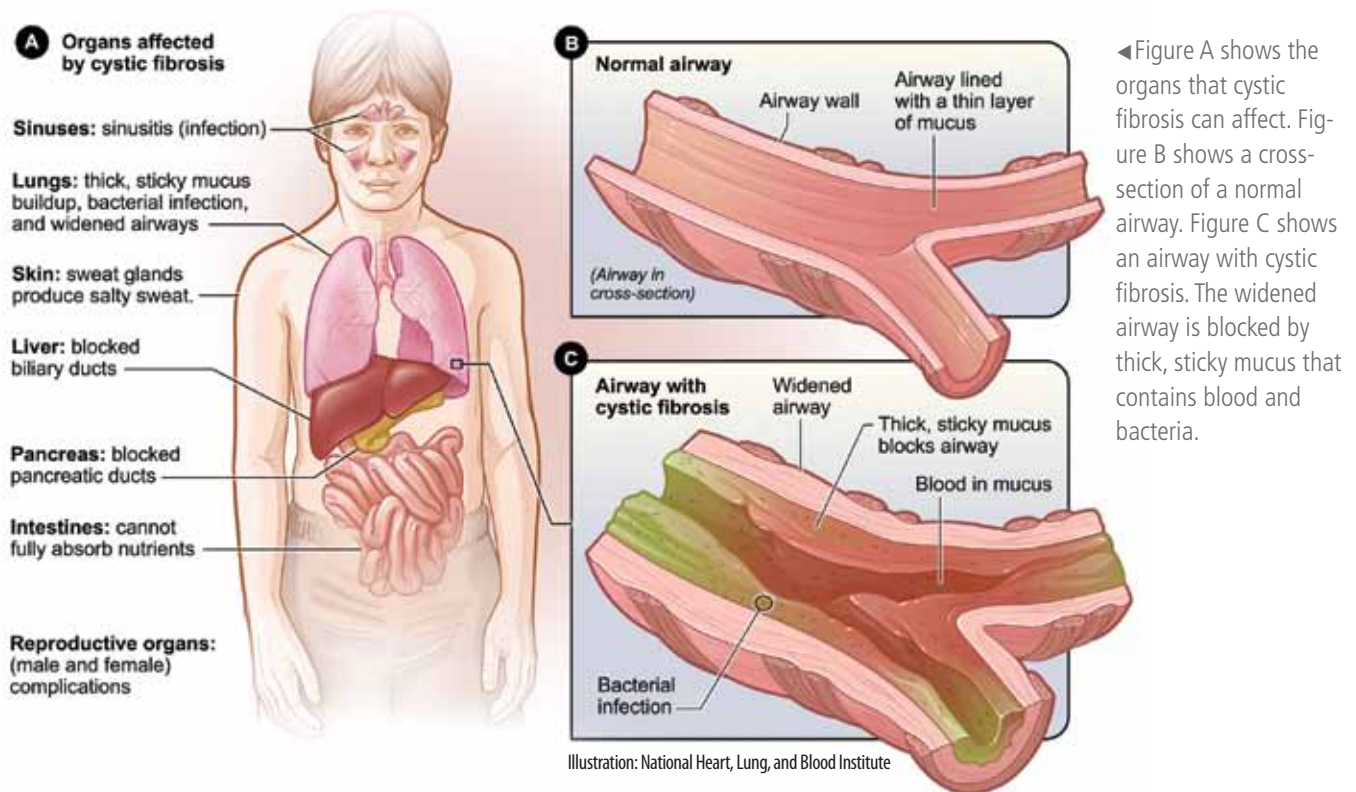
- Infertility. Most men who have the disease are infertile (unable to have children). However, modern fertility treatments may help them.
- Women with CF may have difficulty getting pregnant but can usually have children. They should consult their doctors if they're planning a pregnancy.

### Other

Additional symptoms are related to an imbalance of minerals in the blood.

- Sweat becomes very salty. As a result, large amounts are lost when you sweat. This can cause dehydration (a lack of fluid in your body), increased heart rate, fatigue (tiredness), weakness, decreased blood pressure, heat stroke, and, though rarely, death.
- Clubbing—widening and rounding of the tips of the fingers and toes—happens late in the diseases because the lungs do not move enough oxygen into the bloodstream.
- Low bone density also tends to occur late in CF and lead to osteoporosis.

## FEATURE: STEADY ADVANCES AGAINST CYSTIC FIBROSIS



**Diagnosis** Cystic fibrosis diagnoses are based on several tests.

### Newborn Screening

- All newborns are genetically screened to see whether they have faulty CF genes. The blood is also tested to tell if their pancreas, which aids digestion, is working properly.

### Sweat Test

- The most useful way to test for CF is to measure the amount of salt in sweat; high levels confirm the disease.

### Other Tests

- Chest x-ray to show whether the lungs are inflamed, scarred, or trap air.
- Sinus x-ray to reveal sinusitis.
- Lung function to measure how much and how fast you can breathe air in and out.
- Arterial blood gas to test how well the lungs deliver oxygen to the blood.

**Sputum culture.** A sample of your sputum (spit) is tested for bacteria called mucoid *Pseudomonas*, indicating more advanced CF that needs aggressive treatment.

### Prenatal Screening

- Prenatal genetic sampling by amniocentesis and chorionic villus can show CF in the fetus, and chorionic villus samples tissue from the placenta to determine CF. Amniocentesis removes and tests a small amount of fluid from the sac around the baby to see whether both of the baby's CFTR genes are normal.

### Cystic Fibrosis Carrier Testing

People who have one normal and one faulty CFTR gene are “carriers”—that is, they can pass faulty genes to their children but typically have no symptoms and live normal lives.

If you have a family history of CF or a partner with (or family history of) CF and you're planning a pregnancy, you may want to find out whether you are a CF carrier.

Genetic tests of blood or saliva samples can determine if you have a faulty CF gene. The tests are 90 percent accurate.



## Treatment

Cystic fibrosis (CF) has no cure. Depending on severity, it may be treated in a hospital by a CF specialist. There are more than 100 CF Care Centers nationwide. They have teams of doctors, nurses, dietitians, respiratory therapists, physical therapists, and social workers specially trained in CF care.

Treatment has greatly improved in recent years. The goals are to:

- Prevent and control lung infections
- Loosen and remove thick, sticky mucus from the lungs
- Prevent or treat blockages in the intestines
- Assure sufficient nutrition
- Prevent dehydration (lack of fluid in the body)

### Lung Problems

Chest physical therapy, exercise, and medicines are the main techniques.

#### **Chest Physical Therapy**

Breathing techniques help loosen mucus and open airways. There is also chest physical therapy (CPT), also called chest clapping or percussion. It involves repeated pounding of the chest and back to loosen mucus from the lungs. You might sit with your head down or lie on your stomach to help gravity drain the mucus.

Several devices also are available to help, including:

- An electric chest clapper, or mechanical pounder.
- An inflatable vest that forces mucus deep in the lungs toward the upper airways for expelling.
- A small breathing device to vibrate and dislodge the mucus.
- A breathing mask to help break mucus loose from airway walls.

#### **Exercise**

Aerobic exercise that forces hard breathing also can help loosen mucus and improve overall physical condition. However, because CF makes sweat very salty, large amounts of salt are lost when you sweat. You may be put on a high-salt diet or salt supplements to maintain the mineral balance in your blood.

If you exercise regularly, you may be able to cut back on your CPT. But check with your healthcare provider first.

#### **Medicines**

Antibiotics, anti-inflammatory medicines, bronchodilators, or mucus-thinning medicines help to treat or prevent lung infections, reduce swelling, open up the airways, and thin mucus.

- Oral antibiotics (taken by mouth) often are used to treat mild lung infections. Inhaled antibiotics (through the nose) fight the bacteria mucoid *Pseudomonas*.
- Severe or hard-to-treat infections may be treated with antibiotics by a tube inserted into a vein. This may require a hospital stay.
- Oral or inhaled anti-inflammatory medicines can help reduce swelling in infected airways.
- Bronchodilators (inhaled medicines) help open the airways by relaxing the muscles around them. They are often taken just before CPT, to help clear mucus, or before inhaling other medicines into your lungs.

- Certain people with CF may benefit from CFTR potentiator drugs that target specific CFTR gene defects to improve lung function.
- Mucus-thinning medicines reduce stickiness and loosen mucus. This helps improve lung function, and prevent worsening symptoms.

#### **Treatments for Advanced Lung Disease**

Oxygen therapy is given through the nose for advanced lung disease. If other treatments haven't worked, a lung transplant may be an option. The diseased lung is removed through surgery and replaced with a healthy lung from a deceased donor.

#### **Pulmonary Rehabilitation**

Pulmonary rehabilitation (PR) is a broad program for improving the wellbeing of people with chronic (ongoing) breathing problems. It is used with medical therapy and may include:

- Exercise training
- Nutritional counseling
- Education on your condition and how to manage it
- Energy-conserving techniques



*“Remarkable strides in cystic fibrosis research over the past two decades have culminated in CF treatments that target the underlying cause of disease and help children born with the disorder to live much longer,” says Dr. Gary H. Gibbons, the new director of the National Heart, Lung, and Blood Institute. “In the coming years, the fundamental knowledge that we’ve gained about the biology of CF offers great promise to not only further improve the quality of life for those with CF, but may also accelerate the development of therapies designed to preempt the debilitating consequences of this genetic disorder.”*

—Dr. Gary H. Gibbons,  
Director of the National Heart, Lung, and Blood Institute

Photo: National Heart, Lung, and Blood Institute

**Research** National Heart, Lung, and Blood Institute (NHLBI)-supported research has led to a better understanding of the causes and complications of cystic fibrosis and to advances in treatment.

NHLBI-supported research includes studies on:

- The role of genes in CF-related lung disease
- Different treatment options for treating lung infections in children
- How medicines and other therapies can help treat CF and improve quality of life
- How the disease proceeds within the lung
- Methods to detect and prevent CF lung disease

### **Clinical Trials**

Much of this research depends on the willingness of volunteers to take part in clinical trials. These test new ways to prevent, diagnose, or treat various diseases and conditions. For example, new medicines, medical devices, surgeries, or procedures are tested in volunteers who have the illness, such as CF. The testing is to determine whether a treatment is safe and effective before it is made available for wide-spread use.

By taking part in a clinical trial, you can gain access to new treatments before they're widely available. You also will have the support of a team of health care providers, who will likely monitor your health closely. Even if you don't directly benefit from the results of a clinical trial, the information gathered can help others and add to scientific knowledge.

For more information about clinical trials related to CF, talk with your health team. You also can visit the following Web sites to learn more about clinical research and to search for clinical trials:

- <http://clinicalresearch.nih.gov>
- [www.clinicaltrials.gov](http://www.clinicaltrials.gov)
- [www.nhlbi.nih.gov/studies/index.htm](http://www.nhlbi.nih.gov/studies/index.htm)
- [www.researchmatch.org](http://www.researchmatch.org)
- [www.cff.org/research/ClinicalResearch](http://www.cff.org/research/ClinicalResearch)

For more information about clinical trials for children, visit the NHLBI's Children and Clinical Studies web page.



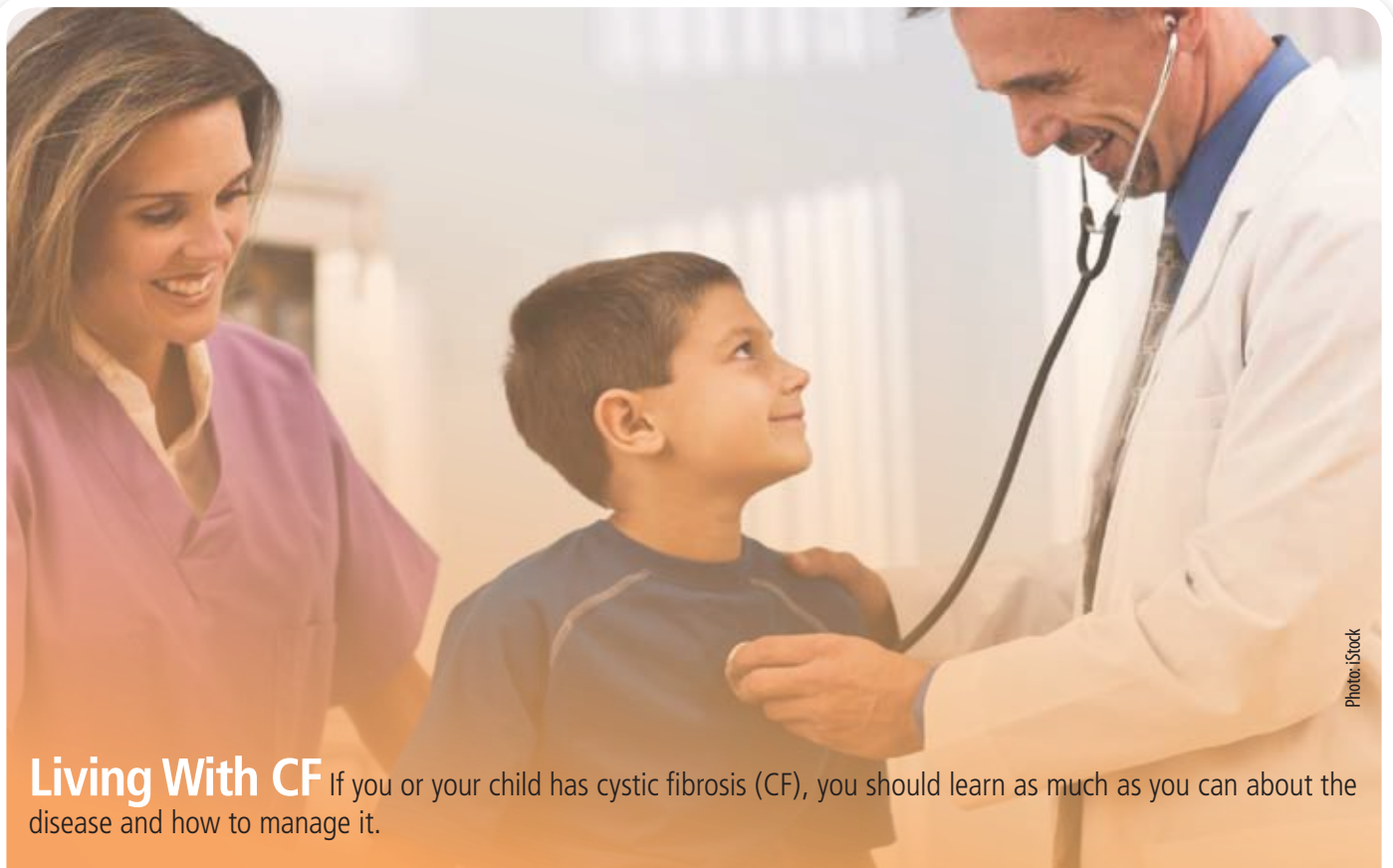


Photo: iStock

**Living With CF** If you or your child has cystic fibrosis (CF), you should learn as much as you can about the disease and how to manage it.

### ***Cystic Fibrosis Complications***

Diabetes that often requires different treatment from other forms is common. So is the bone-thinning disorder osteoporosis, which is treatable with medicines.

### ***Ongoing Care***

It is important to have ongoing medical care by a team of doctors, nurses, and respiratory therapists who specialize in CF. A checkup every three months is standard. Take all medicines as ordered. Contact your doctor if you have:

- Blood in your mucus, increased amounts of mucus, or a change in the color or consistency of your mucus.
- Decreased energy or appetite.
- Severe constipation or diarrhea, severe abdominal pain, or dark green vomit.
- A fever, which is a sign of infection.

### ***Transition of Care***

Because people today with CF are living longer than ever the move from pediatric to adult care is very important. Children should learn as much as possible about their condition and take an active role in treatment. Consult your child's healthcare team about how to help the move from pediatric to adult care.

CF Care Centers can help provide age-appropriate treatment. They also will support the transition to adult care by balancing medical needs with other developmental factors, such as increased independence, relationships, and employment.

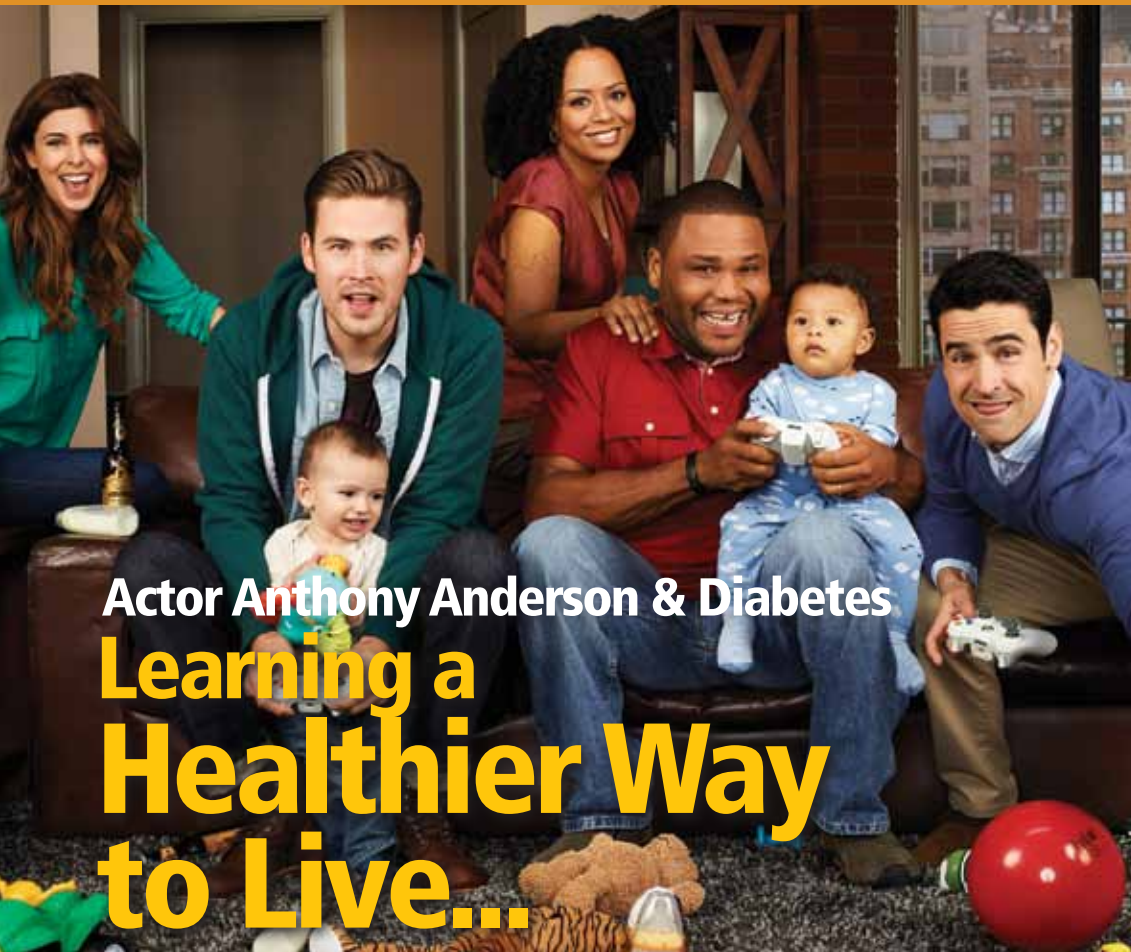
### ***Lifestyle Changes***

Between checkups practice healthy self-care:

- Consume a diet with plenty of fruits, vegetables, and whole grains.
- Do not smoke and avoid tobacco smoke.
- Wash your hands often to lower risk of infection.
- Exercise regularly and drink lots of fluids.
- Do chest physical therapy, as recommended.

### ***Emotional Issues***

CF may cause fear, anxiety, depression, and stress. Sharing your feelings with your healthcare team and working with a professional counselor can help. Your doctor may recommend medicines or other treatments to improve your quality of life. Joining a patient support group and seeing how other people cope with the disease is good, too. Best of all is support from family and friends—letting them know how you feel and how they can help.



Robert Trachtenberg/NBC

## Actor Anthony Anderson & Diabetes Learning a Healthier Way to Live...

◀ Television and movie star Anthony Anderson (center)—whose new television series, *Guys with Kids*, debuted in mid-September—is active in helping to educate the public about the dangers of diabetes. Anderson was diagnosed with type 2 diabetes 11 years ago.

Popular television and movie star Anthony Anderson is on a roll, with a new NBC situation comedy just under way and a host of movie and TV roles. And he's not about to let his type 2 diabetes spoil the success. Anderson has not only learned how to live a healthier life while managing his diabetes, but he is now involved in educating the public about the importance of understanding diabetes, high blood pressure, and obesity. He recently sat down with *NIH MedlinePlus* magazine to talk about his diabetes and his goal to help others get educated about the disease—before it's too late.

### When were you diagnosed with diabetes?

I was diagnosed 11 years ago, when I was 31. I'd felt very tired for a couple of weeks but thought it was from working too hard—I'd done 14 cities in 16 days. So I took a week to decompress but got extreme "cotton mouth" for three days, alternating with extreme thirst and frequent urination. Then one night I drank five-and-a-half gallons of water in about two hours. I knew something was wrong; I knew about diabetes from my father, who had it. I was immediately diagnosed with type 2 diabetes.

### What did you do then?

I thought, "How can I turn this thing around?" I wasn't really in denial but wondered how I could I turn this negative into a positive. So I cut stuff out of my diet, got on a regimen. I

thought I was doing well because I felt better than before. But that wasn't the case.

### Why weren't you doing well with your type 2?

Well, about four years into my type 2, my father died. He had no idea he was diabetic until he was diagnosed in his 50s. He lived another 10 years, but his quality of life was not great. That's when I decided to really change my diet, go on a plant-based diet, and get in the gym and get going!

### Did the change in diet and exercise help you?

Oh, yes! Although I was five feet eleven and weighed 269 pounds, I'd lie and tell myself I was "husky." I had two chins and no neck! I lost 45 pounds and have kept it off for the last four years. My goal is 189 pounds.



### Have you been on any medications?

Yes, because I hit the trifecta when I was diagnosed: type 2 diabetes, high cholesterol, and high blood pressure. Now all three are much better, thanks to my diet, exercise, and the medicines I take.

### What are your top tips for living with diabetes?

Diabetes is not a death sentence. The worst thing is to do nothing. First, get out and exercise. You don't have to join a gym. A body in motion stays in motion, a body at rest stays at rest. So start walking—around the yard, then around the block, then the neighborhood. Always try to improve.

Second, start eating healthier. It's taken a lifetime for you to get to this point, and you can't cold turkey out of your diet. Eat fresh vegetables. And don't drown your food in salt and butter.

Third, and most important, cut portions in half. At 269 pounds, I was consuming over 4,600 calories a day. Cutting that in half meant 2,300 calories a day. I had no choice but to lose weight. Take one baby step at a time, too, and try to incorporate new foods into your diet.

### What about diabetes and African Americans?

African Americans have a higher percent chance of developing type 2 diabetes than non-African Americans. Hispanic youth are at greater risk, too. But young people, especially teenagers, think they don't have to worry about diabetes. Unfortunately, the people they see on TV speaking out about diabetes are mostly old, so they don't connect. The message doesn't get through.

### How are you helping in the fight against diabetes?

I'm part of a national campaign to educate African Americans, especially, and others about how to live with diabetes, not die from it. I give testimonials and speak with groups around the country, sharing my own story. The key is to reach out directly to inner city kids now about diabetes.

MP



Dana Edelson/NBC

▲ Diabetes doesn't slow down Anthony Anderson, here performing recently with Freddie Prinze, Jr., (left) and Jimmy Fallon (right).

# Preventing and Managing Diabetes Complications

Diabetes means your blood glucose, or blood sugar, is too high. With type 2 diabetes, the more common type, your body does not make or use insulin well. Insulin is a hormone that helps glucose get into your cells to provide energy. Without insulin, too much glucose stays in your blood. Over time, this can cause problems with your heart, kidneys, nerves, feet, and eyes.

Other long-term complications of diabetes include skin problems, digestive problems, sexual dysfunction, and problems with your teeth and gums. Very high or very low blood sugar levels can also lead to emergencies in people with diabetes. The cause can be an underlying infection, certain medicines, or even the medicines you take to control your diabetes. However, early diagnosis and strict management of diabetes have been proven to make a great impact in preventing or delaying complications of the disease.

*Continued page 12*



## Fast Facts!

- ▶ There are three main types of diabetes: type 1, when the body does not make insulin and people need to take insulin every day to live; type 2, the most common type of diabetes, in which the body does not make or use insulin well (people with type 2 may need to take pills or insulin to manage their diabetes) and gestational diabetes, diagnosed in some women during pregnancy. Most of the time, it goes away after the baby is born, but even if it goes away, these women and their children have a greater chance of getting type 2 diabetes later in life.
- ▶ Diabetes can lead to problems with the heart, kidneys, eyes, skin, legs and feet, nerves, and teeth and gums. Good management can cut this risk in half.
- ▶ 23.6 million Americans have diabetes—7.8 percent of the U.S. population. Nearly 1 in 4 of those don't know they have it.
- ▶ About 79 million adults aged 20 years and older have prediabetes. This is a condition where blood glucose (sugar) levels are higher than normal but not high enough to be called diabetes. Prediabetes puts you at risk for type 2 diabetes and cardiovascular disease, but you can lower this risk.
- ▶ People with diabetes have seen greater success in managing the complications of their disease. Between 1997 and 2006, death rates for people with diabetes dropped substantially, especially deaths related to heart disease and stroke, according to the Centers for Disease Control and Prevention (CDC) and NIH researchers.

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### Managing Diabetes

People with diabetes are living longer and healthier lives. They now have a much lower chance of developing kidney failure, heart disease, and amputation than they did in the past, thanks to advances in controlling blood glucose, blood pressure, and cholesterol, and greater prevention and education efforts. Now, more than ever, it is important to see your healthcare providers regularly to treat diabetes effectively. They will check your cholesterol, blood sugar, blood pressure, and weight. You may be asked to take medicines. A healthy lifestyle, especially watching how much you eat and exercising every day, can help prevent heart attack and stroke. A daily 30-minute walk can help you manage diabetes and lower your chances of developing problems associated with diabetes, such as heart attack and stroke.

People with diabetes who keep their blood glucose (sugar) as close to normal as possible soon after they are diagnosed have fewer heart attacks later in life and far fewer problems with their eyes, nerves, and kidneys.

A blood test called the A1C test shows what your average blood glucose has been over the previous two to three months.

Now, for people with type 2 diabetes, there are many choices of diabetes medicines. Your healthcare provider may ask you to take a medicine called an ACE inhibitor or a different medicine, called an ARB, or other medicines for high blood pressure or kidney problems. You also may be asked to take a medicine called a statin to keep your cholesterol down and an aspirin to prevent heart attacks.

#### **What You Can Do to Help Yourself**

**Follow a meal plan that is planned for you with your healthcare team.** Look for recipes that are low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars. Experiment with recipes that include fruits and vegetables, fish, lean meats, chicken or turkey without the skin, dried peas or beans, and low-fat or nonfat milk and cheese. Other healthy ingredients are foods high in fiber, such as whole grain cereals, breads, crackers, rice, and pasta.

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### "I Plead with People...Go Get Checked for Diabetes!"

In 1999, at 40 years of age, Carol Dixon was diagnosed with type 2 diabetes. From fall of the year before to June, she had gone from showing no signs of diabetes to having full-blown type 2 diabetes.



Photo: Carol Dixon

▲ Carol Dixon (right), diagnosed with type 2 diabetes in 1999, now helps inform others of the need to be checked for the disease.

"I had no symptoms at all," she says. "I plead with people to go get checked for diabetes annually. Otherwise, you won't know. And it's not unusual for people to go five or six years and not have any symptoms."

In June 1999, she discovered two things. Dixon learned that she had a family history of diabetes with both her parents and their parents. She also learned that she didn't know a thing about diabetes—what to eat, what not to eat, how to read food labels, how to shop, what exercise to do. So, she went to work educating herself about this disease.

Today, her diabetes is well controlled because she took the time to find out answers to all her questions. And Dixon, who started volunteering with the Indianapolis, Indiana, chapter of the American Diabetes Association (ADA) is now Senior Manager of Mission Delivery for the organization.

As she speaks to various audiences, she is quick to let them know that diabetes can be successfully managed. But, first, you have to know you've got it.



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**Limit your portion sizes:** Use the plate method; make half your plate vegetables and fruit, one quarter of the plate a lean protein food, and one quarter of the plate a whole grain food.

**Exercise safely every day:** Talk to your healthcare provider before starting any exercise program, and take small steps until you can build up to at least 30 minutes most days of the week. A brisk walk is excellent exercise. Find ways to add in extra walking as you go about your daily activities.

**Do not smoke cigarettes or use any tobacco products.** Tobacco, whether smoked or chewed, has a very bad effect

on the entire body and can make diabetes complications worse. Talk with your doctor or nurse if you need help quitting. There are many programs to help you quit.

**Take your medicines the way your healthcare provider asks you to.** Make sure that you are taking your medicines on time, without skipping them, which is very important to successfully manage your diabetes and its complications. If you can't afford your medications, ask if you can switch to less expensive medicines.

**Take care of your feet.** Check your feet every day to see if there are any cuts, sores, or other skin problems. Use a

Continued on page 14

## "I Didn't Know..."

Retired videographer Ron Minor remembers when he found out he had developed type 2 diabetes. "I was 32 years old, traveling to New York City in a van," he says. "Every 15 to 20 minutes I had to stop and urinate; I couldn't seem to drink enough water; I felt terrible."

As soon as he got back to Washington, DC, he rushed over to George Washington University Hospital's emergency room. After a few tests, a doctor told Minor that he had an elevated blood glucose (sugar) level of 810. A normal blood sugar level should be somewhere between 100 and 140. "You should be unconscious right now. Do you know that you have diabetes?"

Minor was shocked. But he quickly followed his doctor's instructions: He lost weight, exercised, ate a healthier diet, and felt great for years. But damage had been done. A few years ago, his doctor could see that Minor's creatinine level was climbing—his kidneys were not flushing the waste out of his system. The verdict? A kidney transplant.

"After I found out I had to get a kidney transplant, I thought it was all over for me," he says. But he promised himself that if he got the chance, he would do something to spread the word about diabetes and kidney disease—especially in the African American community. African Americans make up 32 percent of U.S. patients receiving dialysis for kidney failure, although they are only 11 percent of the population.

Then, he got the good news that his wife Kathy was a kidney-match for a kidney transplant. Minor decided he would make a video to let others know about the dangers of diabetes, high blood pressure, and kidney disease. Minor has now produced a video trailer and a nine-minute preview of *I Didn't Know* (both available on YouTube), with his friend James Brown of CBS Sports as the announcer and patients like himself featured in dialysis treatments.

"My wife came up with the title, *I Didn't Know*, because every time we tell someone else about diabetes, high blood pressure, and kidney disease, that's what they say."



▲ Ron Minor's diabetes ultimately led to kidney failure and the need for a kidney transplant. His wife, Kathy, had a kidney that was a match, and she donated one of her kidneys to him.

## FEATURE: DIABETES COMPLICATIONS

Continued from page 13

mirror to look at the bottoms of your feet. Protect your feet by wearing comfortable shoes and socks, and avoid walking barefoot. Ask your healthcare provider to check your feet to see if you have nerve damage and should be taking especially good care of your feet.

**Have your eyes checked regularly.** People with diabetes should see an eye care specialist, an ophthalmologist, at least once a year to check for damage to their retinas.

**See your health professional.** Everyone with diabetes should see their primary health provider or diabetes doctor at least twice a year, and more often if you are not meeting your treatment goals. At these visits your healthcare provider may:

- Ask you about your blood sugar levels
- Check your blood pressure
- Check the skin and feeling in your feet, sores, and blood circulation
- Dilate your eyes
- Send you to the laboratory for blood and urine tests to:
  - Make sure your kidneys are working well (every year)
  - Make sure your cholesterol and triglyceride levels are healthy (every year)
  - Check your A1C level to see how well your blood sugar is controlled (every 3-6 months)

### Major Complications of Diabetes

- **Heart Attacks and Stroke:** People with diabetes have a higher risk for heart attacks, strokes, and other cardiovascular diseases. High blood pressure and high cholesterol increase this risk even more. Controlling blood pressure and cholesterol can help prevent heart attacks and strokes. Thanks to improved medical treatment, better management of diabetes, and some healthy lifestyle changes, deaths from heart disease and stroke in people with diabetes dropped 40 percent between 1997 and 2004, according to a study published in the journal *Diabetes Care*.
- **Kidney Disease:** Your kidneys filter the waste materials in your blood. Diabetes can damage your kidneys' ability to filter waste, which can lead to kidney failure or end-stage kidney disease. When the kidneys are unable to keep the body healthy—dialysis or a kidney transplant may be needed. Managing your diabetes and high blood pressure, and getting your blood and urine checked for kidney disease can help keep your kidneys healthy.
- **Eye Problems:** Diabetes can damage the blood vessels in the retina (called retinopathy), which can lead to vision loss or even blindness. If caught early through regular eye exams treatment can prevent progression to blindness.
- **Foot Problems:** Diabetes can damage the nerves in the feet and cause problems with blood flow to the feet. This can lead to loss of feeling in the feet (numbness) and sores and cuts on the feet that do not heal. If not treated right away, they can lead to more serious problems and even amputation of the feet and/or legs.
- **Nerves:** Nerve problems don't just affect the feet. They can also cause problems with digestion and erectile dysfunction.

## Tailoring Diabetes Treatment to the Patient

Judith Fradkin, M.D., is director of the Division of Diabetes, Endocrinology, and Metabolic Diseases at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). She recently answered questions about current diabetes guidelines and research.

### New guidelines have recently been reported for the treatment of type 2 diabetes. How was the NIH involved?

These are guidelines from the American Diabetes Association (ADA), not from the NIH. But they are based in part on NIH research. The National Diabetes Education Program (NDEP)—a joint program of the NIH and Centers for Disease Control and Prevention (CDC)—uses ADA and other organizations' guidelines in its materials.

### How has NIH research led to changes in the guidelines that tailor them to individual patients?

The guidelines focus on tailoring goals to the individual, based on potential risks and benefits of blood sugar control as measured by the A1C test. That is a lab test that measures average blood glucose level over the last two to three months. These new guidelines call for better control of diabetes in people who are newly diagnosed, do not have many other health problems, and can expect to live a long time. Other people should have less strict A1C goals. Those include people with severe low blood sugar, other serious health problems—such as heart disease—or longstanding or hard to control diabetes.

These guidelines are consistent with findings in the NIH-funded Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial. This study found that lowering blood glucose to a goal of near normal, or non-diabetic levels, increased the risk of death; the study participants had longstanding type 2 diabetes and either had heart disease or were at high risk for it.

Two other studies, the Diabetes Control and Complications Trial (DCCT) and the Epidemiology of Diabetes Complications (EDIC)—studied patients treated intensively early in the course of type 1 diabetes. These studies showed that tight blood glucose control lowers the risk of diabetes complications, and that the benefits continued years after the trial ended.



These trials tell us that treatment should be tailored for the individual patient. For some people with diabetes, intensive glucose control might not be best. For other people, it may be the right thing to do. We've learned that a one-size approach does not fit all in treating diabetes.

It is important to remember that it's not just glucose control that is important. Controlling blood pressure and taking cholesterol-lowering statin drugs have a huge effect in preventing heart disease in people with diabetes.

### **Due to the rise of obesity in the U.S., many people have prediabetes—a condition that puts them at high risk for type 2 diabetes. What can those people do to help stay away from developing type 2 diabetes?**

People with prediabetes have blood glucose levels that are higher than normal, but not high enough to be called diabetes. People can sometimes reverse prediabetes with weight loss that comes from healthy eating and physical activity. Even a small weight loss can prevent or delay progression to type 2 diabetes. We learned in the Diabetes Prevention Program (DPP) study that losing just 5-7 percent of your body weight (about 15 pounds for many people) can help prevent or delay the chances of getting type 2 diabetes. That's true even if you don't get down to your ideal body weight. A diet low in fat and calories and regular physical activity, such as walking 30 minutes for five days a week, can reduce the risk type 2 diabetes by more than half.

It is important to note that these proven benefits of weight loss are for delay or prevention of type 2 diabetes in people who have been diagnosed with prediabetes or have risk factors for developing type 2 diabetes. Obesity does not cause type 1 diabetes, nor does weight loss prevent it.

### **Are there research studies for type 2 diabetes that show promise in preventing and/or treating the disease more effectively in the future?**

The NIDDK funds many studies examining better ways to prevent and treat type 2 diabetes, including:

- Look AHEAD (Action for Health in Diabetes)—This study looks at people who already have type 2 diabetes. It has shown that a lifestyle intervention that helps participants lose weight reduces the need for medications to control diabetes, and improves mobility and quality of life.

- Treatment Options for type 2 Diabetes in Adolescents and Youth (TODAY) study, the first large-scale study to compare treatments for young people with type 2 diabetes.
- The Restoring Insulin Secretion (RISE) study is looking at ways to preserve beta cell function in people early in the course of type 2 diabetes.
- The ACCORD, DPP/DPPOS, and DCCT/EDIC studies continue to follow participants so we can learn more about the long-term outcomes of people with and at risk of diabetes.

### **Has diabetes become a worldwide problem now, as more and more countries deal with changes in diet and growing obesity?**

Rates of type 2 diabetes have grown around the world, particularly in the Middle East and Asia. In 2010, the CDC estimated nearly 26 million Americans have diabetes; in India, the number is at least twice that, and in China even greater.

MP



Photo: Bill Branson, NIH

▲Judith Fradkin, M.D., is director of the Division of Diabetes, Endocrinology, and Metabolic Diseases at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

## *Find Out More...*

The National Diabetes Education Program—a joint program of NIH and the CDC—is also a great resource for education on diabetes: [www.YourDiabetesInfo.org](http://www.YourDiabetesInfo.org). NDEP's resources include many publications— in many languages—on both nutrition and physical activity.

- Learn more at [medlineplus.gov](http://medlineplus.gov); type "diabetes" in the Search box.
- Diabetes – Introduction [www.nlm.nih.gov/medlineplus/tutorials/diabetesintroduction/htm/index.htm](http://www.nlm.nih.gov/medlineplus/tutorials/diabetesintroduction/htm/index.htm)
- To learn if you are at risk for type 2 diabetes, visit: <http://ndep.nih.gov/am-i-at-risk/>
- For tips and information to help you get started with exercise, visit: <http://www.nhlbi.nih.gov/health/public/heart/obesity/wecan/get-active/index.htm>
- NIHSeniorHealth: Diabetes <http://nihseniorhealth.gov/diabetes/toc.html>
- Weekly email updates: MedlinePlus–Diabetes: Subscribe from <https://list.nih.gov/archives/medlineplus-diabetes.html>
- National Diabetes Education Program: [www.YourDiabetesInfo.org](http://www.YourDiabetesInfo.org)

# Time to Get Your Annual Flu Shot

Flu season runs from October 2012 through May 2013. The best way to avoid catching the flu is by getting a flu vaccination each year. Here's what you need to know.

For the 2012-2013 flu season, the flu vaccine provides protection against three viruses: A (H1N1), A (H3N2), and B.

against the three influenza viruses that research indicates will be most common during the season. This includes an influenza A (H1N1) virus, an influenza A (H3N2) virus, and an influenza B virus. While the H1N1 virus used to make the 2012-2013 flu vaccine is the same virus that was included in the 2011-2012 vaccine, the recommended influenza H3N2 and B vaccine viruses are different from those in the 2011-2012 influenza vaccine for the Northern Hemisphere.

Flu vaccine for the 2012-13 influenza season has begun shipping from manufacturers, according to the Centers for Disease Control and Prevention (CDC). Shipments will continue throughout the fall. Everyone 6 months of age and older should get a yearly vaccine. Flu season usually begins in October and can last through May. Get vaccinated before flu season starts.

The upcoming season's flu vaccine will protect



Photo: iStock

## Give Your Sneeze the Sleeve!

If you don't have a tissue to cover your mouth and nose, cough or sneeze into your elbow, not your hands.

### What is influenza (also called flu)?

The flu is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs. It can cause mild to severe illness, and at times lead to death. The best way to prevent the flu is by getting a flu **vaccine** each year.

### Signs and symptoms of flu

People who have the flu often feel some or all of these signs and symptoms:

- Fever\* or feeling feverish/chills
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches
- Fatigue (very tired)
- Some people may have vomiting and diarrhea, though this is more common in children than adults.

*\*It's important to note that not everyone with flu will have a fever.*

### How flu spreads

Most experts believe that flu viruses spread mainly by droplets made when people with flu cough, sneeze, or talk. These droplets can land in the mouths or noses of people who are nearby. Less often, a person might also get flu by touching a surface or object that has flu virus on it and then touching their own mouth, eyes, or possibly their nose.



## Period of contagiousness

You may be able to pass on the flu to someone else before you know you are sick, as well as while you are sick. Most healthy adults may be able to infect others beginning one day **before** symptoms develop and up to 5 to 7 days **after** becoming sick. Some people, especially young children and people with weakened immune systems, might be able to infect others for an even longer time.

## How serious is the flu?

Certain people are at greater risk for serious complications if they get the flu. This includes older people, young children, pregnant women, and people with certain health conditions (such as asthma, diabetes, or heart disease), and persons who live in facilities like nursing homes.

Flu seasons are unpredictable and can be severe. Over a period of 30 years, between 1976 and 2006, estimates of flu-associated deaths in the United States range from a low of about 3,000 to a high of about 49,000 people.



Photo: Centers for Disease Control and Prevention

## Nasal-Spray Option

For those who do not receive a “flu shot,” a nasal-spray flu vaccine is available.

## Preventing seasonal flu: Get vaccinated

The single best way to prevent the flu is to get a flu vaccine each season. There are two types of flu vaccines:

- “Flu shots” —inactivated vaccines (containing killed virus) that are given with a needle. There are three flu shots being produced for the United States market now.
- The nasal-spray flu vaccine—a vaccine made with live, weakened flu viruses that is given as a nasal spray (sometimes called LAIV for “Live Attenuated Influenza Vaccine”). The viruses in the nasal spray vaccine do not cause the flu. LAIV is approved for use in healthy people 2 to 49 years of age who are not pregnant.

About two weeks after vaccination, antibodies develop that protect against influenza virus infection. Flu vaccines will not protect against flu-like illnesses caused by non-influenza viruses.

If you have questions about whether you should get a flu vaccine, consult your healthcare provider.

MP

## Find Out More...

- MedlinePlus:  
[www.nlm.nih.gov/medlineplus/flu.html](http://www.nlm.nih.gov/medlineplus/flu.html)
- National Institute of Allergy and Infectious Diseases:  
[www.niaid.nih.gov/topics/Flu](http://www.niaid.nih.gov/topics/Flu)
- U.S. Department of Health and Human Services:  
<http://flu.gov>
- Centers for Disease Control and Prevention:  
[www.cdc.gov/flu/](http://www.cdc.gov/flu/)
- ClinicalTrials.gov:  
[www.clinicaltrials.gov](http://www.clinicaltrials.gov); type “influenza” into the Search box to find the latest flu studies

## Find Flu Clinics Near You at [www.flu.gov](http://www.flu.gov)

Use the Flu Vaccine Finder at [www.flu.gov](http://www.flu.gov) to find nearby locations offering flu shots or nasal spray flu vaccine. Locations are being added and updated throughout the season by the Department of Health and Human Services (HHS).

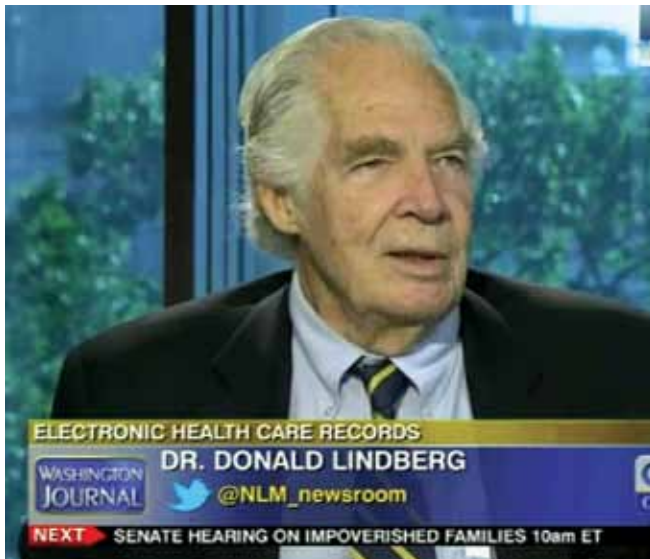
**Flu Vaccine Finder** Find flu clinics near you

The new seasonal flu vaccine protects against H1N1. All ages need protection.

Enter Zip Code

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Recently, Dr. Donald Lindberg, director of the National Library of Medicine, appeared on C-SPAN's *Washington Journal* to discuss electronic health records, their benefits, and some of the issues regarding their adoption.



## Fast Facts!

### What Is the Difference Between a PHR and an EHR?

- ▶ Information in an electronic health record, or EHR, is typically entered and accessed by healthcare providers. It may only have information from one healthcare provider or a group practice.
- ▶ A PHR is a record controlled by the individual and may include health information from a variety of sources, including multiple healthcare providers and the patients themselves. The PHR is separate from, and does not replace the legal record of any healthcare provider.

—The Office of the National Coordinator for  
Health Information Technology  
(<http://healthit.hhs.gov/>)

# Electronic Health Records: Permanent, Private, and Informative

### What is an electronic health record?

An electronic health record is a systematic collection of information about a patient's health. It contains such things as a medical history, personal statistics like age, height and weight, allergies, if any, medications taken, and more.

### Most people think it would be like the chart my doctor has. But that falls very short.

What you really want is a thumb drive or a little memory stick that has your lifetime health record, so that if you need to go to the doctor or hospital, you have your blood pressure readings from five years ago.

### What are the advantages of electronic health records?

Most importantly, they provide immediate access to a patient's clinical record. This helps healthcare providers make more-informed decisions about how to treat or care for someone. And they provide anonymous, secure data for important medical research.



▲ This past summer, Dr. Donald Lindberg, director of the National Library of Medicine, fielded questions about electronic health records from callers on C-SPAN's *Washington Journal* program.

**Since health records are being compiled today by individuals, their insurance companies, medical providers, etc., would there be a main repository for them?**

There really is no main repository. Obviously, the people who pay the bills have some record on billing. But that doesn't usually give enough insight into the kind of care used to help manage cases.

**So, if there were a thumb drive, every time I went to a different doctor, he would plug it into a computer and my record would pop out?**

That's what I recommend. Are we close to that? No. But not so far off, either. For instance, the Veterans Administration has a good electronic health records system called My HealthVet. They don't give you a thumb drive—but they do let you call up your information and send it

to your new doctor, if you wish. This makes great sense for the 35 or 40 percent of the VA's patients who get their care outside the system. Rather than drive six or seven hours to a VA hospital, they go to their own local doctor across the street and tap into My HealthVet.

**So, bring us up to speed on what kind of progress is being made with electronic health records.**

We are making good progress. About 35 percent of doctors are now using some kind of computer-based patient records in their offices. They're not all interchangeable but are getting there. Thirty-five percent of the nation's hospitals have adopted electronic health records. And the federal Department of Health and Human Services (HHS) estimates 90 percent of community pharmacies were filling prescriptions electronically in 2011. That's a big deal and getting bigger.

**How many Americans already have electronic health records?**

As many as half of all Americans have at least a partial electronic medical record at some health institution. According to a national survey done last year, some 56 million U.S. consumers had accessed their medical information on electronic health record systems maintained by their physicians.

**How is the National Library of Medicine helping with electronic health records?**

The Library has been an early and enthusiastic supporter of research to advance electronic records. A special focus of ours is on the standards necessary to combine health data seamlessly from many different organizations, including funding the scientists who are advancing the field.

**MP**



Your child spends more time at school than anywhere else except home. Make sure your school-aged children are ready for a healthy school year before and while they attend. Whether you're a parent or educator, use these resources and tips to prepare for and work through common challenges, such as getting vaccinated, getting enough sleep and exercise, and eating healthy lunches and snacks.

Back  
to  
School

The Healthy Way

Illustration and Photo: iStock



## Check-Ups and Immunizations

It's a good idea to take your child in for a physical and eye exam before school starts. If your child will be participating in a sports activity, your family doctor may have to sign a release form to permit your child to participate.

Most schools require that your child's immunization shots be up-to-date. Remember, that each state has different immunization requirements. Let your healthcare provider know if you have any questions or concerns about the vaccines your child is scheduled to receive.



School entry may require documentation of immunization records. Find out what your child's school requires and bring any school forms for your healthcare provider to fill out and sign. Be sure to keep your own copy of any records. Failure to keep immunizations up-to-date could prevent your child from attending school.

## Vaccines Stop Illness

To prevent the spread of disease, it is more important than ever to vaccinate your child. In the United States, vaccines have reduced or eliminated many infectious diseases that once routinely killed or harmed many infants, children, and adults. However, the viruses and

bacteria that cause vaccine-preventable disease and death still exist and can be passed on to people who are not protected by vaccines. Vaccine-preventable diseases have many social and economic costs: sick children miss school and can cause parents to lose time from work.

These diseases also result in doctor's visits, hospitalizations, and even premature deaths.

Some diseases (like polio and diphtheria) are becoming very rare in the United States. Of course, they are becoming rare largely because we have been vaccinating against them. Unless we can completely eliminate the disease, it is important

to keep immunizing. Even if there are only a few cases of disease today, if we take away the protection given by vaccination, more and more people will be infected and will spread disease to others.

We don't vaccinate just to protect our children. We also vaccinate to protect our grandchildren and their grandchildren. With one disease, smallpox, we eradicated the disease. Our children don't have to get smallpox shots any more because the disease no longer exists. If we keep vaccinating now, parents in the future may be able to trust that diseases like polio and meningitis won't infect, cripple, or kill children.





## Which Vaccines Do Preteens and Teens Need, and When?

- **Tdap:** A booster to protect against tetanus, diphtheria, and pertussis (whooping cough). Recommended for preteens (11-12), as well as any teens (13-18) who haven't gotten this shot yet.
- **Meningococcal conjugate vaccine (MCV4):** Protects against meningococcal disease. First dose is recommended at age 11 or 12 followed by a booster (2nd shot) at age 16-18.
- **Human papillomavirus (HPV) vaccine:** Protects against the types of HPV that cause most cervical cancers. HPV vaccine is given in three doses over a 6-month period to boys and girls starting at 11-12 years old.
- **Influenza (flu) vaccine:** Protects against different strains of seasonal influenza. A yearly dose is recommended for everyone 6 months and older.
- Also, check to confirm that your teen has received all recommended childhood vaccines, or if they need to catch up on any vaccines they have not yet received.



All Photos: iStock

## 6 "Bests" About Kids' Exercise

At least one hour of physical activity a day helps kids to:

- Feel less stressed
- Feel better about themselves
- Feel more ready to learn in school
- Keep a healthy weight
- Build sturdy muscles, bones, and joints
- Sleep better at night

More time in front of the TV means less time playing and running. So parents should limit TV, video game time, and computer time. They should set a good example by being physically active themselves.

Exercising together can be fun for everyone. Some easy ways for kids to stay active include walking or biking to school, jumping rope, going to the playground, and participating in organized sports programs.



## Getting Enough ZZZZs

Nodding off in school may not be the only outcome for otherwise healthy teens who don't get enough sleep. A study funded by the National Heart, Lung, and Blood Institute (NHLBI) links poor sleep in teens (ages 13 to 16 years old) to higher blood pressure.

Researchers found that teens who got less than 6 ½ hours sleep were 2½ times more likely to have elevated blood pressure than teens who slept longer. Also, teens who had trouble falling asleep or staying asleep were 3½ times more likely to have high blood pressure or pre-high blood pressure than teens who slept well. These results are similar to findings from other studies in adults. High blood pressure, if left untreated, can increase the risk of stroke and heart diseases later in life.

- **Sleep Facts:** School-aged children and teens need at least nine hours of sleep a night. Adults need seven to eight hours of sleep a night
- **Sleep Tips:** Set a sleep schedule; going to bed and waking up the same times each day. Keep room temperature on the cool side. A TV or computer in the bedroom can be a distraction.





# 10 Healthy Breakfast and Lunch Tips



Remember that nutrition is an important factor in academic performance. Studies have shown that children who eat healthful, balanced breakfasts and lunches are more alert throughout the school day and earn higher grades than those who have an unhealthy diet.

Making food choices for a healthy lifestyle for you and your child can be as simple as using these 10 tips. Use the ideas in this list to balance your calories, to choose foods to eat more often, and to cut back on foods to eat less often.

- 1. Balance Calories:** Find out how many calories you need for a day as a first step in managing your weight. Go to [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov) to find your calorie level. Being physically active also helps you balance calories.
- 2. Enjoy Your Food, But Eat Less:** Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories. Pay attention to hunger and fullness cues before, during, and after meals. Use them to recognize when to eat and when you've had enough.
- 3. Avoid Oversized Portions:** Use a smaller plate, bowl, and glass. Portion out foods before you eat. When eating out, choose a smaller size option, share a dish, or take home part of your meal.
- 4. Foods to Eat More Often:** Eat more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. These foods have the nutrients you need for health—including potassium, calcium, vitamin D, and fiber. Make them the basis for meals and snacks.
- 5. Make Half Your Plate Fruits and Vegetables:** Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert.
- 6. Switch to Fat-Free or Low-Fat (1%) Milk:** They have the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.
- 7. Make Half Your Grains Whole Grains:** To eat more whole grains, substitute a whole-grain product for a refined product—such as eating whole-wheat bread instead of white bread or brown rice instead of white rice.
- 8. Foods to Eat Less Often:** Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats, not everyday foods.
- 9. Compare Sodium in Foods:** Use the Nutrition Facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled "low sodium," "reduced sodium," or "no salt added."
- 10. Drink Water Instead of Sugary Drinks:** Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar, and calories, in American diets.

—Source: [ChooseMyPlate.gov](http://ChooseMyPlate.gov) and National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

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Health  
In a  
Hair  
Salon:

“People sit around talking at a hair salon,” says the salon’s owner, Marilyn Lance-Robb. “They’ll tell me they’ve been diagnosed with something, maybe diabetes. And we’ll look it up.”



◀ Marilyn Lance-Robb frequently shows customers the MedlinePlus website

# Finding Answers In a Beauty Shop

—By *NLM In Focus* writer Thomas Conuel

The sign in front of MaFlo’s Beauty Salon in Georgetown, South Carolina, population 8,441, reads: “MaFlo’s Hairstyles & Designs by Marilyn—Health Awareness Team.” Inside are three chairs for hair drying, two for styling, and portraits of clients lining the walls. A waiting area offers several comfortable chairs, three computers, and a printer.

On a typical day, the beauty chairs are filled and several people can be found at the computers. They are reading health information on MedlinePlus, the consumer health website of the National Library of Medicine ([www.medlineplus.gov](http://www.medlineplus.gov)).

“People sit around talking at a hair salon,” says the salon’s owner, Marilyn Lance-Robb. “They’ll tell me they’ve been diagnosed with something, maybe diabetes. And we’ll look it up.”

Finding health information in a hair salon may seem an odd combination, but it makes perfect sense to Lance-Robb. She teaches health and computer classes at the local library on her days off.



▲ Marilyn Lance-Robb with Gloria D. Nesbit, a client of Marilyn's for more than 20 years, who regularly uses the hair salon's computers to search for reliable health information.

Her computers are part of an innovative program to bring health information to underserved people. Funding comes from the National Network of Libraries of Medicine (NN/LM), Southeastern/Atlantic Region (SE/A). The National Library of Medicine coordinates the network, which provides access to health information for healthcare providers and the public, wherever they may live or work.

"We try to go where the people are," says Nancy Patterson, SE/A Community Outreach Coordinator. "It's great if they can get to a library or computer center. Some do. But we also go to their places of worship, public and senior housing, neighborhood centers, and in Marilyn's case, a beauty salon."

Whenever she begins a new program, Patterson first asks, "Where do people here spend time? How do they connect with one another? And how can I best help them?"

Patterson relies on a "train-the-trainer" approach. She looks for reliable, creative people who are passionate about helping others find health information. She provides the materials

and training they need. This helps her spread her efforts around her region, which spans 13 states. It supports more than 1,000 libraries and information centers like MaFlo's.

In 2006, Lance-Robb met Barbara Carlson, a health sciences librarian at the Medical University of South Carolina (MUSC). Carlson was Coordinator of Diabetes/Library Outreach Services for Racial and Ethnic Approaches to Community Health (REACH) 2010.

They and others helped the Charleston and Georgetown Diabetes Coalition Library Partnership win a prestigious award. The award, from the U.S. National Commission on Libraries and Information Science (NCLIS), was the 2006 National Health Information Award for excellence in consumer health information.

The win spurred Lance-Robb to think of other ways to help her hometown. Georgetown is South Carolina's third-oldest settlement. It shares the health concerns of many small communities: diabetes, kidney failure, hypertension, obesity, and heart disease.





▲ Marilynn Lance-Robb outside her Georgetown, South Carolina hair salon and information center.



► Dexter Waiters uses the computer at MaFlo's to access the MedlinePlus consumer health website.

From Carlson, Lance-Robb learned of the NN/LM SE/A program and applied for funding. She proposed to make her salon a base for community health information and Internet access. She would also teach computer basics classes at the local community center.

Lance-Robb named her salon in honor of her mother, Florine. "We used to call her Flo Jo. So I took 'Mama,' put the two together and came up with 'MaFlo's,'" Lance-Robb says.

The name reflects the bond she feels with her parents, though both are no longer living. "They instilled strong morals and values in all of us 10 children. They are deeply rooted in my heart," says Lance-Robb. Their memory still fuels her commitment to helping others.

"I love what I do, and I love helping people find health information."

## New Video Explores the Science of Yoga

A new video from the NIH's National Center for Complementary and Alternative Medicine (NCCAM) offers a unique look at the increasingly popular practice of yoga. It highlights research that examines how yoga works, its safety, and whether it can help treat certain health conditions, such as chronic low-back pain.

"The research suggests that yoga may help people manage certain symptoms, but not others," says Josephine P. Briggs, M.D., NCCAM director. "We're also learning more about the safety of yoga, especially for people at increased risk for injury."

In addition, the video also contains valuable "dos and don'ts" for consumers who are thinking about practicing yoga. This educational tool is designed to be used by a broad audience, including researchers, yoga instructors, and the general public. The video is available at <http://nccam.nih.gov/video/yoga>.

This is the second installment in NCCAM's *The Science of Mind and Body Therapies* video series. The first video, *Tai Chi and Qi Gong for Health and Well-Being*, was released in September 2010.

## Two New Topics Added to NIHSeniorHealth

### What You Need to Know About Hip Replacement

If you or someone you know is considering hip replacement, there's helpful information on the [NIHSeniorHealth.gov](http://NIHSeniorHealth.gov) website. The Hip Replacement topic page explains reasons to have the surgery, how to prepare for and recover from it, and how to avoid complications. People between the ages of 60 and 80 are most likely to have



Photo: National Center for Complementary and Alternative Medicine

hip replacement surgery. The most common reason is osteoarthritis. It happens when cartilage in joints breaks down. The bones then rub together and cause pain and stiffness that make it hard to function normally.

"Surgery of any type involves risk, and older adults might understandably be hesitant about having hip replacement surgery," says Stephen I. Katz, M.D., Ph.D., director of NIH's National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). "But if medications and physical therapy have not helped, hip replacement has proven to be an effective way to relieve pain and restore function."

### What You Need to Know About Prescription and Illicit Drug Abuse

A new health topic page on [NIHSeniorHealth.gov](http://NIHSeniorHealth.gov) provides tips on what to watch for and what to do about drug abuse among older Americans. National surveys find more Baby Boomers are abusing prescription medications—such as painkillers and antidepressants—and illicit drugs, such as marijuana and cocaine.

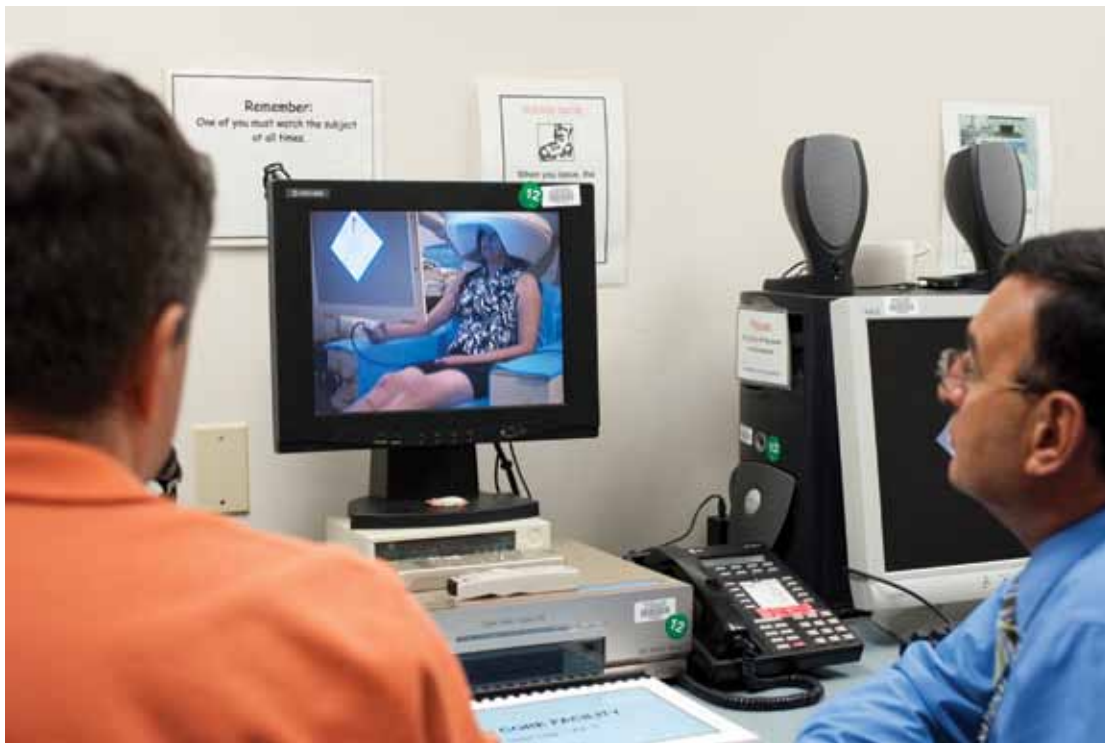
Drug abuse by older people can be particularly harmful, notes Nora D. Volkow, M.D., director of the National Institute on Drug Abuse (NIDA). "As people get older, it

is more difficult for their bodies to absorb and break down medications and drugs. Abusing these substances can worsen age-related health conditions, cause injuries, and lead to addiction."

Common warning signs of abuse, such as depression and sleep problems, can be confused with other health conditions. [NIHSeniorHealth.gov](http://NIHSeniorHealth.gov) is a joint effort of NIH's National Institute on Aging (NIA) and the National Library of Medicine (NLM).

## What Does Your Chest Pain Mean?

New NIH research may help emergency room (ER) physicians more quickly determine the cause of a patient's chest pain. It shows that adding a cardiac CT scan to standard heart screening procedures can help ER staff more quickly determine who is having acute coronary syndrome (ACS) and who has a less serious problem and can be safely discharged. ACS is a condition that includes heart attacks and unstable angina, a type of chest pain that can lead to a heart attack. Researchers say the findings benefit hospitals and patients. By quickly identifying which patients can go home, hospitals can allocate more resources to the people most



◀As part of new research on depression, Dr. Carlos Zarate of the National Institute of Mental Health (NIMH) looks at a patient's electromagnetic brain activity with a powerful and fast MEG brain imaging scanner.

in need. Patients who aren't at high risk of having a heart attack can spend the night at home instead of the hospital. NIH's National Heart, Lung, and Blood Institute (NHLBI) funded the research.

## NIH Research Uncovers New Clue to Treating Depression

Scientists have made a new discovery in their attempt to find a fast-acting drug to treat depression. Standard antidepressants can take weeks to work. So, researchers are studying the drug ketamine as an alternative for people who need help quickly. The research team has uncovered a signal in the brain that may help to identify which patients will respond to the experimental, fast-acting antidepressant. Carlos Zarate, M.D., with NIH's National Institute of Mental Health (NIMH), says the goal is to

find medications that will safely lift depression within hours instead of weeks. "The more precisely we understand how this mechanism works, the more narrowly treatment can be targeted to achieve rapid antidepressant effects and avoid undesirable side effects."

## Older Americans: Status Check

Older Americans are living longer, healthier lives compared to previous generations. But for some, the cost of housing could mean a setback. That's according to a new federal report, *Older Americans 2012*, which examines 37 key indicators of well-being, including economic circumstances, health, and health care. By 2030, an estimated 72 million Americans will be 65 or older. How are folks doing today? The report says:

- More older women are in the workforce these days. In 1963, 29 percent of women aged 62-64 worked outside the home. In 2011, it's 45 percent.
- Older Americans are better off financially now than they were in the 1970s. The number of older people living below the poverty line has dropped from 15 percent to 9 percent.
- Housing is more of a burden. In the 1980s, about 30 percent of households with older Americans spent about 30 percent of their income on housing and utilities. Now it's 40 percent.

The Federal Interagency Forum on Aging-Related Statistics, which includes the NIH's National Institute on Aging (NIA), issued the new report.

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# Info to Know

## 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 Library of Medicine (NLM)**  
[www.nlm.nih.gov](http://www.nlm.nih.gov)  
1-888-FIND-NLM (1-888-346-3656)
- **National Cancer Institute (NCI)** [www.cancer.gov](http://www.cancer.gov)  
1-800-4-CANCER (1-800-422-6237)
- **National Eye Institute (NEI)** [www.nei.nih.gov](http://www.nei.nih.gov)  
(301) 496-5248
- **National Heart, Lung, and Blood Institute (NHLBI)**  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov) (301) 592-8573
- **National Human Genome Research Institute (NHGRI)** [www.genome.gov](http://www.genome.gov) (301) 402-0911
- **National Institute on Aging (NIA)** [www.nia.nih.gov](http://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](http://www.niaaa.nih.gov)  
(301) 443-3860
- **National Institute of Allergy and Infectious Diseases (NIAID)** [www.niaid.nih.gov](http://www.niaid.nih.gov)  
(301) 496-5717
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases** [www.niams.nih.gov](http://www.niams.nih.gov)  
1-877-22NIAMS (1-877-226-4267)
- **National Institute of Biomedical Imaging and Bioengineering (NIBIB)** [www.nibib.nih.gov](http://www.nibib.nih.gov)  
(301) 451-6772
- **Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)**  
[www.nichd.nih.gov](http://www.nichd.nih.gov) 1-800-370-2943
- **National Institute on Deafness and Other Communication Disorders (NIDCD)**  
[www.nidcd.nih.gov](http://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](http://www.nidcr.nih.gov)  
(301) 480-4098
- **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)** [www.niddk.nih.gov](http://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](http://www.nida.nih.gov) (301) 443-1124
- **National Institute of Environmental Health Sciences (NIEHS)** [www.niehs.nih.gov](http://www.niehs.nih.gov)  
(919) 541-3345
- **National Institute of General Medical Sciences (NIGMS)** [www.nigms.nih.gov](http://www.nigms.nih.gov)  
(301) 496-7301
- **National Institute of Mental Health (NIMH)**  
[www.nimh.nih.gov](http://www.nimh.nih.gov) 1-866-615-6464
- **National Institute on Minority Health and Health Disparities (NIMHD)** [www.nimhd.nih.gov](http://www.nimhd.nih.gov)  
(301) 402-1366
- **National Institute of Neurological Disorders and Stroke (NINDS)** [www.ninds.nih.gov](http://www.ninds.nih.gov)  
1-800-352-9424
- **National Institute of Nursing Research (NINR)**  
[www.ninr.nih.gov](http://www.ninr.nih.gov) (301) 496-0207

### Centers & Offices

- **Fogarty International Center (FIC)**  
[www.fic.nih.gov](http://www.fic.nih.gov) (301) 402-8614
- **National Center for Complementary and Alternative Medicine (NCCAM)**  
[www.nccam.nih.gov](http://www.nccam.nih.gov) 1-888-644-6226
- **National Center for Advancing Translational Research (NCATS)**  
[www.ncats.nih.gov](http://www.ncats.nih.gov) (301) 435-0888
- **NIH Clinical Center (CC)**  
[www.cc.nih.gov](http://www.cc.nih.gov) (301) 496-2563
- **Office of AIDS Research (OAR)**  
<http://www.oar.nih.gov> (301) 496-0357
- **Office of Behavioral and Social Sciences Research (OBSSR)**  
<http://obssr.od.nih.gov> (301) 402-1146
- **Office of Rare Diseases Research (ORDR)**  
<http://rarediseases.info.nih.gov>  
Genetic and Rare Disease Information Center  
1-888-205-2311
- **Office of Research on Women's Health (ORWH)**  
<http://orwh.od.nih.gov> (301) 402-1770

## NIH MedlinePlus Advisory Group

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