
What

You

Need

To

Know

About™

Moles and Dysplastic Nevi

This booklet is about certain unusual moles called dysplastic nevi. It also tells about melanoma, a type of skin cancer. If you have questions, call the Cancer Information Service to learn more about moles and melanoma. The staff can talk with you in English or Spanish.

The phone number is
1-800-4-CANCER
(1-800-422-6237). The number for
deaf and hard of hearing callers with
TTY equipment is 1-800-332-8615.
The call is free.

Este folleto es acerca de ciertos lunares en la piel conocidos como “dysplastic nevi.” También nos describe la melanoma, un tipo de cáncer de la piel. Si tiene preguntas, llame al Servicio de Información sobre el Cáncer para conocer más acerca de estos temas. Este servicio tiene personal que habla español.

El número a llamar es el
1-800-4-CANCER (1-800-422-6237).
Personas con dificultades de audición
con equipo TTY pueden llamar al
1-800-332-8615. La llamada es gratis.

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What You Need To Know About™ Moles and Dysplastic Nevi

The National Cancer Institute (NCI) has written this booklet to help you learn more about common *moles** and unusual ones called *dysplastic nevi* or atypical moles. This booklet shows what moles look like and explains how they may be related to *melanoma*, a type of skin *cancer*. It describes the signs of melanoma and explains how you can check your skin for moles that might be cancerous. It also explains why and how you can protect your skin. Other NCI booklets about skin cancer and cancer prevention are listed in the “Other Booklets” section.

Cancer research has led to real progress against cancer—better survival and an improved quality of life. Through research, our knowledge about moles and cancers of the skin keeps increasing. We are finding new ways to prevent, detect, and treat cancer. The Cancer Information Service and other sources of NCI information listed under “National Cancer Institute Information Resources” can provide the latest, most accurate information about moles, dysplastic nevi, and cancer. Publications mentioned in this booklet and others are available from the Cancer Information Service at 1–800–4–CANCER. Many NCI publications are also available on the Internet at the Web sites listed in the “National Cancer Institute Information Resources” section at the end of this booklet.

*Words that may be new to readers are printed in *italics*. Definitions of these and other terms related to moles and melanoma are listed in the “Glossary” section. For some words, a “sounds-like” spelling is also given.

Moles

Moles are growths on the skin. Doctors call moles *nevi* (one mole is a *nevus*). These growths occur when cells in the skin, called *melanocytes*, grow in a cluster with tissue surrounding them. Moles are usually pink, tan, brown, or flesh-colored. Melanocytes are also spread evenly throughout the skin and produce the *pigment* that gives skin its natural color. When skin is exposed to the sun, melanocytes produce more pigment, causing the skin to tan, or darken.

Moles are very common. Most people have between 10 and 40 moles. A person may develop new moles from time to time, usually until about age 40. Moles can be flat or raised. They are usually round or oval and no larger than a pencil eraser. Many moles begin as a small, flat spot and slowly become larger in diameter and raised. Over many years, they may flatten again, become flesh-colored, and go away.

Dysplastic Nevi

About one out of every ten people has at least one unusual (or atypical) mole that looks different from an ordinary mole. The medical term for these unusual moles is dysplastic nevi. The “Pictures of Ordinary Moles and Dysplastic Nevi” section shows the differences between ordinary moles and dysplastic nevi.

Doctors believe that dysplastic nevi are more likely than ordinary moles to develop into a type of skin cancer called melanoma. Because of this, moles should be checked regularly by a doctor or nurse specialist, especially if they look unusual; grow larger; or change in color, outline, or in any other way.

Melanoma

Melanoma is a type of skin cancer—one of the most serious types because advanced melanomas have the ability to spread to other parts of the body.*

Melanoma begins when melanocytes (pigment cells) gradually become more abnormal and divide without control or order. These cells can invade and destroy the normal cells around them. The abnormal cells form a growth of *malignant* tissue (a cancerous *tumor*) on the surface of the skin. Melanoma can begin either in an existing mole or as a new growth on the skin. The “Pictures of Melanoma” section shows examples of melanoma. A doctor or nurse specialist can tell whether an abnormal-looking mole should be closely watched or should be removed and checked for melanoma cells. The purpose of routine skin exams is to identify and follow abnormal moles.

The removal of the entire mole or a sample of tissue for examination under a microscope is called a *biopsy*. If possible, it is best to remove moles by an *excisional biopsy*, rather than a *shave biopsy*.

If the biopsy results in a diagnosis of melanoma, the patient and the doctor should work together to make treatment decisions. In many cases, melanoma can be cured by minimal surgery if the tumor is discovered when it is thin (before it has grown downward from the skin surface) and before the cancer cells have begun to spread to other places in the body. However, if melanoma is not found early, the cancer cells can spread through the bloodstream and *lymphatic system* to form tumors in other parts of the body. Melanoma is

*Melanoma can also develop in the eye, called intraocular melanoma, or rarely in other parts of the body where pigment cells are found. The CIS can provide information about the diagnosis and treatment of intraocular melanoma.

much harder to control when it has spread. The spread of cancer is called *metastasis*.

Doctors and scientists believe that it is possible to prevent many melanomas and to detect most others early, when the disease is more likely to be cured with minimal surgery. In the past several decades, an increasing percentage of melanomas have been diagnosed at very early stages, when they are quite thin and unlikely to have spread. Learning about prevention and early detection, while important for everyone, is especially important for people who have an increased risk for melanoma. People who are at an increased risk include those who have dysplastic nevi or a very large number of ordinary moles.

Risk Factors for Melanoma

- Family history of melanoma
- Dysplastic nevi
- History of melanoma
- Weakened immune system
- Many ordinary moles (more than 50)
- Ultraviolet (UV) radiation
- Severe, blistering sunburns
- Freckles
- Fair skin

The National Cancer Institute booklet *What You Need To Know AboutTM Melanoma* has more information about *risk factors* for this disease.

It is important to remember that not everyone who has dysplastic nevi or other risk factors for melanoma gets the disease. In fact, most do not. Also, about half the people who develop melanoma do not have

dysplastic nevi, and they may not have any other known risk factor for the disease. At this time, no one can explain why one person gets melanoma while another does not. Research has shown that sun exposure, especially excessive exposure that leads to bad, blistering sunburns, is an important and avoidable risk factor. Scientists are continuing their studies of risk factors for melanoma.

Prevention of Melanoma

The number of people in the world who develop melanoma is increasing each year. In the United States, the number has more than doubled in the past 20 years. Experts believe that much of the worldwide increase in melanoma is related to an increase in the amount of time people spend in the sun.

Ultraviolet (UV) radiation from the sun and from sunlamps and tanning booths damages the skin and can lead to melanoma and other types of skin cancer. (Two types of ultraviolet radiation—UVA and UVB—are explained in the “Glossary” section.) Everyone, especially those who have dysplastic nevi or other risk factors, should try to reduce the risk of developing melanoma by protecting the skin from UV radiation. The intensity of UV radiation from the sun is greatest in the summer, particularly during midday hours. A simple rule is to avoid the sun or protect your skin whenever your shadow is shorter than you are.

People who work or play in the sun should wear protective clothing, such as a hat and long sleeves. Also, lotion, cream, or gel that contains *sunscreen* can help protect the skin. Many doctors believe sunscreens may help prevent melanoma, especially those that reflect, absorb, and/or scatter both types of ultraviolet radiation. Sunscreens are rated in strength according to

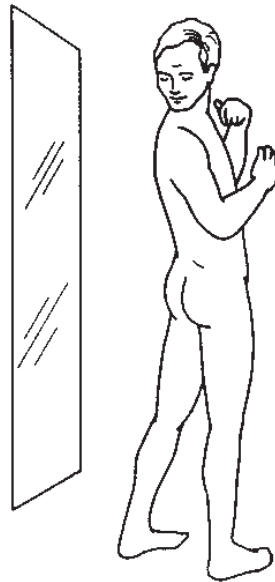
a *sun protection factor (SPF)*. The higher the SPF, the more sunburn protection is provided. Sunscreens with an SPF value of 2 to 11 provide minimal protection against sunburns. Sunscreens with an SPF of 12 to 29 provide moderate protection. Those with an SPF of 30 or higher provide high protection against sunburn. Sunglasses that have UV-absorbing lenses should also be worn. The label should specify that the lenses block at least 99 percent of UVA and UVB radiation.

Early Detection of Melanoma

Because melanoma usually begins on the surface of the skin, it often can be detected at an early stage with a total skin examination by a trained health care worker. Checking the skin regularly for any signs of the disease increases the chance of finding melanoma early. A monthly skin self-exam is very important for people who have any of the known risk factors, but doing skin self-exams routinely is a good idea for everyone.

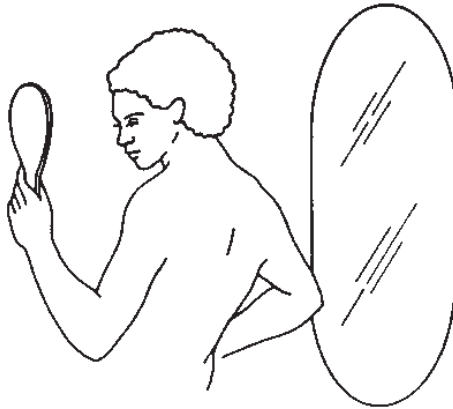
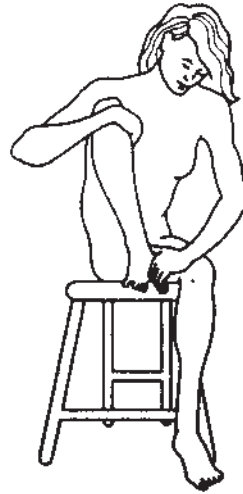
Here is how to do a skin self-exam:

- After a bath or shower, stand in front of a full-length mirror in a well-lighted room. Use a hand-held mirror to look at hard-to-see areas.
- Begin with the face and scalp and work downward, checking the head, neck, shoulders, back, chest, and so on. Be sure to check the front, back,



and sides of the arms and legs. Also, check the groin, the palms, the fingernails, the soles of the feet, the toenails, and the area between the toes.

- Be sure to check the hard-to-see areas of the body, such as the scalp and neck. A friend or relative may be able to help inspect these areas. Use a comb or a blow dryer to help move hair so you can see the scalp and neck better.



- Be aware of where your moles are and how they look. By checking your skin regularly, you will become familiar with what your moles look like. Look for any signs of **change**, particularly a new black mole or a change in outline, shape, size, color (especially a new black area), or feel of an existing mole. Also, note any new, unusual, or “ugly-looking” moles. If your doctor has taken photos of your skin, compare these pictures with the way your skin looks on self-examination.

- Check moles carefully during times of hormone changes, such as adolescence, pregnancy, and menopause. As hormone levels change, moles may change.
- It may be helpful to record the dates of your skin exams and to write notes about the way your skin looks. If you find anything unusual, see your doctor right away. Remember, the earlier a melanoma is found, the better the chance for a cure.

In addition to doing routine skin self-exams, people should have their skin checked regularly by a doctor or nurse specialist. A doctor can do a skin exam during visits for regular checkups. People who think they have dysplastic nevi should point them out to the doctor. It is also important to tell the doctor about any new, changing, or “ugly-looking” moles.

Sometimes it is necessary to see a specialist. A *dermatologist* (skin doctor) is likely to have the most training in diseases of the skin. Some plastic surgeons, general surgeons, *oncologists*, internists, and family doctors also have a special interest and training in moles and melanoma.

Melanoma may run in families, and members of these families are at high risk for the disease. In some of these families, certain members also have a large number (usually over 100) of dysplastic nevi. These people have an especially high risk of developing melanoma. When two or more family members develop melanoma, it is important for all of the patients’ close relatives (parents, brothers, sisters, and children above the age of 10) to see a doctor and be examined carefully for dysplastic nevi or any signs of melanoma. The doctor can then decide how often each person needs to be seen. (Doctors may recommend that these

family members have checkups every 6 months.) Anyone who has a large number of dysplastic nevi also should be examined regularly.

A doctor may want to watch a slightly abnormal mole closely to see whether it changes over time. Pictures taken at one visit may be compared with the appearance of the mole at the next visit. Sometimes a doctor decides that a mole should be removed so that the tissue can be examined under a microscope. The removal of a mole, called a biopsy, is usually done in the doctor's office using local *anesthetic*. It generally takes only a few minutes. The patient may require stitches, and a small scar will remain after healing. A *pathologist* examines the tissue under a microscope to see whether the melanocytes are normal, dysplastic, or cancerous.

Because most moles, including most dysplastic nevi, do not develop into melanoma, removing all of them is not necessary. A doctor can recommend when and when not to remove moles. Usually, only moles that look like melanoma, those that change, or those that are both new and look abnormal need to be removed.

Glossary

Anesthetics (an-es-THET-iks): Substances that cause loss of feeling or awareness. Local anesthetics cause loss of feeling in a part of the body. General anesthetics put the person to sleep.

Biopsy (BY-ahp-see): The removal of cells or tissues for examination under a microscope. When only a sample of the tumor is removed, the procedure is called an incisional biopsy or core biopsy. When the whole tumor is removed, the procedure is called an excisional biopsy. When a sample of tissue or fluid is removed with a needle, the procedure is called a needle biopsy or fine-needle aspiration.

Cancer: A term for diseases in which abnormal cells divide without control. Cancer cells can invade nearby tissues and can spread through the bloodstream and lymphatic system to other parts of the body.

Dermatologist (der-ma-TAH-lo-jist): A doctor who specializes in the diagnosis and treatment of skin problems.

Dysplastic nevi (dis-PLAS-tik NEE-vye): Atypical moles; moles whose appearance is different from that of common moles. Dysplastic nevi are generally larger than ordinary moles and have irregular and indistinct borders. Often their color is not uniform, and ranges from pink to dark brown; they usually are flat, but parts may be raised above the skin surface.

Excisional biopsy (EX-sih-zhon-al BY-ahp-see): The surgical procedure of removing a tumor by cutting it out. The biopsy is then examined under a microscope.

Familial dysplastic nevi (fa-MI-lee-yul dis-PLAS-tik NEE-vye): A condition that runs in certain families in which at least two members have dysplastic nevi (atypical moles) and have a tendency to develop melanoma.

Lymphatic system (lim-FAT-ik): The tissues and organs that produce, store, and carry white blood cells that fight infection and other diseases. This system includes the bone marrow, spleen, thymus, and lymph nodes and a network of thin tubes that carry lymph and white blood cells. These tubes branch, like blood vessels, into all the tissues of the body.

Malignant (ma-LIG-nant): Cancerous; a growth with a tendency to invade and destroy nearby tissue and spread to other parts of the body.

Melanocytes (mel-AN-o-sites): Cells in the skin that produce and contain the pigment called melanin.

Melanoma: A form of skin cancer that arises in melanocytes, the cells that produce pigment. Melanoma usually begins in a mole.

Metastasis (meh-TAS-ta-sis): The spread of cancer from one part of the body to another. Cells in the metastatic (secondary) tumor are the same type as those in the original (primary) tumor.

Mole: A benign growth on the skin (usually tan, brown, or flesh-colored) that contains a cluster of melanocytes and surrounding supportive tissue.

Nevus (NEE-vus): A benign growth on the skin, such as a mole. A mole is a cluster of melanocytes and surrounding supportive tissue that usually appears as a tan, brown, or flesh-colored spot on the skin. The plural of nevus is nevi (NEE-vye).

Oncologist (on-KOL-o-jist): A doctor who specializes in treating cancer.

Pathologist (pa-THOL-o-jist): A doctor who identifies diseases by studying cells and tissues under a microscope.

Pigment: A substance that gives color to tissue. Pigments are responsible for the color of skin, eyes, and hair.

Risk factor: Anything that increases the chance of developing a disease.

Shave biopsy (BY-ahp-see): A procedure in which the parts of a mole that are above and just below the surface of the skin are removed with a small blade. There is no need for stitches with this procedure.

SPF: Sun protection factor. A scale for rating the level of sunburn protection in sunscreen products. The higher the SPF, the more sunburn protection it provides.

Sunscreen: A substance that helps to protect the skin from the sun's harmful rays. Sunscreens reflect, absorb, and/or scatter both UVA and UVB radiation. Using lotions, creams, or gels that contain sunscreens can help protect the skin from premature skin aging and damage that may lead to skin cancer.

Tumor (TOO-mer): An abnormal mass of tissue that results from excessive cell division. Tumors perform no useful body function. They may either be benign (not cancerous) or malignant (cancerous).

Ultraviolet radiation (ul-tra-VYE-o-let ray-dee-AY-shun): Invisible rays that are part of the energy that comes from the sun. UV radiation can damage the skin and cause melanoma and other types of skin cancer. UV radiation that reaches the earth's surface is made up of two types of rays, called UVA and UVB rays. UVB rays are more likely than UVA rays to cause sunburn, but UVA rays pass deeper into the skin. Scientists have long thought that UVB radiation can cause melanoma and other types of skin cancer. They now think that UVA radiation also may add to skin damage that can lead to skin cancer and cause premature skin aging. For this reason, skin specialists recommend that people use sunscreens that reflect, absorb, and/or scatter both kinds of UV radiation.

National Cancer Institute Information Resources

You may want more information for yourself, your family, and your doctor. The following National Cancer Institute (NCI) services are available to help you.

Telephone

Cancer Information Service (CIS)

Provides accurate, up-to-date information on cancer to patients and their families, health professionals, and the general public. Information specialists translate the latest scientific information into understandable language and respond in English, Spanish, or on TTY equipment.

Toll-free: 1-800-4-CANCER (1-800-422-6237)

TTY (for deaf and hard of hearing callers):
1-800-332-8615

Internet

These Web sites may be useful:

<http://www.nci.nih.gov>

NCI's primary Web site; contains information about the Institute and its programs.

<http://cancertrials.nci.nih.gov>

cancerTrials™; NCI's comprehensive clinical trials information center for patients, health professionals, and the public. Includes information on understanding trials, deciding whether to participate in trials, finding specific trials, plus research news and other resources.

<http://cancernet.nci.nih.gov>

CancerNet™; contains material for health professionals, patients, and the public, including information from PDQ® about cancer treatment, screening, prevention, supportive care, and clinical trials; and CANCERLIT®, a bibliographic database.

E-mail

CancerMail

Includes NCI information about cancer treatment, screening, prevention, and supportive care. To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word “help” in the body of the message.

Fax

CancerFax®

Includes NCI information about cancer treatment, screening, prevention, and supportive care. To obtain a contents list, dial 301-402-5874 from a fax machine hand set and follow the recorded instructions.

Other Booklets

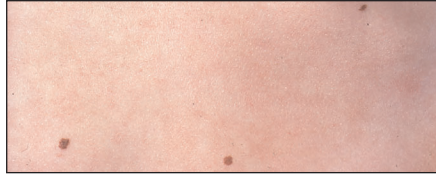
The National Cancer Institute booklets listed below and others are available from the Cancer Information Service by calling 1-800-4-CANCER.

- *What You Need To Know AboutTM Cancer*
- *What You Need To Know AboutTM Melanoma*
- *What You Need To Know AboutTM Skin Cancer*

Pictures of Ordinary Moles and Dysplastic Nevi

Ordinary Moles

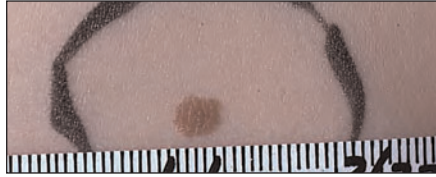
Evenly tan or brown; all typical moles on one person tend to look similar.



Feature

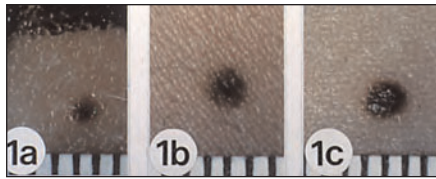
Color

Round or oval, with a distinct edge that separates the mole from the rest of the skin.



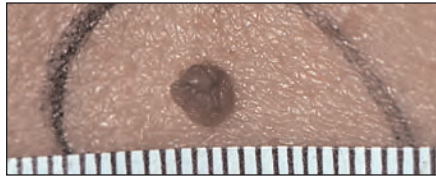
Shape

Begin as flat, smooth spots on skin (1a); may become raised (1b) and form a smooth bump (1c).



Surface

Usually less than 5 millimeters (about 1/4 inch) across (size of a pencil eraser).



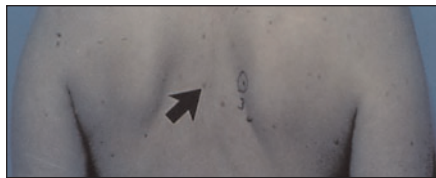
Size

Between 10 and 40 typical moles may be present on an adult's body.



Number

Usually found above the waist on sun-exposed surfaces of the body. Scalp, breasts, and buttocks rarely have normal moles.



Location

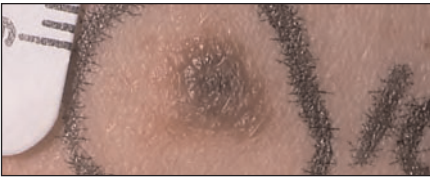
Dysplastic Nevi



Mixture of tan, brown, and red/pink. A person's moles often look quite different from one another.



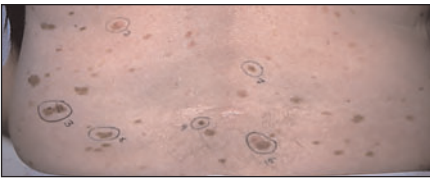
Have irregular, sometimes notched edges. May fade into the skin around it. The flat portion of the mole may be level with the skin.



May have a smooth, slightly scaly, or rough, irregular, "pebbly" appearance.



Often larger than 5 millimeters (about $\frac{1}{4}$ inch) across and sometimes larger than 10 millimeters (about $\frac{1}{2}$ inch).



May be present in large numbers (more than 100 on the same person). However, some people have only a few dysplastic nevi.



May occur anywhere on the body but most frequently on the back and areas exposed to the sun. May also appear below the waist and on the scalp, breasts, and buttocks.

Pictures of Melanoma

Large size

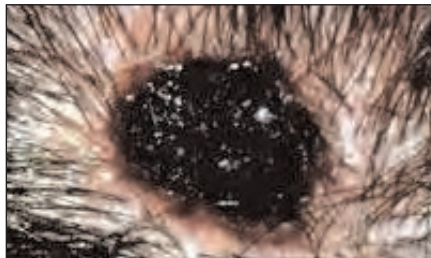
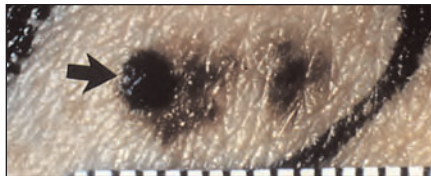
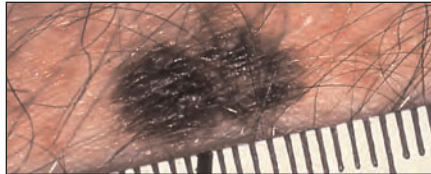
Most melanomas are at least 5 millimeters (about $\frac{1}{4}$ inch) across when they are found; many are much larger. An unusually large mole may be melanoma.

Many colors

A mixture of tan, brown, white, pink, red, gray, blue, and especially **black** in a mole suggests melanoma.

Irregular border

If a mole has an edge that is irregular or notched, it may be melanoma.



Abnormal surface

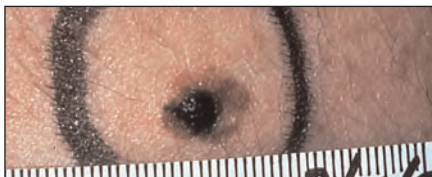
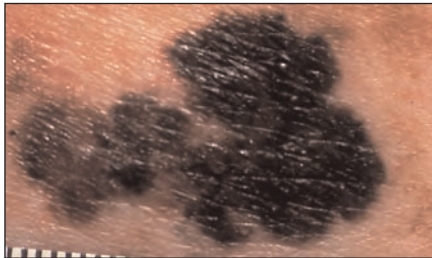
If a mole is scaly, flaky, oozing, or bleeding, has an open sore that does not heal, or has a hard lump in it, it may be melanoma.

Unusual sensation

If a mole itches or is painful or tender, melanoma may be present.

Abnormal skin
around mole

If color from the mole spreads into the skin around it or if this skin becomes red or loses its color (becomes white or gray), melanoma may be present.



The National Cancer Act, passed by Congress in 1971, made research a national priority. Since that time, the National Cancer Institute (NCI), the lead Federal agency for cancer research, has collaborated with top researchers and facilities across the country to conduct innovative research leading to progress in cancer prevention, detection, diagnosis, and treatment. These efforts have resulted in a decrease in the overall cancer death rate, and have helped improve and extend the lives of millions of Americans.

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NIH Publication No. 99-3133
Revised June 1999
Printed September 1999