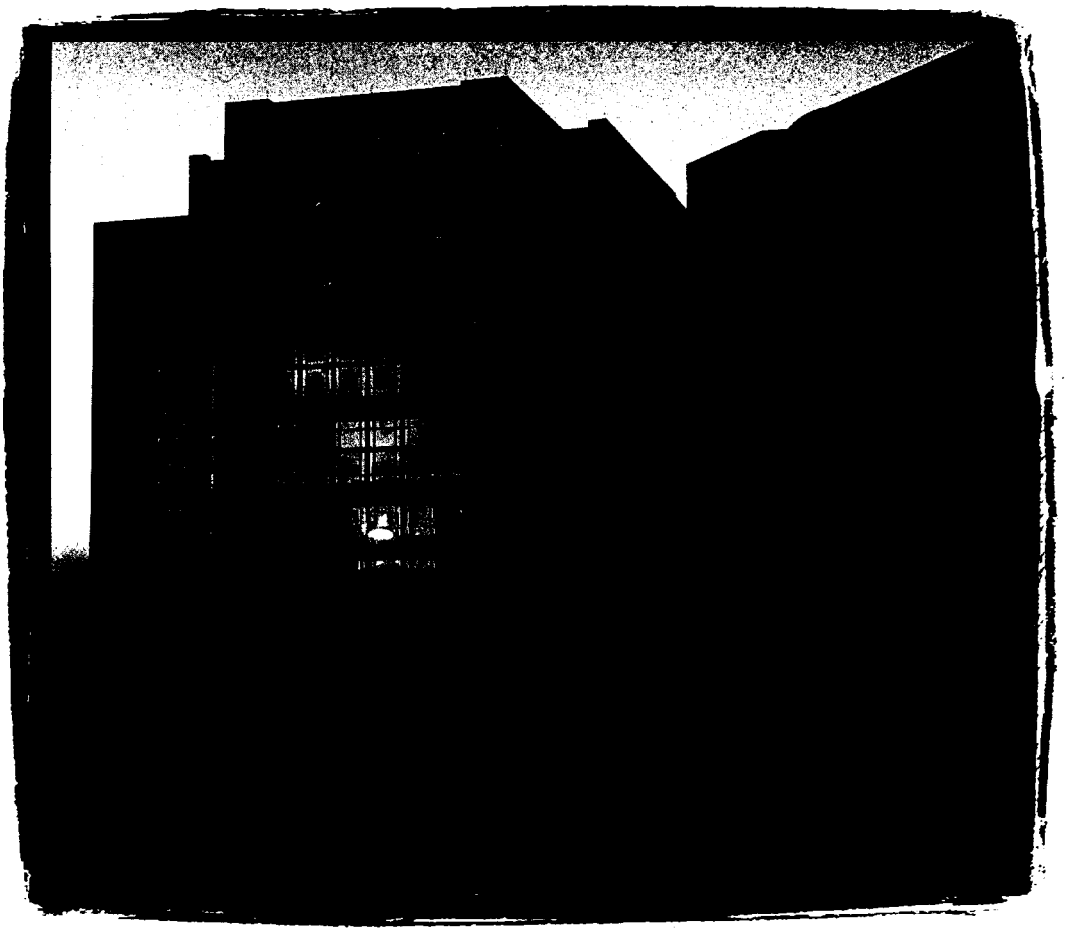
BRIEFING FOR THE BOARD OF REGENTS

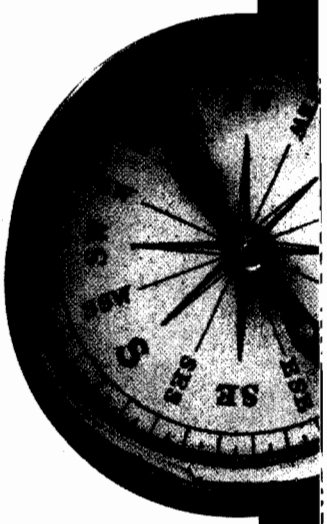


THE UNIVERSITY OF TEXAS SYSTEM
JANUARY 13, 1998

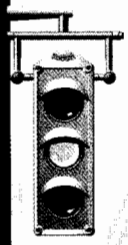
THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

Making Cancer History™

M. D. Anderson's Road Map to Cancer Prevention



Simple Steps to Reducing Your Risk for Cancer



THE UNIVERSITY OF TEXAS
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CANCER CENTER

for more directions

Cancer Prevention Center: (713) 745-8040

- Cancer screening examinations/health risk appraisals
- Genetic testing and counseling
- Smoking cessation and nutrition counseling programs
- The Learning Center (free health and cancer information library with books, videotapes, and Internet access)

M. D. Anderson Information Line: 1-800-392-1611 (touch 3)

- Information about M. D. Anderson services
- Information on referrals and appointments

Cancer Information Service: 1-800-4-CANCER

- Information on cancer diagnosis, treatment
- Information on community services
- Free printed materials and clinical trial searches

Produced by the Office of Public Affairs

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

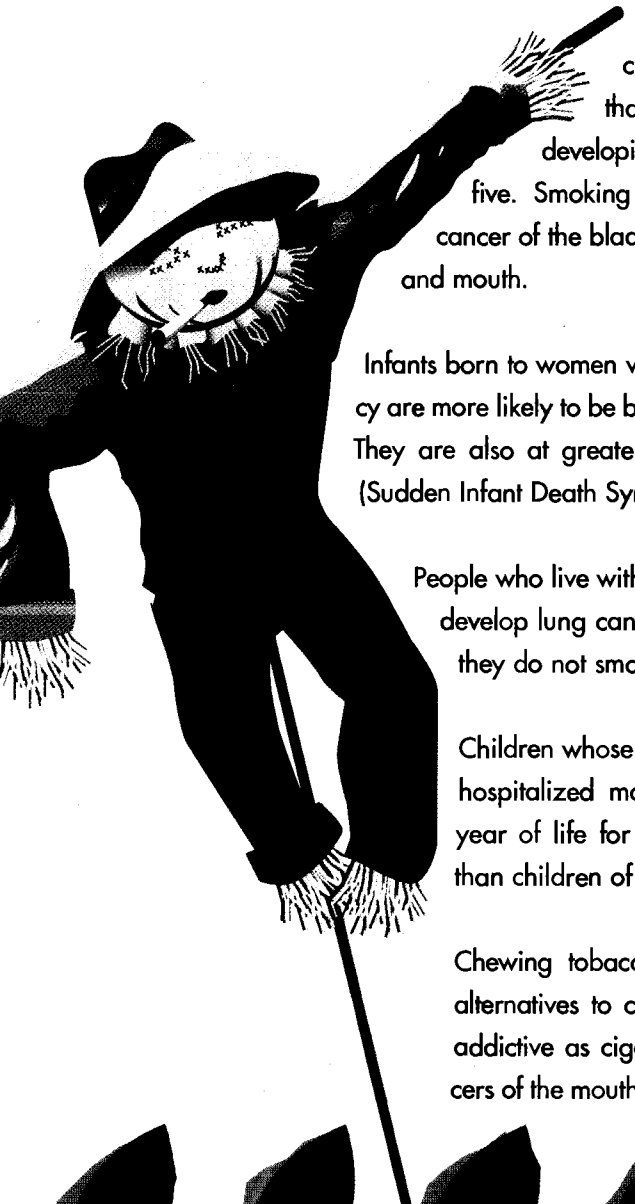
1515 Holcombe Blvd. • Houston, TX 77030-4095
(713) 792-3363

http://www.mdacc.tmc.edu/

REQUIRES
EXTRA
POSTAGE

Tobacco Road

Smoking is responsible for 87 percent of all lung cancer cases and 30 percent of all deaths from cancer. It also contributes to heart disease, stroke, and lung diseases, some of the nation's major killers.



If you smoke two packs of cigarettes a day for more than 15 years, your chances of developing lung cancer are one in five. Smoking also has been linked to cancer of the bladder, throat, pancreas, and mouth.

Infants born to women who smoke during pregnancy are more likely to be born early and to weigh less. They are also at greater risk for dying from SIDS (Sudden Infant Death Syndrome).

People who live with smokers are more likely to develop lung cancer themselves even though they do not smoke.

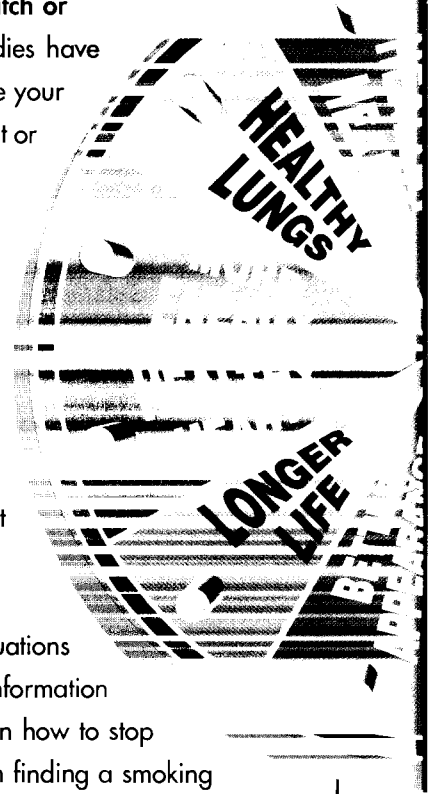
Children whose parents smoke at home are hospitalized more often during their first year of life for bronchitis and pneumonia than children of nonsmokers.

Chewing tobacco and snuff are not safe alternatives to cigarettes. They are just as addictive as cigarettes and can cause cancers of the mouth and throat at a young age.

WHEN QUITTERS ARE WINNERS

Remember, giving up smoking is not just a matter of will power. Nicotine is highly addictive. Many ex-smokers tried several times before they quit for good. Learn from your past attempts and don't give up.

If you want to quit, consider buying a nicotine patch or nicotine gum, available at many drugstores. Studies have shown that using a nicotine replacement can double your chances of quitting successfully and may help prevent or delay weight gain.



Ask your doctor for help in quitting.

Avoid drinking alcohol, coffee and other beverages you associate with smoking.

Ask family and friends to help you while trying to quit by encouraging you in your effort and by not smoking around you if they are smokers themselves.

Learn how to handle stress and what to do in situations where you have the urge to smoke. Call the Cancer Information Service at 1-800-4-CANCER for free information on how to stop smoking, or ask your doctor or employer for help in finding a smoking cessation program.

If you do smoke, be sure to eat plenty of fruits and vegetables. They may offer smokers some protection from lung cancer.

No matter how old you are, it is never too late to improve your health by kicking the tobacco habit.

Some people think that trying to prevent cancer is like driving down a dead-end street—there's no way out. Nothing could be further from the truth. In fact, up to two-thirds of all cancer cases could be prevented if people applied everything known today about cancer prevention to their lives.

That's why M. D. Anderson Cancer Center has prepared this "road map" for you. By following a pathway to a healthier lifestyle, you can reduce your risk for many cancers. Here are five steps to start you on your way.

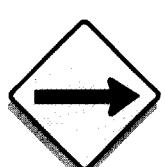
1. Eat lots of fruits, vegetables, and whole grains. Nature has provided a powerhouse of cancer prevention chemicals as close as your nearest produce department.

2. Discover the pleasure of physical activity. Thirty minutes of moderate to vigorous exercise three or four times a week can help reduce your risk of some cancers.

3. Stay tobacco free. You'll live an average of 15 years longer than if you smoked. If you use tobacco of any kind, including chewing tobacco, which increases your risk of mouth and throat cancers, quit now. It's never too late.

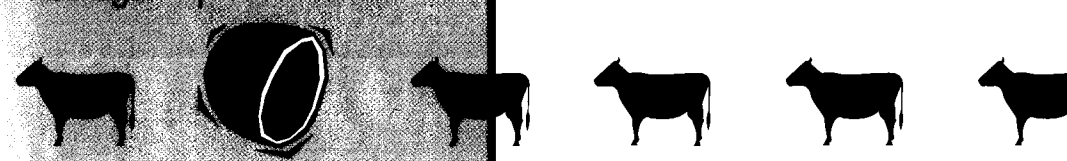
4. Enjoy a low-fat diet. Limit your fat intake to no more than 30 percent of your total daily calories.

5. Protect yourself from the sun between 11 a.m. and 4 p.m. If you must be outside, wear protective clothing and a sunscreen of SPF 15 or greater.



All the road signs in the world won't help you find your way if you don't know how to read them. The same is true for detecting cancer at an early stage—you must recognize the signs your body is giving you. Here are some of the symptoms for the most common cancers. If you experience them, check with your doctor. Remember, detecting cancer early can greatly increase your chances of a successful treatment.

Most studies suggest a link between a diet high in animal fat and higher rates of prostate cancer. When 68,000 American men were followed in two studies, those who ate the most fat had 79 percent more advanced prostate cancer than the men who ate a low-fat diet. It is known that testosterone production is increased by eating meat and dairy products, and high levels of testosterone can trigger prostate cancer. So, men, give your bodies a break—eat less red meat and more red fruits and vegetables, such as tomatoes and watermelon, which may protect against prostate cancer.



Breast cancer: a lump in the breast, or any puckering, dimpling or scaling of the breast skin. A bloody or clear discharge from only one nipple may be a symptom of breast cancer, but most discharge, especially if it is from both breasts and occurs when pressure is applied, is normal. Women should examine their breasts monthly so that they know what feels and looks normal for them.

Colorectal cancer: blood in the stool, prolonged diarrhea or constipation, abdominal pain or pressure, or any persistent change in bowel habits.

Endometrial cancer (the endometrium is the lining of the uterus): bleeding between menstrual periods or after menopause.

Cervical cancer (the cervix is the opening of the uterus): bleeding after having sexual relations or between menstrual periods.

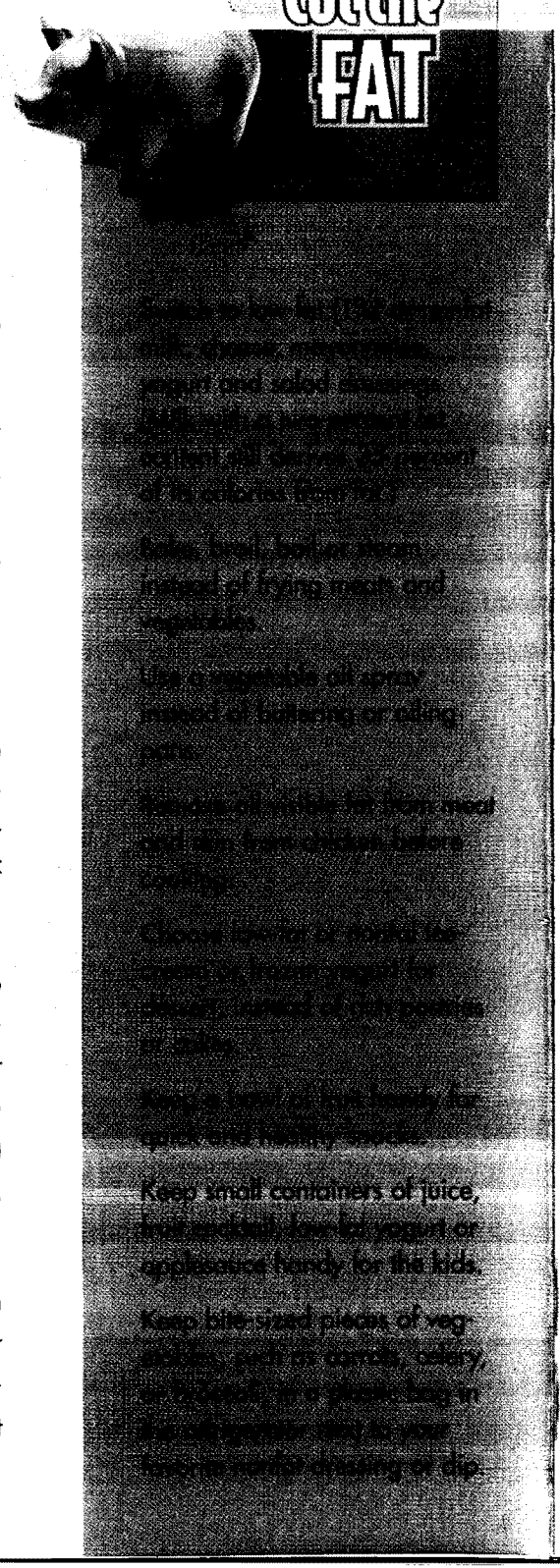
Prostate cancer: frequent or painful urination, blood in the urine, difficulty in starting or stopping the stream, and impotence. These symptoms may result from prostate problems other than cancer, but you should check with your doctor to be sure.

Testicular cancer: a change in consistency in the testicles, or a small, hard lump that is often painless. Men of all ages, from 18 on, should examine their testicles monthly, just as women should their breasts. Testicular cancer is the most common cancer in young men between the ages of 18 and 35.

Oral cancer: If you smoke, chew, or dip tobacco, or drink alcohol, you should examine your mouth monthly, looking for white or velvety red patches, lumps or hardening of the tissue.

Skin cancer: Check your body from head to toe, looking for new moles or moles that suddenly increase in size, change color or become ulcerated or bleed easily. Less serious skin cancers (basal and squamous cell) may look like a pale, waxlike, pearly bump, or a red, scaly patch or ulcerated sore.

Lung cancer: Symptoms of lung cancer, such as chest pain or recurring bronchitis or pneumonia, often don't appear until the disease is advanced. Not smoking is the best way to prevent lung cancer.



we smoke. Up to 70 percent of cancers are linked to foods. The good news is that some foods can actually help protect against certain cancers. A low-fat, plant-based diet (fruits, vegetables, grains, and beans) is your best insurance against almost all cancers as well as heart disease.

Nutritionville, U.S.A

Eat five to nine servings of fruits and vegetables every day. It's easier than you may think—just aim for two to three servings at every meal. For example, orange juice, fruit and cereal for breakfast, a salad with low-fat dressing with lunch, a fruit for an afternoon snack, and pasta with tomato and mushroom sauce for dinner. A serving equals one small raw fruit or vegetable, or one-half cup cooked.

Sneak some extra veggies, such as grated carrots or chopped broccoli, into your family's favorite casserole to pack an extra nutritional punch.

Try blending bananas, mangoes or berries with low-fat or nonfat yogurt or skim milk for a delicious breakfast drink or refreshing dessert.

Eat six to 11 servings of whole-grain products every day. Whole-grain products, especially those rich in wheat bran—such as bran cereals—are high in dietary fiber, which can help reduce your risk for colorectal cancer. A serving equals one slice of bread, one-half cup cooked pasta or rice or one ounce of a ready-to-eat cereal. Look for foods that list a whole grain as the first ingredient—such as whole-wheat flour, rolled oats, or wholemeal rye.

Eat a low-fat diet. Eating fat puts you on a collision course with cancers of the colon, breast and prostate, three of the major cancers in this country. Eating fat also increases your chances of becoming obese. No more than 30 percent of the calories in your diet should come from fat. Ideally, you should eat even less fat.

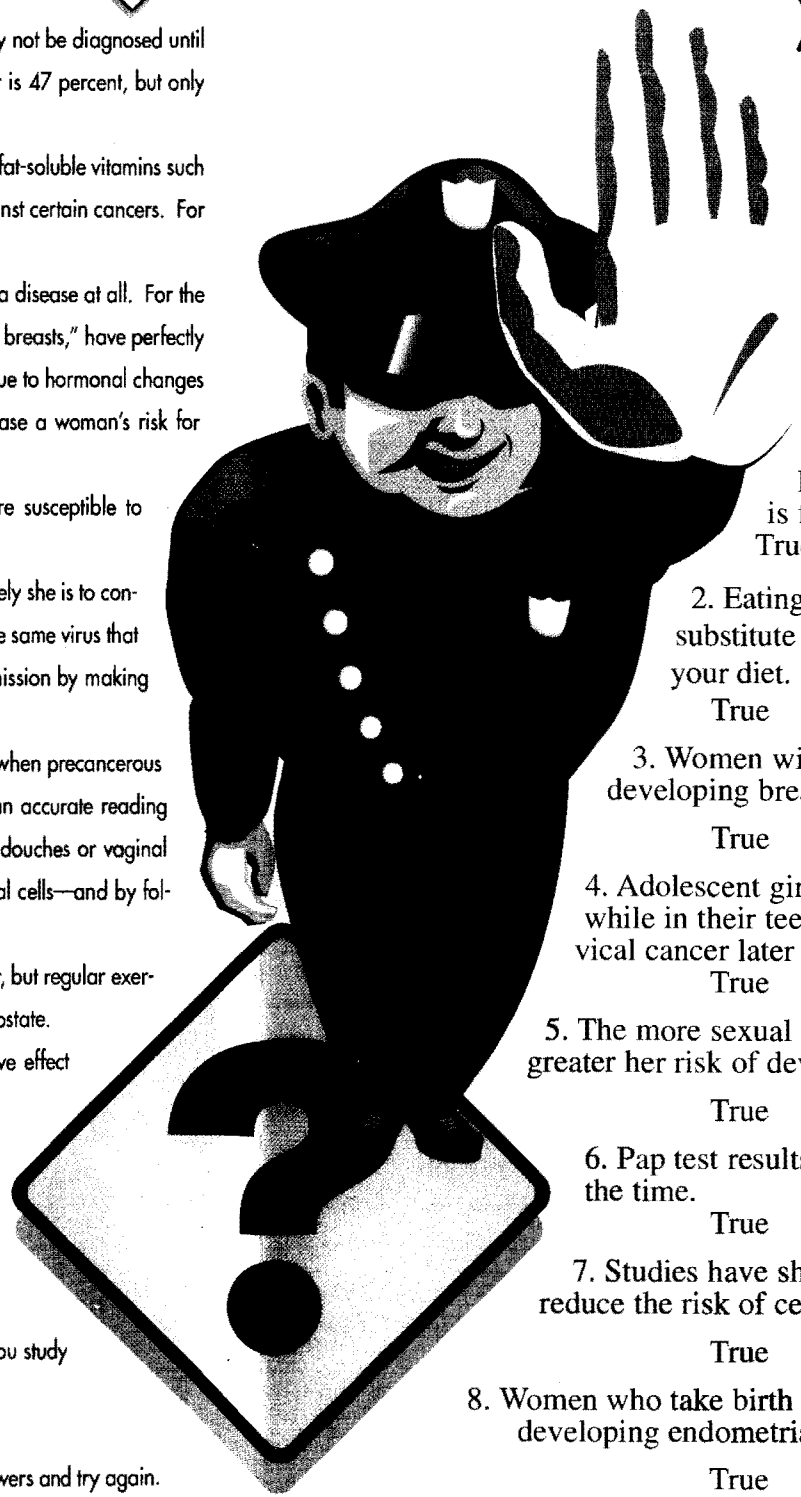
Eat two to three servings of low-fat or nonfat dairy products for calcium every day. Calcium may protect against colorectal cancer. Beside milk, nonfat cheeses and yogurt, calcium-fortified orange juice, spinach, and many dark-green leafy vegetables are also good sources of calcium.

If you drink alcohol, do so in moderation—two drinks or less per day. Drinking has been linked to colon, breast, and liver cancers, and when combined with smoking, greatly increases the risk of head and neck cancer.

People who eat the most fruits and vegetables have only about half the cancer risk for all the major cancers—breast, lung, colon, prostate, and cervical—than those who eat the fewest.

Street Smarts

Here are eight true-false statements to challenge your knowledge of uncharted territory—issues not covered in this road map. See how well you can navigate this cancer prevention obstacle course!



1. Lung cancer has a high cure rate if it is found at an early stage.
True False

2. Eating snacks made with a calorie-free fat substitute is a good way to cut down on fat in your diet.
True False

3. Women with fibrocystic breasts are at high risk for developing breast cancer.
True False

4. Adolescent girls who begin having sexual intercourse while in their teens increase their risk of developing cervical cancer later on.
True False

5. The more sexual partners a woman or her partner has, the greater her risk of developing cervical cancer.
True False

6. Pap test results are accurate nearly 100 percent of the time.
True False

7. Studies have shown that regular exercise may help reduce the risk of certain cancers.
True False

8. Women who take birth control pills increase their risk of developing endometrial and ovarian cancer.
True False

to Street Smarts quiz

1. False. Because there are often no early symptoms of lung cancer, a person may not be diagnosed until the disease is well-advanced. The 5-year survival rate for early stage lung cancer is 47 percent, but only 15 percent of lung cancers are discovered that early.

2. False. Many nutritionists worry that fat substitutes may rob the body of essential fat-soluble vitamins such as vitamins A, D, and E, and other substances found in plants that may protect against certain cancers. For the time being, you may be wise to find other ways to reduce your fat intake.

3. False. According to many breast cancer specialists, "fibrocystic disease" is not a disease at all. For the most part, women who have been diagnosed with this condition, also called "lumpy breasts," have perfectly normal breasts. Tenderness, swelling, and lumpiness (as opposed to a lump) are due to hormonal changes and are normal. There is one diagnosis, atypical hyperplasia, which does increase a woman's risk for breast cancer, but it is a rare condition.

4. True. Researchers believe that the cells in a young woman's cervix are more susceptible to changes that could lead to cancer than the cells in an older woman's cervix.

5. True. The more sexual partners a woman or her sexual partner has, the more likely she is to contract the human papilloma virus (HPV), which can lead to cervical cancer. HPV is the same virus that causes the common wart. As with AIDS, a woman can protect herself from transmission by making sure her partner wears a condom, or by wearing a female condom herself.

6. False. It is estimated that 10 to 20 percent of Pap tests are reported as normal when precancerous or cancerous cells are actually present. A woman can increase the likelihood of an accurate reading by scheduling a Pap test for 12 to 14 days after her period begins, by not using douches or vaginal medications for three days before the test—they may wash away or hide abnormal cells—and by following Pap test screening guidelines.

7. True. The strongest evidence of exercise's protective effect concerns colon cancer, but regular exercise has also been associated with a decreased risk of cancer of the breast and prostate.

8. False. Pregnancy and the use of birth control pills appear to have a protective effect against ovarian and endometrial cancer.

If you scored:

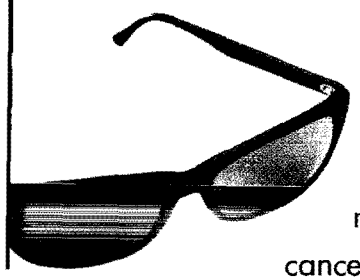
6-8: You're a cancer prevention genius! Now for the toughest question—do you practice what you know? If so, you're on the right road.

4-5: You took a few wrong turns, but you can still make it to your destination if you study the map a little better.

2-3: You're ripe for an accident! Better get a tune-up and hit the books.

Less than 2: Oops! Hope you were wearing your crash helmet! Reread the answers and try again.

Southern Exposure



More than 800,000 Americans will be diagnosed this year with a cancer that is almost totally preventable—skin cancer.

Skin cancer, the most common cancer in the U.S., is, for the most part, caused by too much exposure to the sun. Most skin cancers are highly curable, but one form, called malignant melanoma, is much more serious and has increased more than 100 percent since 1973. Armed with a little information and common sense, you won't have to be part of those statistics.

The fairer your skin, the higher your risk of skin cancer. If you freckle or burn in the sun, you are at highest risk. Still, people of all skin colors can develop skin cancer over time.

In the southern United States, the sun's ultraviolet rays are strongest between 11 a.m. and 4 p.m.—a good time to stay indoors if you can.

If you must be in the sun, cover up with clothing, sunscreen and sunglasses.

A sunscreen with an SPF of at least 15 is a good choice for most people. SPF stands for Sun Protection Factor and means that if you normally burn in 10 minutes while unprotected, you can stay in the sun 15 times longer, or 150 minutes, if you apply a sunscreen with an SPF of 15.

Choose a sunscreen that protects you from both UV-A and UV-B rays. UV-B rays cause sunburns, but UV-A rays also increase the risk for skin cancer. Some research indicates that people who only use a UV-B sunscreen may actually be increasing their risk for skin cancer because they are soaking up hours of UV-A rays, unprotected.

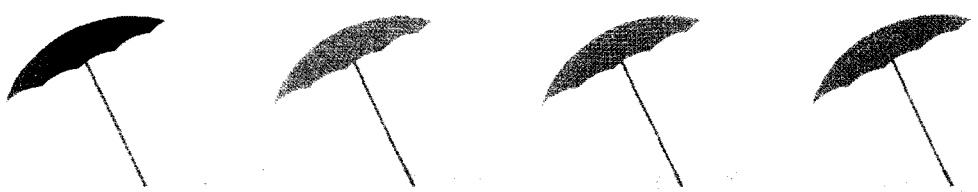
Babies should never be exposed to direct sunlight. Shield them with protective clothing when out during the day. Sunscreens should not be applied to infants under six months of age.

Apply sunscreen about 30 minutes before going into the sun so it has a chance to be absorbed by the skin. Reapply often, as swimming and perspiration will remove it. Don't try to economize. Apply sunscreen liberally—the skin you save may be your own!

Teach your children to apply sunscreen before they go out to play. Research shows that regular use of sunscreen during the first 18 years of life could reduce the lifetime incidence of skin cancer by 78 percent.

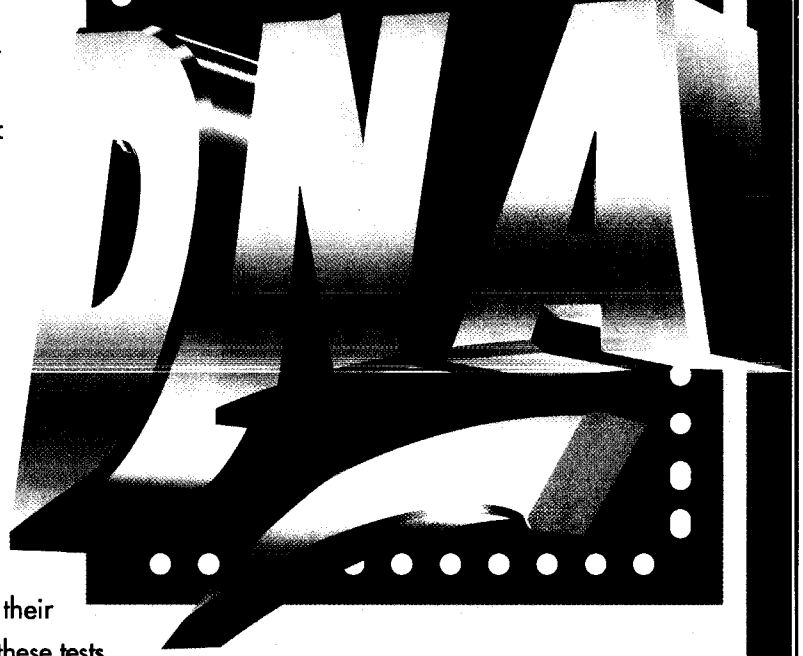
Don't substitute indoor tanning salons for roasting on the beach. Tanning beds produce the same UV-A radiation as the sun. No tan is a safe tan—it is a sign of skin damage.

Want to avoid the hassle and worry? Simply stay out of the sun from 11 a.m. to 4 p.m.



Cancer	Risk Factors	Screening Recommendations
Cervical	First intercourse at an early age; multiple sexual partners, either of the woman or her partner; cigarette smoking.	Annual Pap test with a pelvic exam from age 18 or earlier if sexually active. After three or more consecutive exams with normal findings, a physician may choose to do them less frequently.
Endometrial	Estrogen exposure is the main risk factor. This includes: early menarche; late menopause; estrogen replacement therapy without the use of progestin; never having children; and a history of infertility. Newer hormone replacement therapies are still under investigation.	Annual pelvic exam from age 40; for women at high risk, a tissue sample from the endometrium should be taken at menopause.
Skin	Exposure to ultraviolet radiation; fair complexion; family history; occupational exposure to coal tar, pitch, creosote, arsenic or radium.	Monthly self-exam from age 18 on; any suspicious-looking mole or sore should be evaluated by a physician immediately. Remember this ABCD rule when evaluating a mole: **a**symmetry, **b**order irregularity, **c**olor that is not uniform, and **d**iameter greater than the

A STREETCAR NAMED DNA

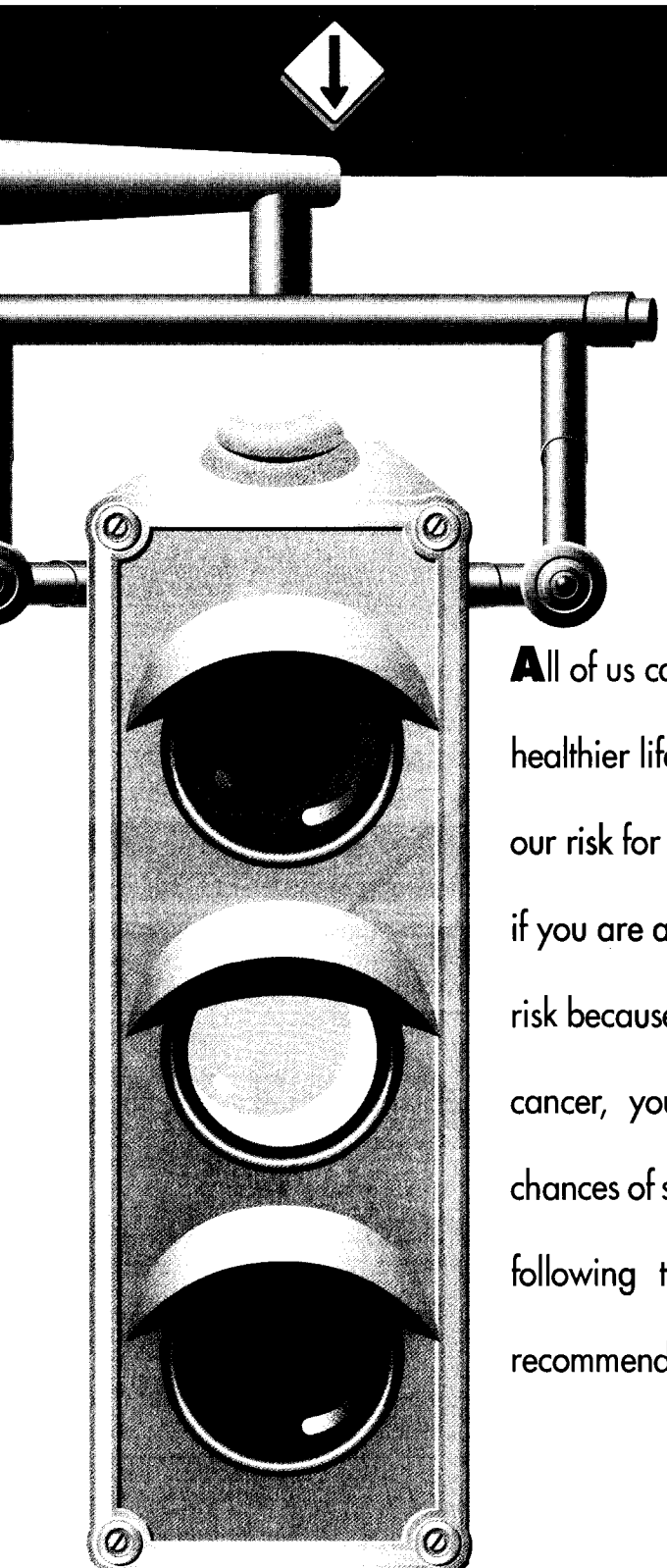


Scientists are beginning to identify altered genes that are inherited and which predispose people to certain cancers. It is estimated that four to nine percent of all breast cancer may be hereditary. Hereditary factors may account for six to 10 percent of all cases of colon cancer. Researchers can now test people to see if they carry the altered genes that put them at high risk for hereditary forms of these cancers. With this information, people can be followed more closely by their physicians. However, these tests are not always predictive and are not widely available to the public as yet.

Legal issues, such as whether or not insurance can be denied to someone who tests positive for these altered genes, are still being debated. Even if a person carries an altered gene for one of these cancers, he or she still would be wise to follow the recommendations for a healthy lifestyle.

If you have a strong history of cancer in your family (two or more close relatives who have had breast, ovarian or colon cancer) and would like to know more about genetic testing and counseling, call

Cancer Prevention Crossroads

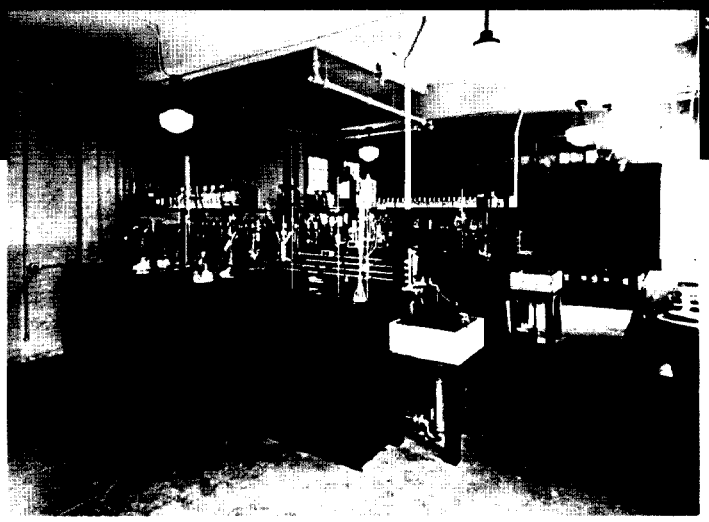


All of us can take steps to lead a healthier lifestyle and thus reduce our risk for certain cancers. Even if you are at higher than average risk because of a family history of cancer, you can increase your chances of successful treatment by following the cancer screening recommendations that follow.

Cancer	Risk Factors	Screening Recommendations
Breast	Increasing age; family history of breast cancer; early menarche; late menopause; lengthy exposure to cyclic estrogen; never having children or having the first child at a late age; higher education and socioeconomic status. Suspected risk factors being studied: high-fat diet; pesticide or chemical exposure; drinking alcohol; induced abortion; physical inactivity.	Monthly breast self-examination from age 20; a clinical breast exam every 3 years from age 20-40 and yearly after 40. A baseline mammogram before age 40; every 1-2 years from age 40-49; yearly after age 50. If you have a family history of breast cancer, your physician may want to start mammograms at an earlier age.
Colorectal	Personal or family history of colorectal cancer or polyps; inflammatory bowel disease. Suspected risk factors: high-fat or low-fiber diet; physical inactivity; cigarette smoking; drinking alcohol.	Digital rectal exam every year after age 50; stool blood test every year from age 50; flexible sigmoidoscopy every 3 to 5 years after age 50.
Prostate	Increasing age; race—African-American men have the highest incidence of prostate cancer in the world. A high-fat diet is a suspected risk factor.	Yearly digital rectal exam after age 40; yearly prostate-specific antigen blood test after age 50.

Making Cancer History

Research Milestones



THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

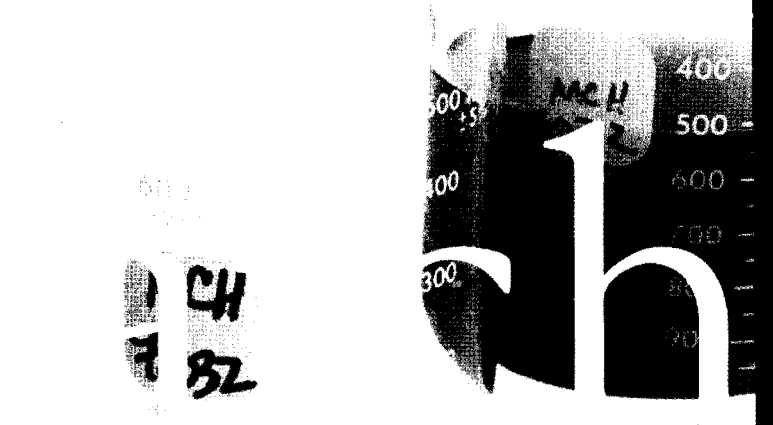
This brochure addresses a question that is often asked but difficult to answer in simple terms: What major research advances against cancer have occurred at M. D. Anderson over the last half century?

Listing only 50 achievements is arbitrary and, of course, omits many other advances that have taken place here. But there is a method to the choices included.

From suggestions provided by current and retired faculty, more than 100 especially worthy research advances were identified. Then a diverse panel of knowledgeable faculty narrowed the recommendations using two criteria: the impact of each contribution on cancer medicine or science and M. D. Anderson's unique or leadership role in making an advance.

The short list that resulted helps demonstrate how research at M. D. Anderson has made a difference in the fight against cancer.

On the cover:
The old 1944 picture of a biochemistry laboratory at the Baker Estate is in sharp contrast to a new photo showing four M. D. Anderson faculty discussing current research. From left, they are Drs. Varsha Gandhi of Clinical Investigation, Pierre D. McCrea of Biochemistry, Guillermina Lozano of Molecular Genetics and Curtis A. Pettaway of Urology.

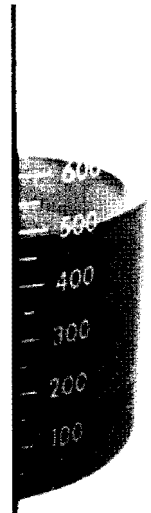


Research is the driving force that has propelled The University of Texas M. D. Anderson Cancer Center to its international reputation for excellence.

When the Texas Legislature created the institution in 1941, lawmakers named it the Texas State Cancer Hospital and the Division of Cancer Research. The outlook for curing cancer was bleak back then, but hopes were high that through research the burden of cancer could be reduced for Texans and ultimately people throughout the world.

In 1942, the name was changed to the M. D. Anderson Hospital for Cancer Research of The University of Texas. The new name recognized the philanthropy of Monroe Dunaway Anderson, a Tennessee banker who had become a successful cotton broker in his adopted city of Houston. He set up a charitable foundation before his death in 1939. Trustees of the M. D. Anderson Foundation provided an interim site and land for the new cancer facility.

That six-acre temporary site — the former James A. Baker family estate known as "The Oaks" — would serve as headquarters for the cancer hospital and research center for more than a decade. Shortly before Christmas 1942, the first four research scientists arrived to initiate laboratory studies that, with time, would help make a substantial difference in controlling cancer.



timeline

1943-

Biochemistry and biology departments were set up in the old estate's stable and carriage house, which had been converted to **research** laboratories. In 1943, a paper in the *Archives of Biochemistry* titled "Nicotinamide Riboside" by Dr. Fritz Schlenk became the first scientific article published by a staff member.

The first patient was registered on March 1, 1944. Early efforts to test anti-cancer drugs were made in 1946 by Dr. C. P. Coogle, a microbiologist who studied the effects of endotoxins on animal cancer cells. Two years later, Dr. C. L. Spurr, the first chief of clinics, started chemotherapy by giving nitrogen mustard to leukemia patients.

The importance of **research** was reflected when the first scientific symposium on fundamental cancer **research** was hosted in 1946.

1948

That year, Dr. R. Lee Clark arrived to become the first director and surgeon-in-chief. He introduced the concept of multidisciplinary teamwork that would integrate patient care, **research** and education. The American Cancer Society awarded its first **research** grant made in the Southwest to the temporary M. D. Anderson Hospital staff in 1948; the funds supported studies of protein metabolism for cancer patients.

It was during 1948 that Dr. Gilbert H. Fletcher, a French-born physician who had been recruited to plan a radiotherapy program at the Baker Estate, persuaded Dr. Leonard G. Grimmett, a widely known English physicist, to move to Houston. When Dr. Grimmett arrived the following February, he set up a physics workshop above Dr. Fletcher's basement clinic.

It didn't take the two men long to design a model cobalt unit. They did radiation protection measurements and radiation isotope **research** in the underground furnace room of the greenhouse. When Dr. Grimmett presented the proposed cobalt-60 machine to a conference at the Oak Ridge Institute of Nuclear Studies, it was chosen over 11 other models for development by the U.S. Atomic Energy Commission.

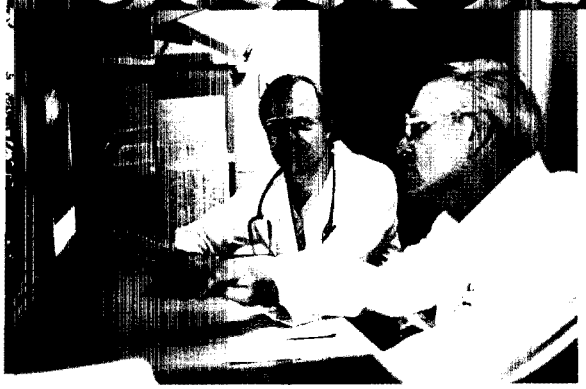
The M. D. Anderson Foundation had donated a permanent location for the cancer hospital in the new Texas Medical Center. One-third of the institution's space was devoted to **research**. Both basic and clinical **research** expanded after the initial 234-bed hospital facility opened in 1954. Its name was changed in 1955 to The University of Texas M. D. Anderson Hospital and Tumor Institute.

A grant from the National Institutes of Health in 1961 created a clinical cancer **research** program. Federal funds had been given earlier to Dr. Fletcher's group to evaluate a 22-million electron-volt betatron. That study showed the cobalt-60 and betatron complemented each other and led to the first formal grant for radiation **research**.

Patient care, **research** and educational activities increased tremendously in the 1960s and 1970s. Substantial progress was made in developing anti-cancer drugs, especially for children, and combining chemotherapy with better surgical procedures and/or improving radiation oncology techniques.

Under the National Cancer Act of 1971, M. D. Anderson was named one of the first three comprehensive cancer centers.

timeline



In 1972, The University of Texas System Cancer Center was formed, with M. D. Anderson Hospital and Tumor Institute as the flagship unit and a two-unit Science Park established in Bastrop County. Dedication in 1976 of new clinic, hospital and **research** facilities doubled the size of M. D. Anderson.

A center for carcinogenesis was opened at the Science Park-Research Division near Smithville in 1978. The Science Park's Department of Veterinary Sciences near Bastrop expanded on 375 acres of farm land, where animals continue to be bred and raised for scientific **research**. Dr. Charles A. LeMaistre assumed the presidency of M. D. Anderson in 1978.

Cancer prevention was integrated as a major mission in 1979. The appointment that year of Dr. Frederick F. Becker (photo above, far right) as the first vice president for research led to expansion of **research** programs and recruitment of new basic and clinical **research** leaders.

Major facilities added in the 1980s included the R. E. "Bob" Smith Research Building for cell biology and immunology, the Percy and Ruth Legett Jones Research Building, more outpatient clinic areas and the Ambulatory Treatment Center. In 1988, a new name was approved: The University of Texas M. D. Anderson Cancer Center.

Research continued to flourish in the 1980s and 1990s as faculty exploited new knowledge about cancer biology and applied information about molecular genetics to targeted therapies for many forms of cancer. In 1993, the 300,000th patient was served and the largest building program in the institution's history commenced to assure a physical plant to meet program needs into the 21st Century.

The first addition to open was the Charles A. LeMaistre Clinic, which contains a cancer prevention center and outpatient disease-site centers for more efficient multidisciplinary patient care. The Clinical Research Building added 55 laboratories for experimental surgery, laboratory medicine and medical oncology specialties, plus expanded animal **research** space. The new Albert B. and Margaret M. Alkek Hospital will provide new inpatient beds, critical care units, surgical suites and diagnostic/treatment services, most of which will replace outdated facilities in the original hospital complex.

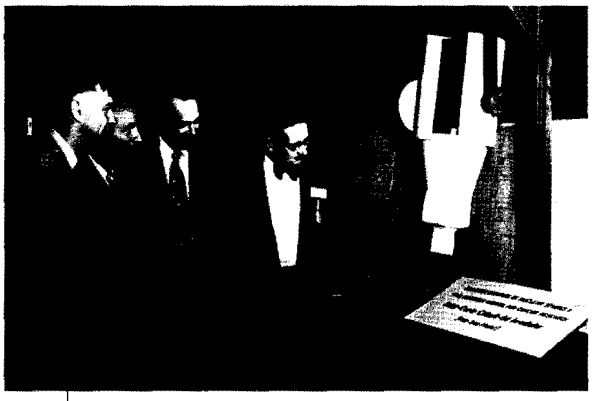
M. D. Anderson has continued stepping up the pace of **research**. From 1987 to 1996, external support for **research** increased 84% ($38.7 million to $71.4 million). For 1996, the institution received 151 grants from the National Cancer Institute, more than any other cancer center in the country. At that time, about one-third of M. D. Anderson's patients were participating in clinical trials to assess new therapies. These include studies of several gene therapy techniques that first were tested in laboratories and experimental animals and now are being evaluated for patients with multiple types of cancer.

Dr. John Mendelsohn became M. D. Anderson's president in 1996. Targeted **research** initiatives for brain, breast, ovarian, prostate and skin cancers were launched that year to broaden the collaboration of scientists and clinicians in developing better strategies to treat and prevent these diseases. (See page 16 for information on how **research** expenditures have increased since the first biochemistry studies were funded.)

1996

Selected Research Advances

The following 50 accomplishments are among many contributions by the M. D. Anderson faculty over the past 50 years.



A model of the first cobalt-60 unit examined by, from left, Dr. Marshall Brucer of the Oak Ridge Institute, Dr. Gilbert H. Fletcher, Dr. R. Lee Clark and Dr. Leonard Grimmett.

◆ Designed and tested **first cobalt-60** unit, paving the way for more effective and less expensive radiation therapy throughout the world.

◆ Adapted a **research cryostat** for clinical use in diagnosing cancer with "frozen section" pathology slides that could be prepared while patients were in surgery.

◆ Conducted the initial national study to assess radiation therapy with the **betatron machine** that produced high-energy photons to treat internal tumors.

The rotating cobalt-60 machine treating a patient.

1950s research

◆ Determined appropriate techniques for **mammograms** and showed that such x-rays could detect minimal, highly curable breast cancers. Both measures shaped recommendations for **screening mammography**.

◆ Developed and evaluated **combination chemotherapy** that produced early effective treatments for leukemia, lymphoma and other cancers.

Dr. Wataru W. Sutow examines a young cancer patient.

Dr. Emil J Freireich tested new drugs and improved blood component therapy.

◆ Reported the **first successful chemotherapy** (vincristine) for children with inoperable Wilms' tumor, a kidney cancer.

◆ Introduced **limb-sparing surgery** using donor bones — and later metal prostheses — to save arms and legs of patients with bone tumors and other sarcomas.

◆ M. D. Anderson named to direct planning **uniform radiation dosimetry standards** for hospitals participating in National Cancer Institute radiotherapy studies.

◆ Collaboration among surgeons and radiation oncologists led to **improved survival, preserved function** and better **cosmetic appearance** for many head and neck cancer patients.

◆ Developed **biometric tests** that enhanced the design and evaluation of clinical trials of anti-cancer drugs for patients with leukemia and eventually other cancers.

1960s

research

◆ Initial studies of both natural and synthetic **interferon** led to the U.S. Food and Drug Administration approving the biologic substance for treating two types of leukemia.

◆ First proposed the **two-hit hypothesis** of cancer causation, which required mutations in two paired genes to start the cancer process and explained why inherited cancers have an early onset because one gene is mutated at birth.

◆ Reported the first combination chemotherapy (Velban and bleomycin) that produced complete remission and eventual cure for many patients with germ cell **testicular cancer**.

◆ Conducted and published early clinical trials that showed a **three-drug combination** (fluorouracil, Adriamycin and cyclophosphamide) was highly effective for **breast cancer**.

◆ Developed the so-called **C-banding technique** that enabled scientists to pinpoint the precise location of genes on various chromosomes.

Dr. T.C. Hsu helped develop C-banding technique.

◆ Published the first of a series of articles that revised theories on **how breast cancer is inherited** and contributed to understanding the increased risk for families with other cancers.

◆ Designed new continuous-flow **blood cell separators** to divide whole blood into cellular components that combat infections, control hemorrhages and help manage other complications of cancer and its treatment.

1970s research

◆ Demonstrated the early efficacy of small **portable chemotherapy infusion pumps** that have allowed patients to take anti-cancer drugs at home, work and while traveling.

◆ M. D. Anderson's initial bone marrow transplant in 1975 evolved into the nation's largest program, in which more than 600 **bone marrow** and **stem cell transplants** now are performed annually for patients with many forms of cancer.

◆ Initiated **voice-conservation therapy** involving limited surgery and radiation treatments for patients with laryngeal cancer.

◆ Identified the clinical relevance of **chromosomal abnormalities** that led to routine tests to detect leukemia sub-types and recommendations for optimal therapy for each.

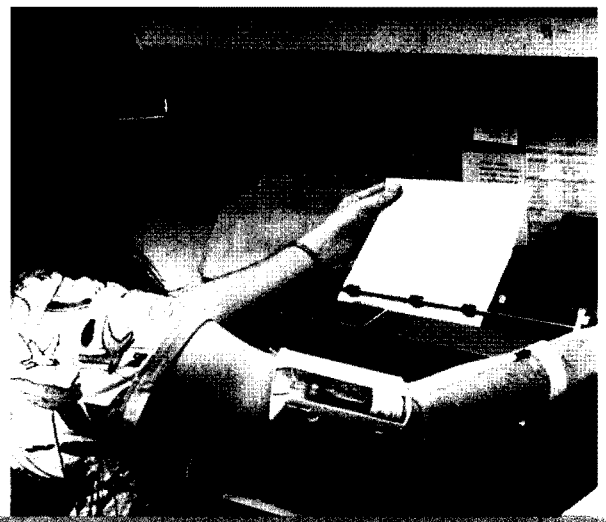
◆ Documented that lumpectomy combined with radiation therapy was as effective as radical mastectomy and offered **breast conservation** as an option for some breast cancer patients.

◆ Showed that **infusing the drug cisplatin** into arteries of arms and legs of patients with bone tumors could greatly improve survival when combined with **continuous infusion of Adriamycin** before and after limb-sparing surgery.

◆ Introduced now-standard concept of **density of tumor cell infiltration** to plan radiation doses that can destroy previously undectectable tiny tumors.

◆ Documented that children with **rhabdomyosarcoma**, a rare skeletal muscle cancer, and **osteosarcoma** could be treated successfully with combination chemotherapy.

Patient gets chemotherapy via portable infusion pump.



1970s research

◆ Demonstrated that vitamin A analogs **(retinoids)** can reverse precancerous lesions, which may progress to head and neck cancers, providing a foundation for the **chemoprevention field**.

◆ Discovered a **T-cell receptor** that led to understanding the function of cells that mount the body's primary defense against many cancers and some viruses.

◆ Published data defining the specific genetic events associated with **development of Wilms' tumor**, a childhood cancer of the kidney.

◆ Established the **field of photoimmunology** that focuses on understanding the molecular mechanisms of how ultraviolet radiation from the sun causes skin cancer and also suppresses the immune system, leaving individuals vulnerable to infectious diseases.

Dr. Reuben Lotan of Tumor Biology, left, and Dr. Waun Ki Hong of Thoracic/Head and Neck Medical Oncology discuss their research about retinoids.

Dr. Margaret L. Kripke investigates how sunlight causes skin cancer.

1980s research

Dr. Isaiah J. Fidler directs a research group seeking ways to prevent cancer metastasis.

◆ First proposed and confirmed the theory that **cancer metastasis** is a non-random process and conducted extensive research to develop methods for overcoming the diverse properties of cancer cells.

◆ Reported first clinical use of **liposomes** to enclose antibiotics in microscopic fatty carriers and target drugs to specific disease sites, then applied the technique to deliver higher doses of anti-cancer drugs while reducing toxicity.

◆ Conducted early clinical trials that demonstrated the efficacy of **Taxol** in treating advanced breast cancer.

◆ Designed a model **Ambulatory Treatment Center** that now is the nation's largest facility for providing chemotherapy and vital supportive treatments in a cost-effective outpatient setting.

◆ Conducted the first clinical study showing how **activating natural immune system cells,** known as macrophages, can destroy metastatic bone tumor cells that resisted chemotherapy.

◆ Developed **premature chromosome condensation (PCC) test** that could find only a few leukemic cells in bone marrow and provide a method to predict relapse.

◆ Identified **molecular mechanisms** that regulate gene expression during differentiation of muscle cells and demonstrated how regulatory factors control muscle cell proliferation.

1980s

research

◆ Designed a **rapid chromosome "painting" technique** to pinpoint gene abnormalities in chromosomes for use in diagnosis and treatment monitoring of cancer and genetic diseases.

◆ Collaborated in demonstrating that **p53 tumor suppressor gene** changes occur not only as acquired mutations in many patients with cancer but also as inherited mutations in cancer-prone families.

◆ Developed a simplified BCR-ABL **diagnostic test** that uses a tiny amount of blood to detect and monitor chronic myelogenous leukemia and some acute leukemias, thus reducing the need for multiple bone marrow aspirations.

◆ Found **molecular markers** that show children cured of acute lymphoblastic leukemia may retain rare residual leukemic cells years after treatment.

◆ **Identified** the mutated multiple advanced cancers (MMAC1) **gene** involved in glioblastoma multiforme, a usually fatal form of brain cancer, and some common cancers, providing new avenues for targeted therapy.

Dr. Jack A. Roth of Thoracic and Cardiovascular Surgery, right, and a colleague perform gene therapy for a lung cancer patient.

Dr. Moon-shong Tang at the Science Park-Research Division investigates the molecular link between smoking and lung cancer.

1990s research

◆ Documented a **direct molecular link between cigarettes and lung cancer** based on research studies that show a carcinogen in tobacco smoke binds to mutagenic sites in the p53 gene.

◆ Created **molecular probes** using the fluorescence in situ hybridization (FISH) method to see chromosomal rearrangements in chronic leukemia and other cancer cells, which helped target therapy for residual disease.

◆ Demonstrated that a **nitric oxide inhibitor** can reverse severe low blood pressure often caused by anti-cancer drugs and prevent septic shock associated with bacterial infections; animal studies led to the first clinical trial using this inhibitor for patients with advanced kidney cancer.

◆ Reported first successful correction of a defective p53 tumor suppressor gene in human lung cancer, thereby confirming the **feasibility of genetic therapy** based on injecting normal p53 genes directly into tumors.

◆ Developed a **laboratory technique** to insert into normal bone marrow cells a multidrug resistance gene that can pump drugs out of cells to reduce toxicity of high-dose chemotherapy.

◆ Published evidence of a critical gene (Lim1) in the head region of developing mouse embryos that is distinct from the trunk and tail regions, providing a **new genetic tool** for molecular analysis of vertebrate formation and differentiation.

◆ Documented that a **cancer-causing gene (src)** directly regulates the tumorigenic potential of colon cancer cell lines, affording first validation of src activation in a human tumor.

◆ Reported the first separation of human malignant cells from blood using **dielectrophoresis**, a technique that allows cells to be studied through their intrinsic electrical properties without using stains or markers.

◆ Advanced the use of microvascular tissue transfer to repair defects caused by removal of breast and head and neck cancers and introduced **reconstructive surgery** immediately following tumor removal.

1990s research

Dr. John Mendelsohn, president of M. D. Anderson, directs research projects focusing on how growth factors regulate the proliferation of cancer cells.

From its inception, The University of Texas M. D. Anderson Cancer Center has placed a high priority on multidisciplinary research to improve the outlook for the age-old problem of cancer. Many major advances in cancer research over the past 50 years have been made at M. D. Anderson, some in collaboration with scientists from other institutions.

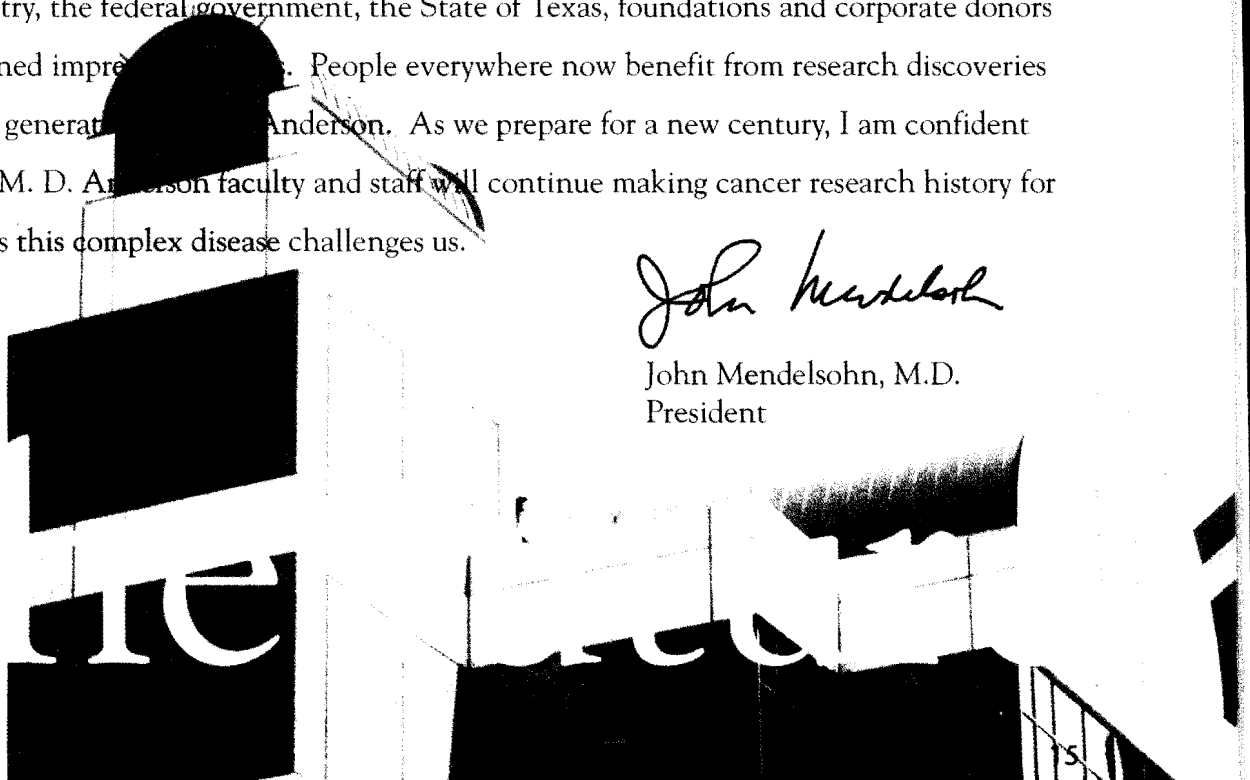
The 50 selected research milestones listed in this brochure illustrate how the pace of progress against cancer has picked up in recent years. Because of these and so many additional advances, more than half of all Americans affected by cancer today can be cured. An increasing number of others will have prolonged and improved quality of life.

During the past decade, we have discovered precise molecular and genetic abnormalities that cause cancer. Some of these flaws are inherited, but most are accumulated over our lifetimes as a result of exposure to carcinogenic agents, such as chemicals in cigarette smoke and excessive ultraviolet radiation from the sun, and the constant wear and tear that takes place during proliferation and function of the many billions of cells in our bodies. We now believe cells can develop the capacity to bypass the normal restraints that regulate their activities when damage has affected about 5 to 10 genes that control cellular growth.

This new knowledge is enabling us to target our research on novel therapies that will interfere with, correct or replace the defective genes and gene products involved in the cancer process. We also are developing better tests to detect the presence of inherited or acquired abnormalities in genes long before cells have accumulated enough genetic changes to result in cancer. Such tests will help us predict cancer risk — as already is being done for individuals with a strong family history of certain forms of cancer. At M. D. Anderson, we also have pioneered the use of innovative drugs to retard or reverse the malignant process, thereby opening up the field of chemoprevention.

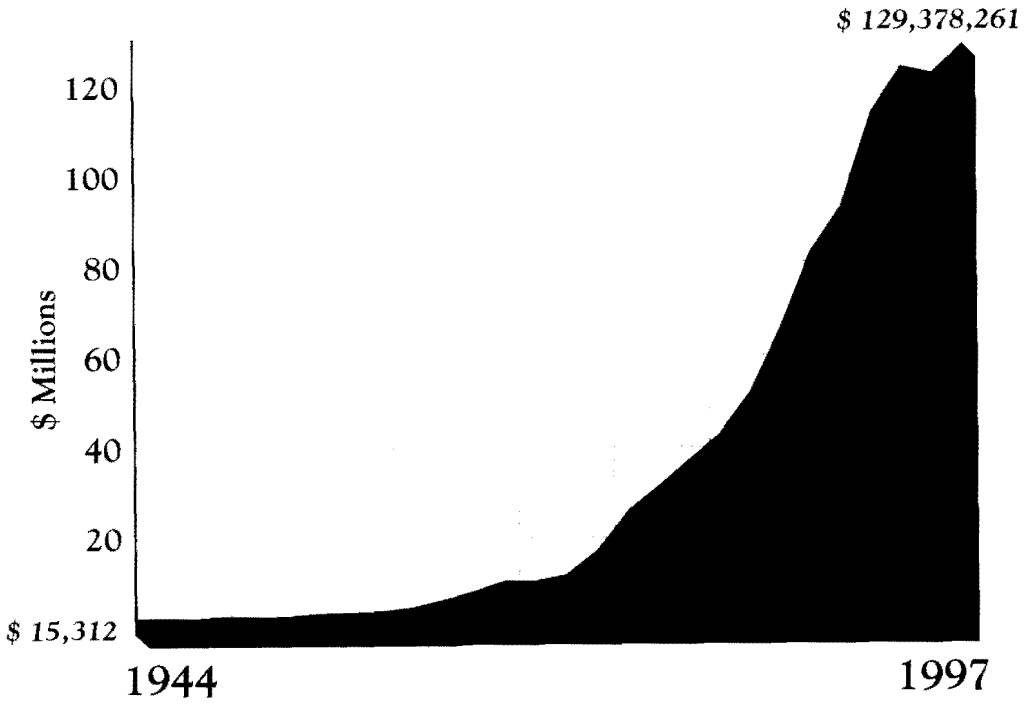
These final years of the 20th century are an exciting time for M. D. Anderson, with our single-minded mission to eliminate cancer for future generations. We are planning a major expansion of research initiatives to exploit the new knowledge of the molecular and genetic causes of cancer. The investments made in M. D. Anderson research by individuals across the country, the federal government, the State of Texas, foundations and corporate donors have earned impre[illegible]. People everywhere now benefit from research discoveries and data generat[illegible]Anderson. As we prepare for a new century, I am confident that the M. D. A[illegible]rson faculty and staff will continue making cancer research history for as long as this complex disease challenges us.

John Mendelsohn, M.D.
President



Research Investment

1944 - 1997



The first research funds for biochemistry studies in temporary laboratories on the old Baker Estate totaled $15,312 in 1944. By 1997, expenditures for a diverse array of basic, clinical and population-based research programs had reached more than $129 million.

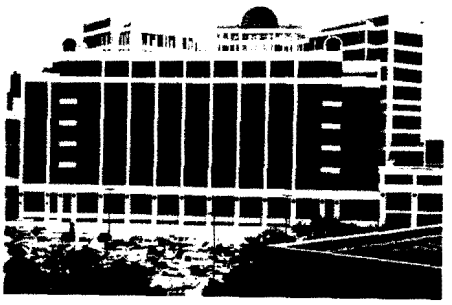
Phone numbers to know

M. D. Anderson Information Line:
1-800-392-1611
For information on M. D. Anderson services, referrals and appointments.

Anderson Network Patient Services:
1-800-345-6324
For information on patient-to-patient support, community support groups, and educational programs and activities.

Cancer Information Service:
1-800-4-CANCER
For information on cancer therapies, community resources and printed materials.

http://www.mdanderson.org



M. D. Anderson Development Office:
713-792-3450 or 1-800-525-5841
For information on supporting programs in patient care, research, education and prevention.

Contributions may be made for specific facilities or designated mission areas, and unrestricted gifts are greatly appreciated. Donations frequently are made in remembrance or celebration of an individual. Another important type of donation involves planned giving in the form of bequests, charitable remainder trusts, gift annuities, pooled income funds, life insurance policies, charitable lead trusts, limited family partnerships and select gifts of real estate.

Writer: Mary Jane Schier • **Designer:** Maria Tye • **Cover Photo:** Beryl Striewski

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AGENDA

BRIEFING FOR THE BOARD OF REGENTS

THE UNIVERSITY OF TEXAS SYSTEM

JANUARY 13, 1998

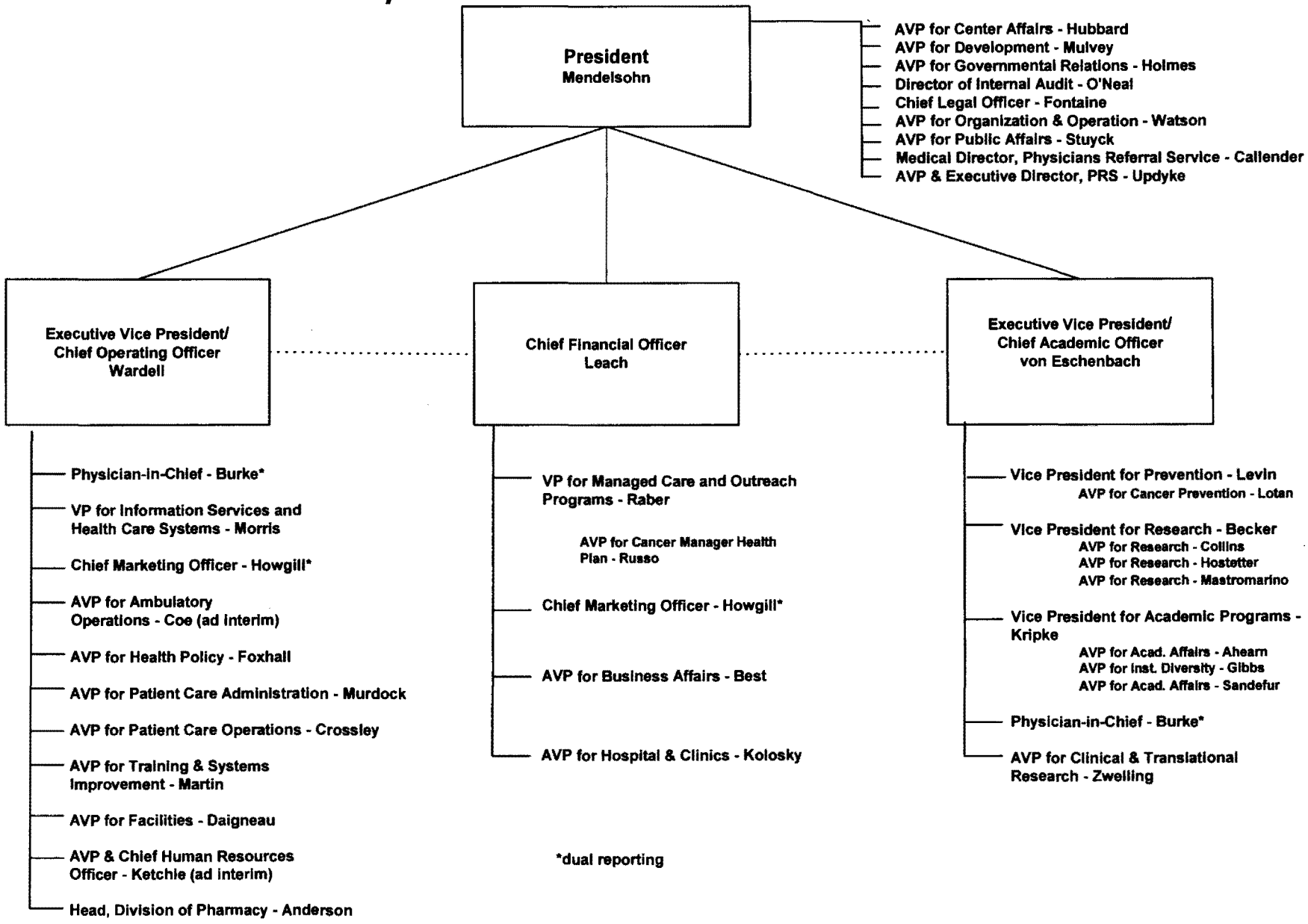
OVERVIEW	John Mendelsohn, M.D. President
ACADEMIC MISSION	Margaret L. Kripke, Ph.D. Vice President for Academic Programs (ad interim)
RESEARCH	Dr. Mendelsohn
PATIENT CARE	Andrew C. von Eschenbach, M.D. Executive Vice President and Chief Academic Officer
PREVENTION	Bernard Levin, M.D. Vice President for Cancer Prevention
OPERATIONS	Kevin S. Wardell, M.H.A. Executive Vice President and Chief Operating Officer
FINANCE	Leon J. Leach, M.B.A. Chief Financial Officer
FUTURE PLANS	Dr. Mendelsohn

THE UNIVERSITY OF TEXAS SYSTEM

Board of Regents

Chancellor and Executive Vice Chancellors

The University of Texas M. D. Anderson Cancer Center



JANICE THOMAS VINSON, ~~LEUKEMIA~~

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

Making Cancer History™

OVERVIEW

Mission

The mission of The University of Texas M. D. Anderson Cancer Center is to eliminate cancer and allied diseases as a significant health problem throughout Texas, the nation, and the world, by developing and maintaining integrated quality programs in patient care, research, education, and prevention.

Vision Statement

The University of Texas M. D. Anderson Cancer Center will be acknowledged as the premier cancer center in the world. We will attract and nurture outstanding faculty and staff, who will carry out our mission and live by our values.

Patient Care

- We will set and continually advance the world's standard for the management of cancer. Our standard will be defined by compassion and respect for patients and their families, by the highest quality medical care, and by superior clinical outcomes.

- We will maintain leadership in the medical care market place and develop programs and partnerships to make our standard of care available in Texas, the nation, and the world.

Research

- We will advance understanding of the fundamental life processes, the fundamental nature of cancer and the human response to cancer through scientific research, and will apply this knowledge to the prevention, detection and treatment of cancer.

Vision Statement

Education

- We will provide education in all of the scientific, medical, and allied disciplines necessary to reduce the burden of cancer, and we will educate the public with accurate and helpful information concerning cancer prevention and treatment.

Prevention

- We will further the science and the application of cancer prevention through multidisciplinary programs in research, science and education.

Resources

- Through a philosophy of continuous improvement, we will effectively and efficiently manage the resources necessary to support our mission: people, information, technology, facilities, and funds.

The Basics

- **Mission**
- **Vision**
- **Our superiority and competitive advantage will be maintained through the quality of our differentiated product, the most advanced cancer care in the world. We will provide this standard of care with the most efficient use of our resources.**
- **Core behaviors**
  - "Aim for excellence"
  - "We all care"
- **Core competencies (mission-based):**
  - most advanced, multidisciplinary, compassionate and expert patient care
  - continuum of innovative basic, translational and clinical research
  - fostering of exceptional expertise and skill through education
  - pioneering initiatives in prevention

Changes in the War Against Cancer

- **Number of cases is going up**
- **Death rate declining**
  - lifestyle
  - early detection
  - better treatment
- **Change in sponsors of research**
  - pharmaceutical and biotech companies
  - U.S. Government
- **New understanding of the causes of cancer, leading to new opportunities for intervention**
- **Changes in medical care delivery systems: market place economics**

History

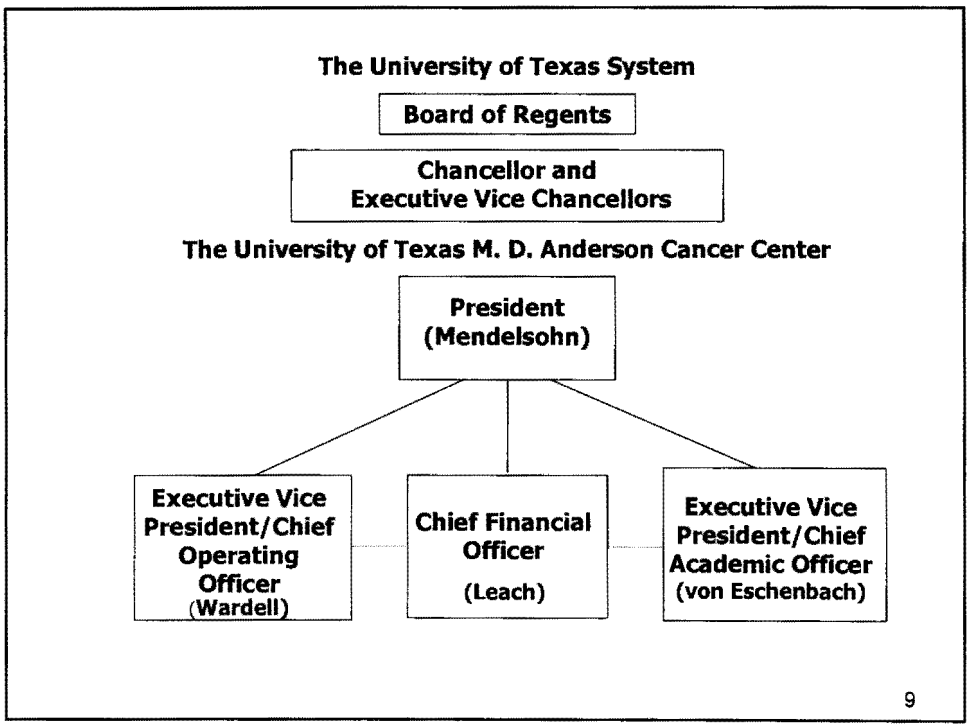
- **1941: established by Texas Legislature 1941 in The University of Texas System**
- **1946: first President, Dr. R. Lee Clark**
- **1954: first permanent facilities**
- **1967: Department of Developmental Therapeutics**
- **1971: concurrent resolution of the state legislature reorganizing UTMDACC as a national resource**
- **1972: Comprehensive Cancer Center under the National Cancer Act (1 of 3)**
- **1976: new clinic, hospital and research facilities doubled size**
- **1977: Science Park became operational**

History

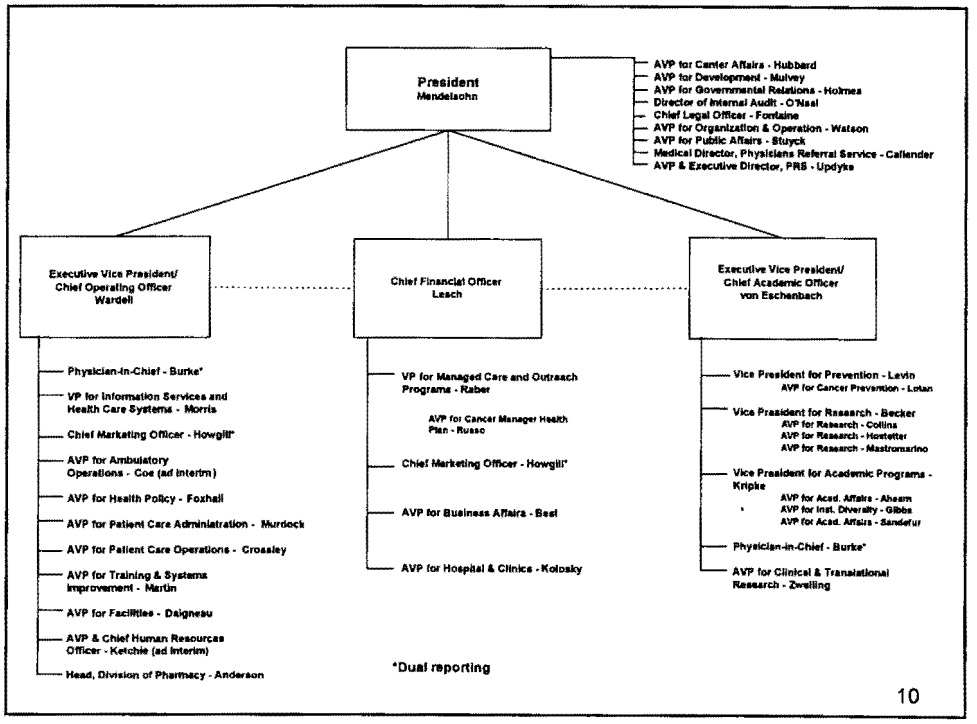
- **1978: second president, Dr. Charles A. LeMaistre**
- **1979: Dr. Fred Becker, V.P. for Research**
- **1992: creation of a new Division of Prevention**
- **1993: 300,000th patient**
- **1995: SB192 provided statutory restructuring to meet competitive challenges of managed care**
- **1996: third president, Dr. John Mendelsohn**
- **1997: doubling of research grant funds over a decade**
- **1996-98: largest capital expansion (>1.3 m sq.ft.)**
  - Charles A. LeMaistre Clinic
  - Clinical Research Facility
  - Albert & Margaret Alkek Hospital

Major Changes 1996-97

- **We have in place an entirely new senior management team consisting of 4 leaders, each of whom was selected on the basis of a nation-wide search. Reporting lines have been reorganized.**
- **The clinical focus has been expanded to embrace the delivery of our standard of care to all patients with cancer. We are increasing our clinical activities.**
- **In response to the medical market place, we will deliver our exceptional quality of care at the lowest cost that preserves that quality of care. We will seek efficiencies through learning-based continuous quality improvement.**


The University of Texas System
Board of Regents
Chancellor and
Executive Vice Chancellors
The University of Texas M. D. Anderson Cancer Center
President
(Mendelsohn)
Executive Vice
President/Chief
Operating
Officer
(Wardell)
Chief Financial
Officer
(Leach)
Executive Vice
President/Chief
Academic Officer
(von Eschenbach)

9


President
Mendelsohn
AVP for Center Affairs - Hubbard
AVP for Development - Mulvey
AVP for Governmental Relations - Holmes
Director of Internal Audit - O'Neal
Chief Legal Officer - Fontaine
AVP for Organization & Operation - Watson
AVP for Public Affairs - Stuyck
Medical Director, Physicians Referral Service - Callender
AVP & Executive Director, PRS - Updyke
Executive Vice President/
Chief Operating Officer
Wardell
Chief Financial Officer
Leach
Executive Vice President/
Chief Academic Officer
von Eschenbach
Physician-in-Chief - Burke*
VP for Information Services and
Health Care Systems - Morris
Chief Marketing Officer - Howgill*
AVP for Ambulatory
Operations - Coe (ad interim)
AVP for Health Policy - Foxhall
AVP for Patient Care Administration - Murdock
AVP for Patient Care Operations - Croasley
AVP for Training & Systems
Improvement - Martin
AVP for Facilities - Daigneau
AVP & Chief Human Resources
Officer - Ketchie (ad interim)
Head, Division of Pharmacy - Anderson
VP for Managed Care and Outreach
Programs - Raber
AVP for Cancer Manager Health
Plan - Russo
Chief Marketing Officer - Howgill*
AVP for Business Affairs - Best
AVP for Hospital & Clinics - Kolosky
Vice President for Prevention - Levin
AVP for Cancer Prevention - Lotan
Vice President for Research - Becker
AVP for Research - Collins
AVP for Research - Hostetter
AVP for Research - Mastromarino
Vice President for Academic Programs -
Kripke
AVP for Acad. Affairs - Ahearn
AVP for Inst. Diversity - Gibbs
AVP for Acad. Affairs - Sandefur
Physician-in-Chief - Burke*
AVP for Clinical & Translational
Research - Zwelling
*Dual reporting

10

New Leadership Structure

- **Executive Committee**
  - President
  - COO
  - CAO
  - CFO
- **Responsible for overall direction and resource allocation**

11

New Leadership Structure

- **Steering Committee**
  - President
  - COO
  - CAO
  - CFO
  - VP, Academic Programs
  - VP, Prevention
  - VP, Research
  - VP, Information Services
  - Physician-in-Chief
  - VP, Managed Care
- **Responsible for planning, analysis, and implementation of all major initiatives**

12

New Leadership Structure

- **President's Executive Board (PEB)**
  - Steering Committee
  - Leadership of Faculty Committees (Science Faculty, Prevention Faculty, Medical Staff, and Academic Senate)
  - Directors of Center-wide service functions
- **Provides forum for presentation and discussion of changes and new initiatives**
- **Promotes integration of administrative infrastructure**

Reorganization of Outreach Corporation

- **Outreach Corporation restructured to create closer integration with UTMDACC management**
- **Leon Leach, Chairman of the Board**
- **Hugh Wilfong, President, *ad interim***
- **New board membership**

University Academic Structure

- **697 full-time faculty**
  - 341 MD/DDS/DO
  - 56 MD-PhD
  - 300 PhD/DVM/DSc/DPH/PharmD
- **9 Basic Science Departments**
- **7 Clinical Divisions with 33 Departments**
  - Anesthesia and Critical Care
  - Diagnostic Imaging
  - Medicine
  - Pathology and Laboratory Medicine
  - Pediatrics
  - Radiation Oncology
  - Surgery
- **1 Prevention Division with 3 Departments**

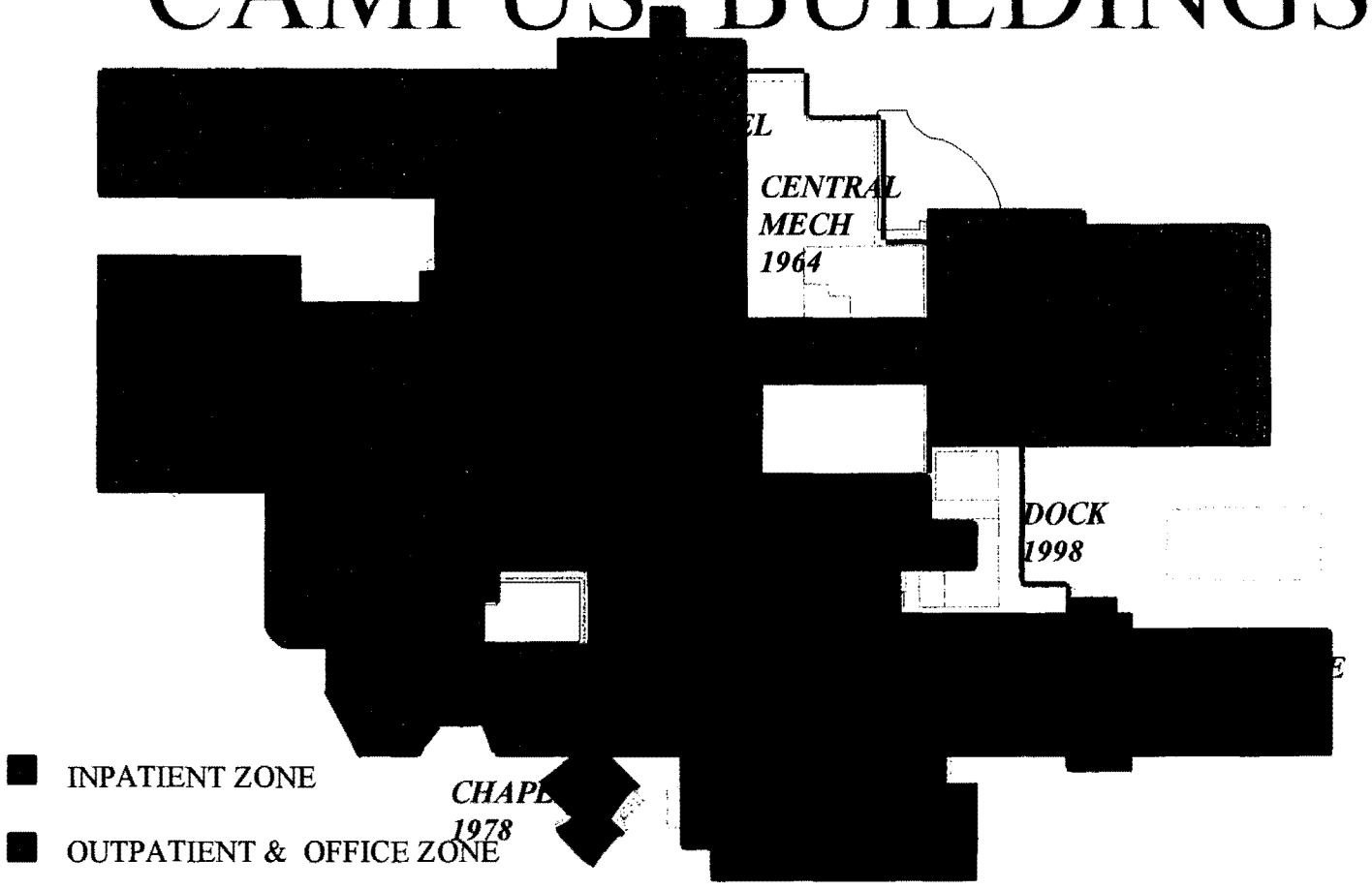
15

UT M. D. Anderson Facilities
(in gross square feet)

• **Main complex in Texas Medical Center**	**1,957,936**
• opening in 1998	**1,134,888**
• **Satellite facilities in Houston**	**964,338**
• **Leased space in Houston**	**317,103**
• **Science Park - Bastrop County**	**301,418**
Total square feet	**4,675,683**

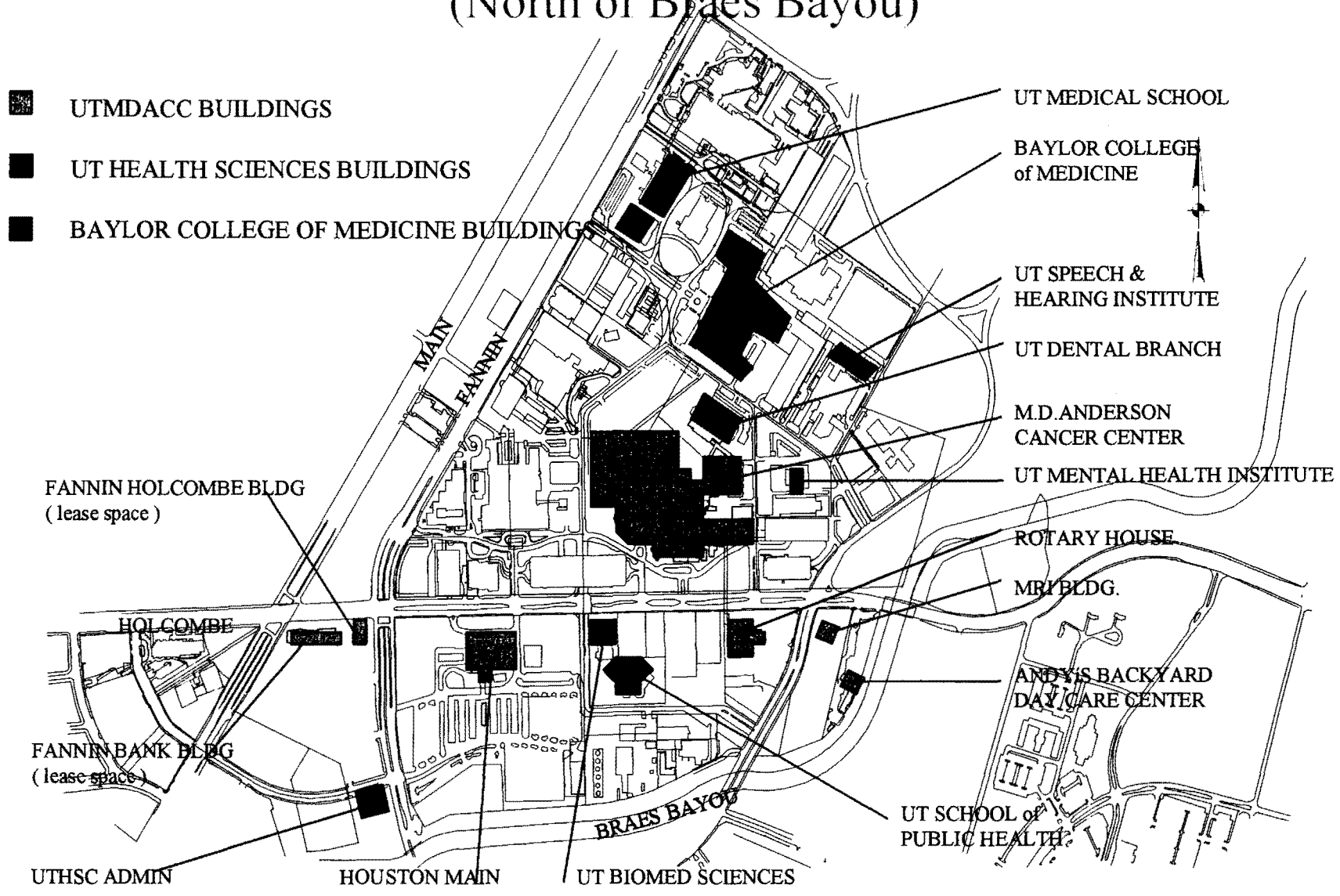
16

UT MDACC MAIN CAMPUS BUILDINGS



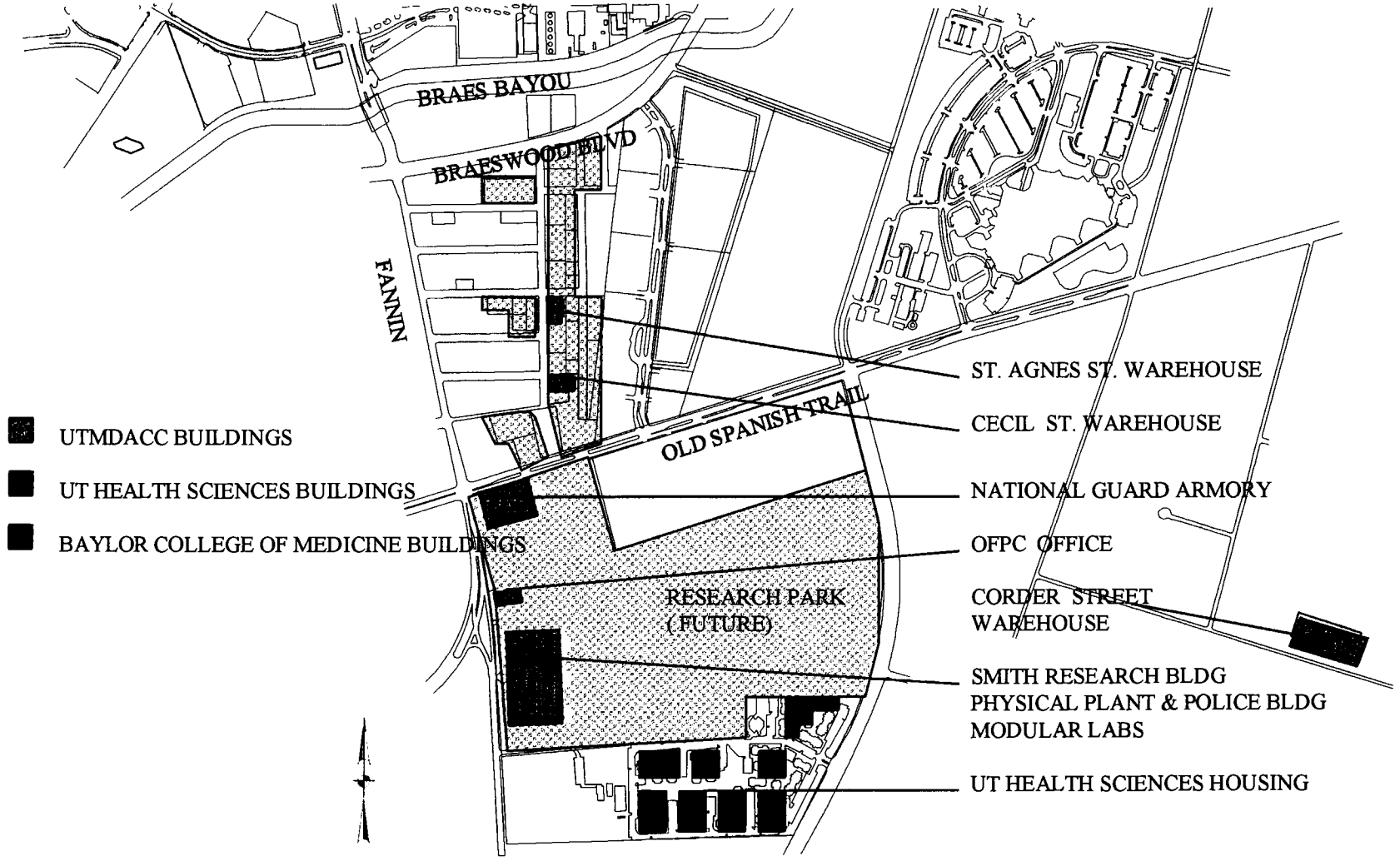
TEXAS MEDICAL CENTER

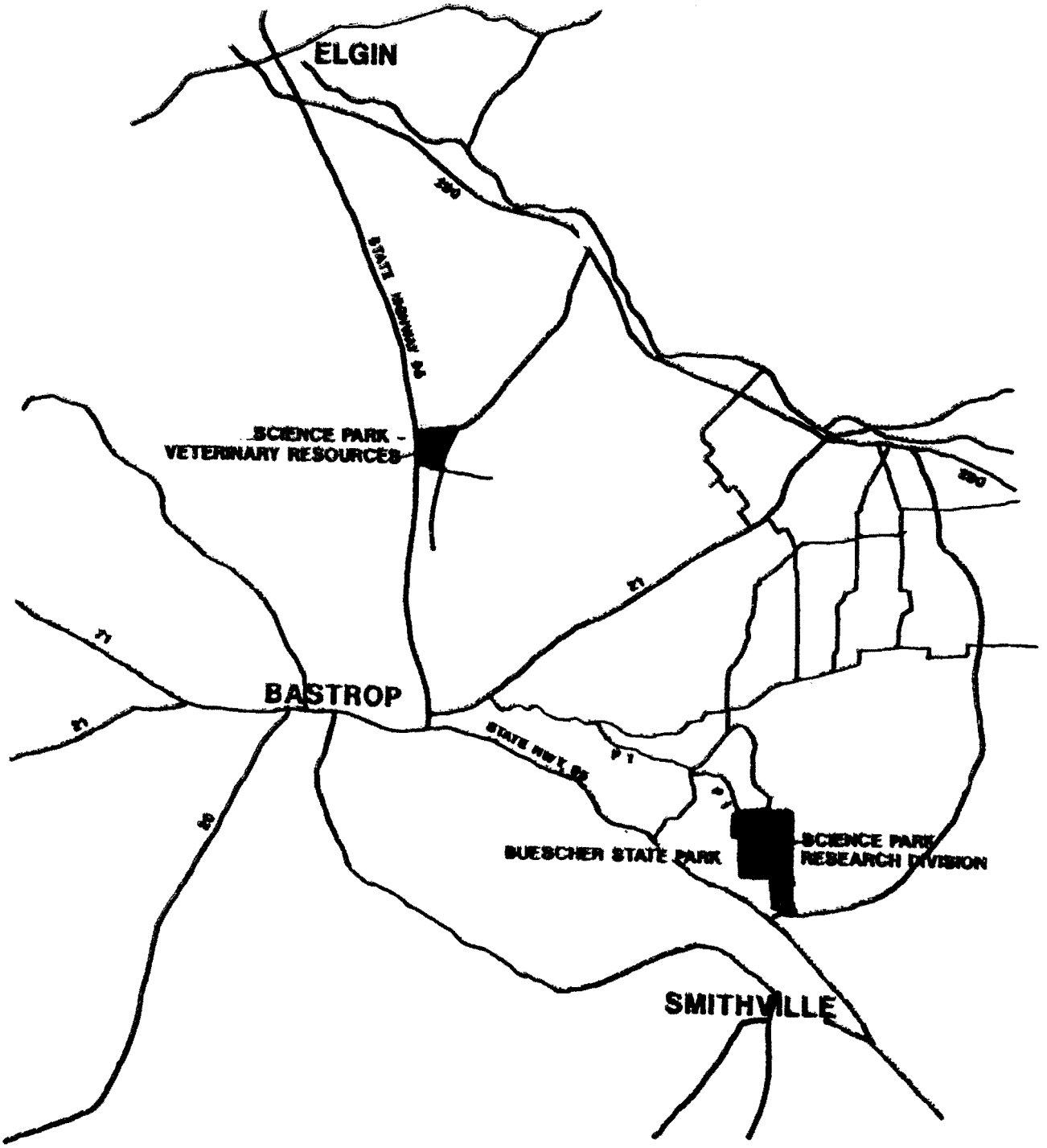
(North of Braes Bayou)



TEXAS MEDICAL CENTER

(South of Braes Bayou)





UTMDACC

SCIENCE PARK - BASTROP COUNTY

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

Key Financial Data
Fiscal Year 1997

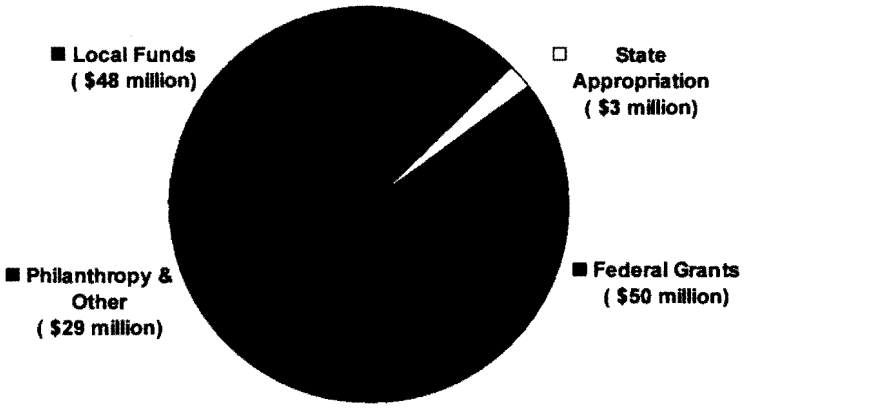
- **General revenues from state =** $121M
  Total revenues = $740M
  % from state = 16%

- **Research expenditures** = $130M

- **Unsponsored charity care**
  Hospital and clinics = $ 81M
  Physicians = $ 20M
  $101M

21

RESEARCH EXPENDITURES
FISCAL YEAR 1997



Total Research Expenditures = $130 million

22

Philanthropy

- **Nearly doubled yearly philanthropic gifts since 1992.**
- **Drivers of success**
  - Momentum of Fulfill the Promise Campaign.
  - Increased emphasis on testamentary gifts.
- **For 1997, philanthropic gifts amounted to $38 million.**
- **Board of Visitors committed to fundraising goal of $50M a year over next 5-7 years. Emphasis on research endowment, facility upgrade, recruitment, start-up of new research initiatives, and support for targeted research programs.**

Economic Impact on Texas* FY 1996

- **$1.2 billion total economic impact-conservative multiplier**
- **10:1 return on tax dollar investment ($123 million appropriation)**
- **32% of private philanthropy from outside Texas.**
- **44.6% of patient care revenue from outside Texas.**

***Source: Department of Economics, University of Houston**

U.S. News & World Report ('97) America's Best Hospitals: Cancer

Hospital	U.S. News Index
Memorial Sloan-Kettering	100.0
U.T.-M. D. Anderson	98.4
Johns Hopkins	60.0
Dana-Farber	60.0
Mayo Clinic	53.3
Duke University Medical Center	34.5
Stanford University Hospital	34.5
University of Washington Medical Ctr.	33.2
University of Chicago Hospitals	31.0
University of California-San Francisco	27.4

Indicators of National Standing

- One of only 31 NCI-designated Comprehensive Cancer Centers in 1997
- U. S. News - one of nation's top 2 cancer centers for last 8 years
- U. S. News - also ranked among the nation's leaders in 5 other specialty areas: endocrinology, gastroenterology, gynecology, otolaryngology and urology
- 1997 Best Doctors in America - 131 M. D. Anderson physicians listed (compared to Memorial Sloan-Kettering Cancer Center with 74)

Evaluation

Programs

- **Executive Committees of the Science Faculty, Medical Staff and Prevention Faculty**
- **Research Council**
- **Clinical Research Council--clinical trials**
- **External Advisory Board**
- **Ad-Hoc External Review Committees: Prevention, Pathology, Health Services**
- **Faculty Retreats and Forums**
  - 12/96 Leadership Forum
  - 2/97 Research Forum
  - 11/97 Organization & Strategy Forum
- **External hospital accrediting organizations and regulatory agencies**

Evaluation

- **Monthly review of clinical performance**
- **Monthly review of financial performance**
- **Continuous quality improvement plans***
- **Patient satisfaction**

People

- **Yearly performance reviews of faculty and staff**
  - New criteria for measuring faculty contributions to mission*
  - Tenure is 7-year renewable
- **Upward evaluation of administrators and faculty leaders***

*indicates new initiatives

Possible Legislative Issues

State

- Access to treatment of life threatening disease
- Outcomes measures reporting should be related to severity of disease
- Genetic testing - protection and privacy
- Maintain SB 192 reforms - $16M in administrative costs saved

Possible Legislative Issues

Federal

- Maintain Prospective Payment System (PPS) exemption (inpatient)
- Modify Ambulatory Patient Classification (APC) implementation (outpatient)
- Access to and funding of clinical trials
- Accelerate upward trend of NIH research funding

ALBERT BANKS JR., ~~ADVANCED TESTICULAR CANCER~~

THE UNIVERSITY OF TEXAS
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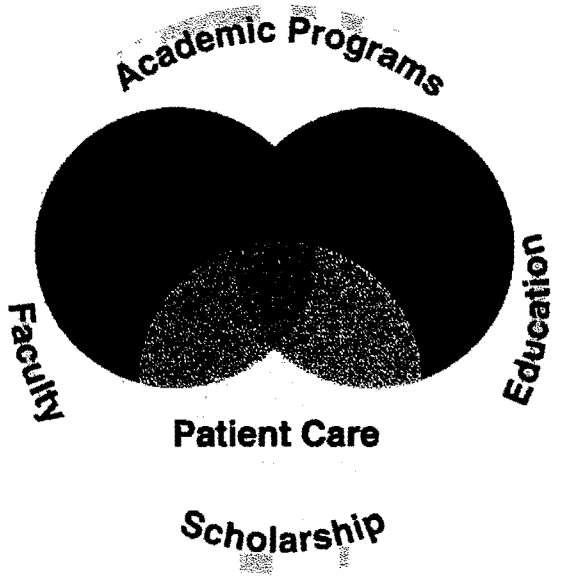
CANCER CENTER

Making Cancer History™

ACADEMIC MISSION



1

Academic Programs

- Faculty Issues
  - Diversity
  - Recruitment
  - Retention
  - Advancement
- Education
  - Ourselves
  - Other professionals
  - New professionals
  - The public

2

Faculty Issues

- Diversity

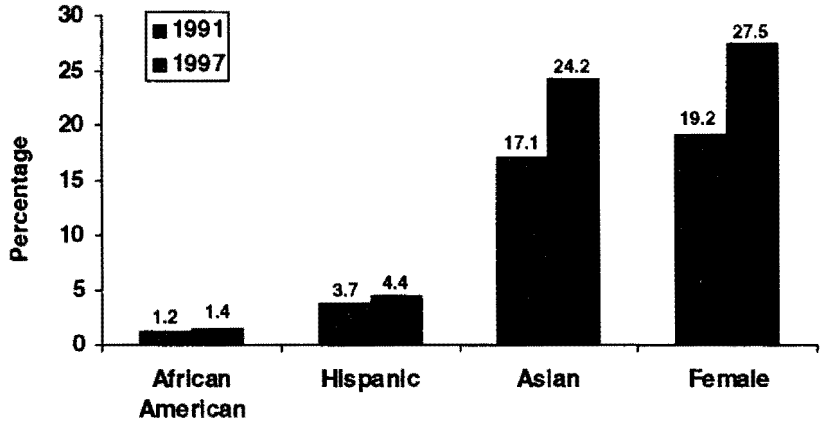
3

Diversity Initiatives

Director, Institutional Diversity	1995
Office of Diversity Programs	1997
Associate Vice President	1997
Director of Minority Faculty Initiatives	1998
Director of Women Faculty Initiatives	1998

4

UTMDACC
Faculty Composition



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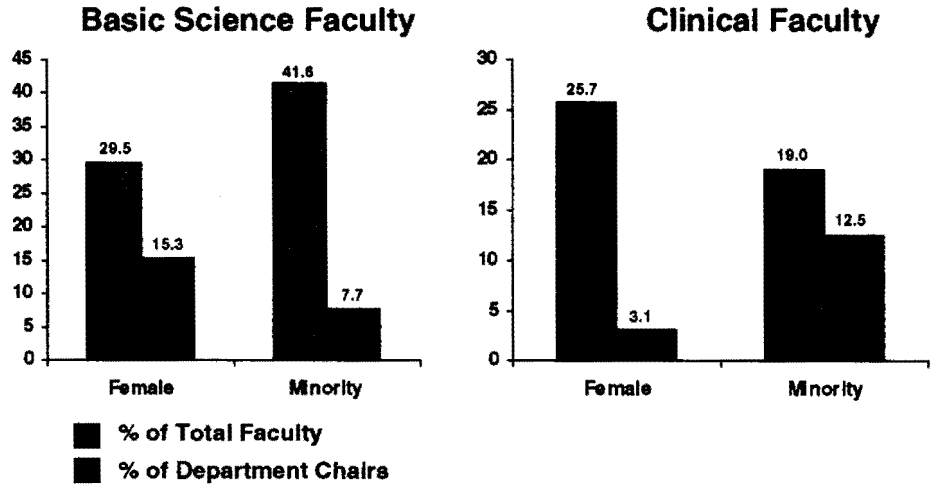
UTMDACC
Faculty Leadership



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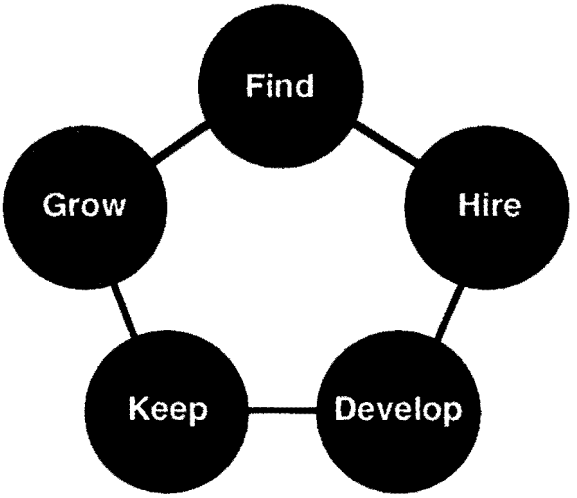
Diversity Programs - Goals



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Faculty Issues

- Recruitment Initiatives
  - Define and streamline hiring process
  - Recruitment support system

8

Faculty Issues

- Retention Initiatives
  - Faculty development
    - Assessment of needs
    - Orientation
  - Faculty Compensation
    - Define principles
    - Establish working group

9

Faculty Issues

- Advancement Initiatives
  - Standards of Excellence
    - Faculty evaluation Sept '98
    - Upward evaluation Jan '98
  - Standards of Scholarship
    - Faculty titles
    - Promotion/tenure criteria
    - Promotion/tenure process

10

Educational Programs - Scope

- Ourselves
  - CME programs
  - Conferences
  - Seminars
  - Library
  - *Faculty Development Program*
- Other Professionals
  - 30,000 participants: CME programs + conferences, 1997
- New Professionals - trainees
  - 1,925 Educational trainees 1997
  - Research, UT Graduate School of Biomedical Sciences
  - Prevention, UT School of Public Health
  - Clinical fellows
- Public
  - Cancer Information Service
  - Public Education Office
  - Division of Cancer Prevention

Educational Trainees*

July 1996 - June 1997

Clinical	
Residents and Fellows	161
Rotating Residents and Fellows	435
Total	596
Research	
Premaster/Predoctorals	263
Postdoctoral Fellows	276
Total	539
Special Programs	
Chaplaincy Fellows	7
Hospital Administration Residents	1
Veterinary Externs/Students	5
Law Externs	1
Observers and Visitors	149
Total	163
Nursing Students/Rotations	
Enterostomal Therapy	181
Rotating Students	142
Total	323

Student Programs	
College Research Program	53
High School Research Program	29
Teachers Research Program	23
Medical Students Research Program	11
Medical/UTMSH Clerkships & Electives	93
Medical/Misc. Electives	11
Total	220
Allied Health Programs	
Pharmacy Residents/Fellows	5
Pharmacy Students	11
Radiotherapy Technology Students	15
Histotechnology Students	3
Social Work Students	4
Medical Technology Students	8
Cytogenetics Students	1
Cytotechnology Students	4
Physician Assistant Students	28
Radiation Therapy Dosimetry Students	4
Physical Therapy Students	1
Total	84
GRAND TOTAL	1925

** Duration of training programs varies from several weeks to one year.*

NIH Funded Training Grants

- Clinical Fellows
  - Oncology/Hematology
  - Head & Neck Surgical Oncology
  - Surgical Oncology
  - Pediatric Oncology
- Research Fellows
  - Differentiation & Development
  - Carcinogenesis & Mutagenesis
  - Cancer Immunobiology
  - Cancer Biology
  - Molecular Genetics of Cancer
- Education / Cancer Prevention
  - Cancer Prevention - Research
  - Cancer Prevention - Education programs

JANIS HAASE, ~~BREAST CANCER~~

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CANCER CENTER

Making Cancer History™

RESEARCH

Research Mission

Research permeates all activities in the four mission areas at UTMDACC.

What is standard therapy for a type of cancer today often was research ten years ago.

1

Research - A New Focus

Cancer is caused by an accumulation of inherited or acquired mutations in genes that regulate the proliferation and differentiation of cells.

2

Research Programs

Faculty investigators have organized 28 research programs.

- **Basic Science Research Programs** 7
- **Multidisciplinary Clinical Research Programs**
  - **Disease Site Programs** 11
  - **Thematic Group Programs** 7
- **Population-based Research Programs** 3

3

Basic Science Departmental Research Programs

- **Biochemistry & Molecular Biology - Dr. William Klein**
- **Biomathematics - Dr. Stuart Zimmerman**
- **Carcinogenesis - Dr. John DiGiovanni**
- **Cell Biology - Dr. Isaiah Fidler**
- **Immunology - Dr. Margaret Kripke**
- **Molecular Genetics - Dr. Benoit de Crombrugghe**
- **Tumor Biology - Dr. Steven Tomasovic**

4

Disease Site Multidisciplinary Clinical Research Programs

- Brain - Dr. Victor Levin
- Breast - Dr. Gabriel Hortobagyi
- Gastrointestinal - Dr. James Abbruzzese
- Gynecological/Ovarian - Dr. David Gershenson
- Head and Neck - Dr. Gary Clayman
- Leukemia/Lymphoma & Hematologic - Dr. Michael Andreeff
- Lung - Dr. Roman Perez-Soler
- Pediatric - Dr. Francis Ali-Osman
- Prostate and Genitourinary - Dr. Andrew von Eschenbach
- Sarcoma - Dr. Eugenie Kleinerman
- Skin - Dr. Margaret Kripke

Thematic Multidisciplinary Clinical Research Programs

- Bone Marrow Transplant - Dr. Richard Champlin
- Cancer Bioimmunotherapy - Dr. Moshe Talpaz
- Diagnostic Oncology - Dr. Wai-Hoi Wong
- Cancer Drug Development & Pharmacology - Dr. William Plunkett
- Gene Therapy and Molecular Therapeutics - Dr. Jack Roth
- Radiation Oncology and Biology - Dr. Kian Ang
- Cancer Supportive Care - Dr. Charles Cleeland

Population-Based Research Programs

- Behavioral Science - Dr. Ellen Gritz
- Clinical Cancer Prevention - Dr. Scott Lippman
- Epidemiology - Dr. Margaret Spitz

Research Highlights

1950's

- Designed and tested first cobalt-60 unit

1960's

- Technologies and indications for screening mammography
- Combination chemotherapy with blood component support

1970's

- Two-hit hypothesis of cancer causation
- Cures in testicular cancer with combination chemotherapy

Research Highlights
(continued)

1980's

- Retinoids can reverse pre-cancer
- Efficacy of Taxol in advanced breast cancer
- Efficacy of the first biologic agent used in clinical trials, Interferon

1990's

- First correction of a defective p53 suppressor gene
- Identification and cloning of a new cancer gene (MMAC-1) in brain and other cancers
- Bone marrow/stem cell transplant program pioneers use of partially matched donors

Partial Response
Ad-p53 Alone

50 year old woman with non-resectable disease. Failed RT and chemo. Mutant p53.
Received 6 courses of Ad-p53.

Before   After

Radiographic response. No viable tumor in 4 sequential biopsies. Stable off all therapy.

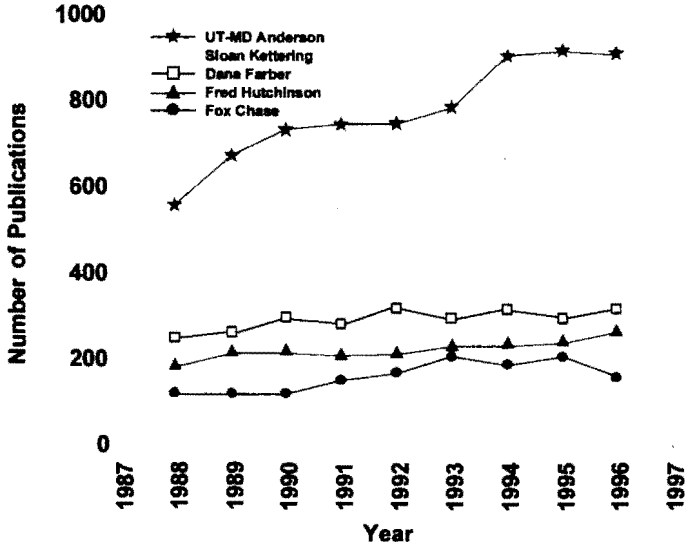
Patient 17

Current Areas of Research Focus

1. Molecular, biological and physiological processes that control and sustain life in organisms
2. Genetic causes of cancer
3. Expand diagnostic capabilities to identify molecular changes in individual patient tumor specimens -- correlate with disease pattern and response to therapy
4. New therapies based on new knowledge
   - differences between cancer cells and their cells of origin
   - biological and immunological responses in the patient
5. Psychosocial and supportive care
6. Genetic counseling, prevention and screening
7. Health services and outcomes research

11

Scientific Publications



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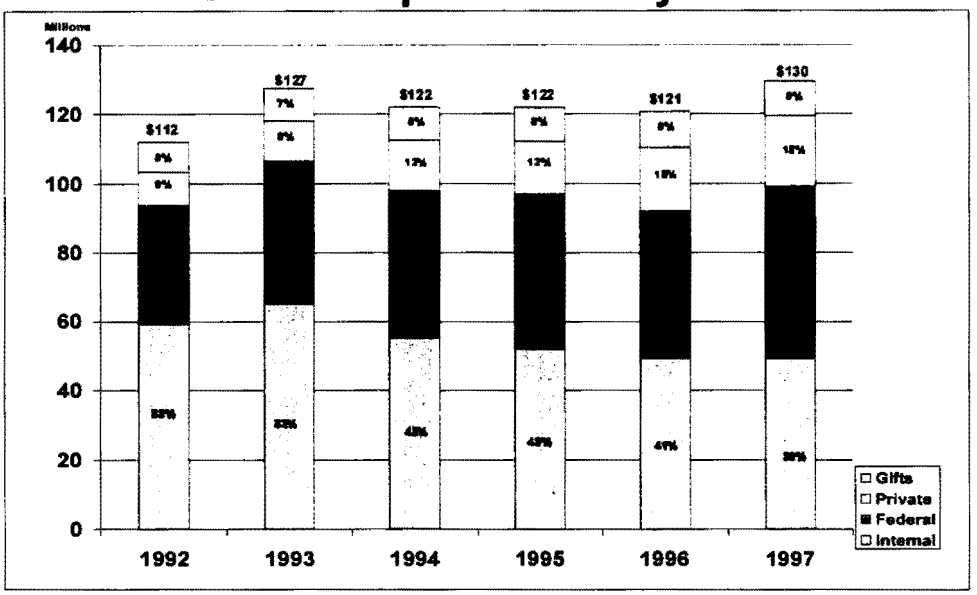
Research Expenditures by Source



National Cancer Institute
Top 10 Grantee Institutions

FY 1997

Institution	$ Amount (M)
Fred Hutchinson Cancer Research Center	54.7
UT M.D. Anderson Cancer Center	**42.5**
Johns Hopkins University	39.6
Sloan-Kettering Inst. For Cancer Research	38.9
Dana-Farber Cancer Institute	30.7
UC-San Francisco	29.6
Stanford University	28.5
University of Pennsylvania	27.5
Harvard University	27.0
University of Michigan at Ann Arbor	26.8

NIH Research Collaborative Grants

PO1 Awards (8)

- **Genetic & Molecular Basis of Cartilage & Bone Functions**
- **Biology of Nonmelanoma Skin Cancer Growth & Progression**
- **Extension of Radiotherapy Research**
- **A Mutational Model for Childhood Cancer**
- **The Therapy of CML**
- **The Therapy of AML**
- **Biology & Chemoprevention of Head & Neck Cancer**
- **Gliomas: Biologic, Molecular, & Genetic Studies**

P30 Award (1)

- **Mechanism & Prevention of Environmental Disease**

P50 Awards (2)

- **University of Texas Spore in Lung Cancer**
- **Novel Diagnosis & Therapy of Early Oral Cancers**

U19 Awards (2)

- **Development of Drug Inhibitors of SRC**
- **Lung Cancer Chemoprevention Research Programs**

15

Grants Awarded in Texas, 1997

American Cancer Society

• **UT-M. D. Anderson**	**39 awards**	**$5.6M**
• **UTSW**	**11 awards**	**$1.8M**
• **Baylor**	**9 awards**	**$1.3M**
• **UTHSC-San Antonio**	**4 awards**	**$0.3M**
• **UTMB**	**2 awards**	**$0.2M**

Advanced Technology/Advanced Research Programs

• **UT-M. D. Anderson**	**10 awards**	**$1.4M**

16

Technology Transfer FY97

- **78 patents filed, 16 patents issued**
- **13 licenses negotiated**
- **$740,000 in license income**
- **$4.1M in new sponsored research awards from licensees**
- **13 companies have been created based on M. D. Anderson technology. Equity position in 6 companies totalling over $12M**
- **Currently 1 FDA-approved drug and 10 drugs in pre-clinical and clinical testing**

17

Research Facilities (GSF)

Anderson, Bates Freeman, Gimbel	294,405
Percy & Ruth Legett Jones Research Bldg.	162,221
Clinical Research Building	302,773
R. E. "Bob" Smith Building	103,515
Science Park Complex	295,253
Houston Main Building (Academic)	118,757
Naomi Street (rented)	31,347
	1,308,271

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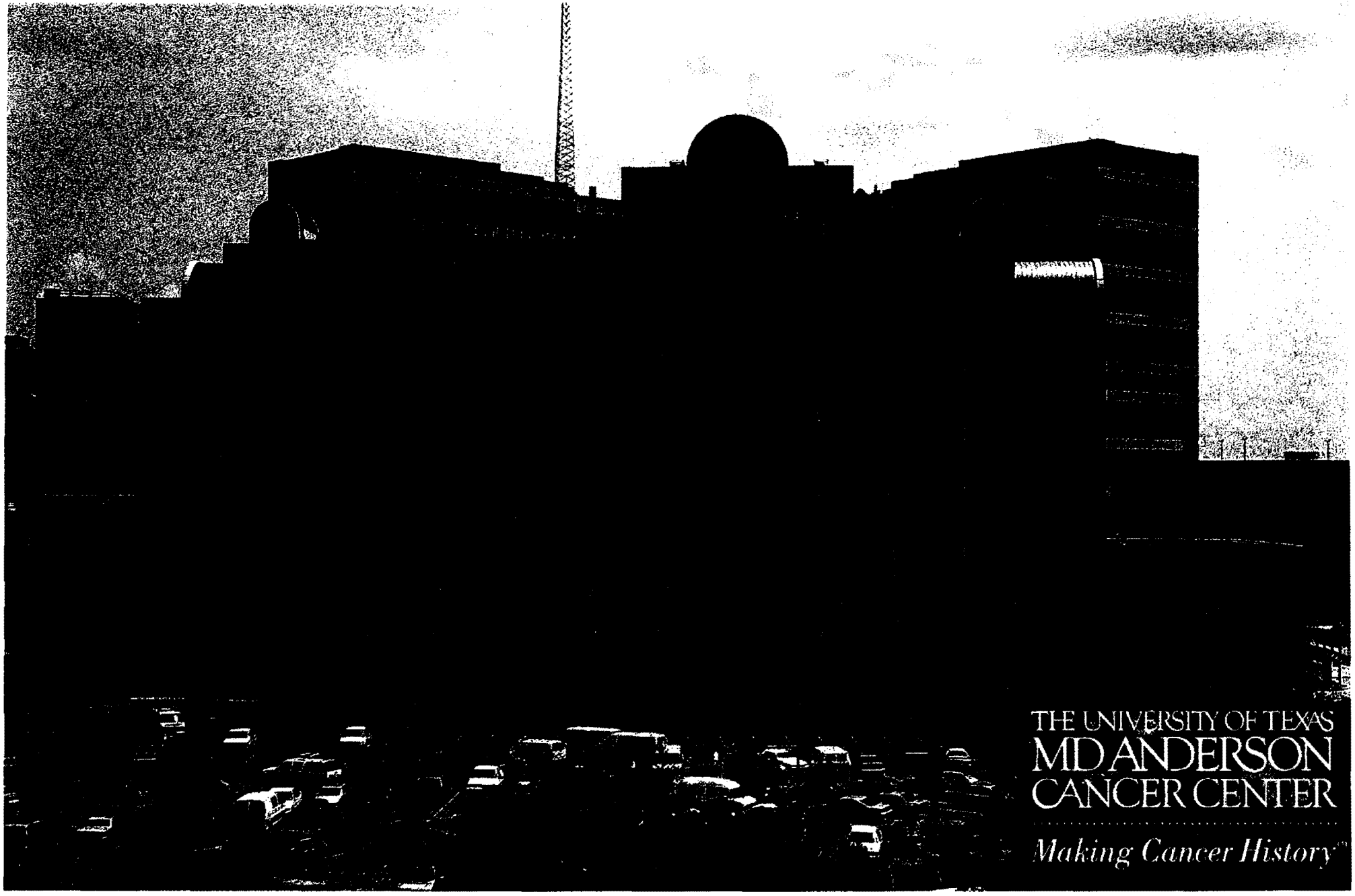
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Making Cancer History®

KENNETH WOO, ~~LYMPHOMA~~

THE UNIVERSITY OF TEXAS
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Making Cancer History™

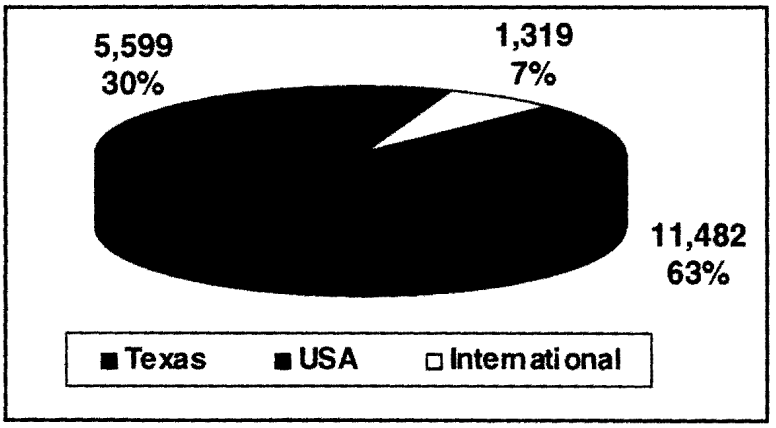
PATIENT CARE

Patient Care

- Magnitude and Growth
- Quality
- Clinical Investigation

1

New Patients - FY 1997



Total number of new patients - 18,400

2

Patient Care at UTMDACC is Distinguished as Being:

- State of the Art
- Multidisciplinary and Integrated
- Research Driven
- Compassionate, Supportive and Comprehensive

3

State of the Art Care

- Is primarily due to the world class faculty made up of the leading experts in all fields of cancer

Challenges:

- To remain competitive in recruitment and retention of the most outstanding and talented faculty
- To provide ample opportunity for professional career development

4

UTMDACC Faculty

Rank	Clinical	Research
Professor	127	62
Associate Professor	102	71
Assistant Professor	107	114
Instructor	16	11
Staff Appointment Only	2	85
TOTAL	354	343
GRAND TOTAL	697	

5

Honors & Appointments

Distinguished National and International Awards

Frederick F. Becker, M.D.	Gold Medal of Merit in Science Award, Government of Thailand, Second Princess Chulabhorn Distinguished Lecture Symposium, 1996
James D. Cox, M.D.	Gold Medal - The American College of Radiology, 1997 Gold Medal - Societe Fracaise Radiotherapie-Oncologique, 1997 Medaille Antoine Beclere Award, 1997
Isaiah J. Fidler, D.V.M., Ph.D.	1997 World Health Organization Medallist for Biological Sciences
Gabriel N. Hortobagyi, M.D.	1997 Medal of the Japanese College of Surgeons
John Mendelsohn, M.D.	Raymond Bourgine Award for Achievements in Cancer Research, 1997; Member, Institute of Medicine of the National Academy of Sciences, 1997; Gold Medal of the City of Paris for Achievement in Cancer Research, 1997

Appointment to NIH Boards,Councils and Study Sections

Nine UTMDACC Faculty are members of NIH Boards and Councils
Twenty-two UTMDACC Faculty are members of NIH Study Sections

6

Leadership of National and International Organizations

Current Presidents

Charles S. Cleeland, Ph.D.	American Pain Society
H. Barton Grossman, M.D.	Reed M. Nesbit Urological Society
Gabriel N. Hortobagyi, M.D.	International Society of Breast Diseases (Senology)
Margaret L. Kripke, Ph.D.	American Society for Photobiology
Victor A. Levin, M.D.	Society for Neuro-Oncology
Margaret R. Spitz, M.D.	American Society of Preventive Oncology
Carol B. Stelling, M.D.	The Society of Breast Imaging
Louise C. Strong, M.D.	American Association for Cancer Research

Significant Recruitments

President
John Mendelsohn, M.D. (Memorial Sloan-Kettering)

Head, Division of Anesthesiology and Critical Care
Thomas W. Feeley, M.D. (Stanford University)

Head, Division of Surgery
Raphael E. Pollock, M.D., Ph.D. (UTMDACC)

Chair, Department of Medical Specialties
Robert F. Gagel, M.D. (UTMDACC)

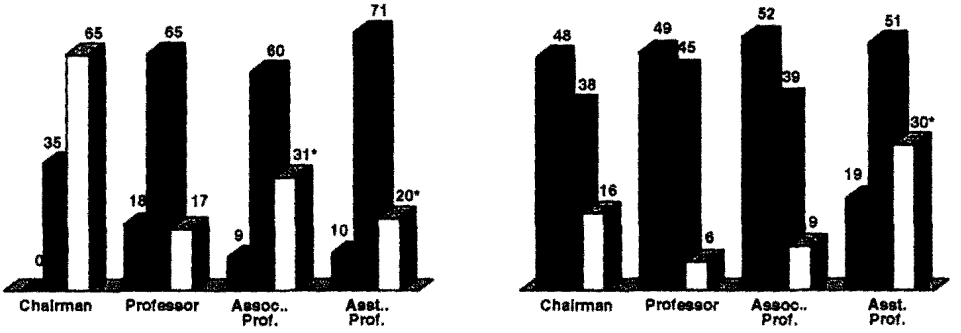
Chair, Department of Biochemistry and Molecular Biology
William H. Klein, Ph.D. (UTMDACC)

Professor, Department of Molecular Oncology
Mariano Barbacid, Ph.D. (Bristol Myers - Squibb)

RECRUITMENTS IN PROGRESS
Head, Division of Pathology and Laboratory Medicine
Chair, Department of Urology
Chair, Department of Human Cancer Genetics

FY97/98 UTMDACC Salaries

Compared to AAMC FY96/97 Report



Clinical % **Research %**

■ >80th % ■ >50th % □ Below 50th %

21 % of UTMDACC faculty are greater than 80th percentile, 54% are between 80th and 50th percentile, and 24% are below the 50th percentile.

Multidisciplinary and Integrated

- **Patients receive the benefit of a comprehensive evaluation and the development of a treatment plan that includes all modalities and options and is tailored to their specific circumstances.**

  Challenge: **Promote the highest quality complex care which must respond to increasingly more serious problems and needs while remaining cost effective and competitive in a managed care environment.**

Multidisciplinary Care Centers

- **Patients receive "state of the art" comprehensive integrated expert care.**

Ambulatory Treatment Center	General Oncology Center	Melanoma and Skin Center
Breast Center Center	Genitourinary and Urology Center	Neuro and Supportive Care Center
Cancer Prevention Center	Gynecologic Oncology Center	Radiation Oncology Center
Child and Adolescent Center	Head and Neck Center	Sarcoma Center
Diagnostic Center	Hematology Center	Surgical Specialties Center
Emergency Center	Infusion Therapy Center	Thoracic Center
Gastrointestinal Center	Medical Specialties Care Centers	

11

Disease Management

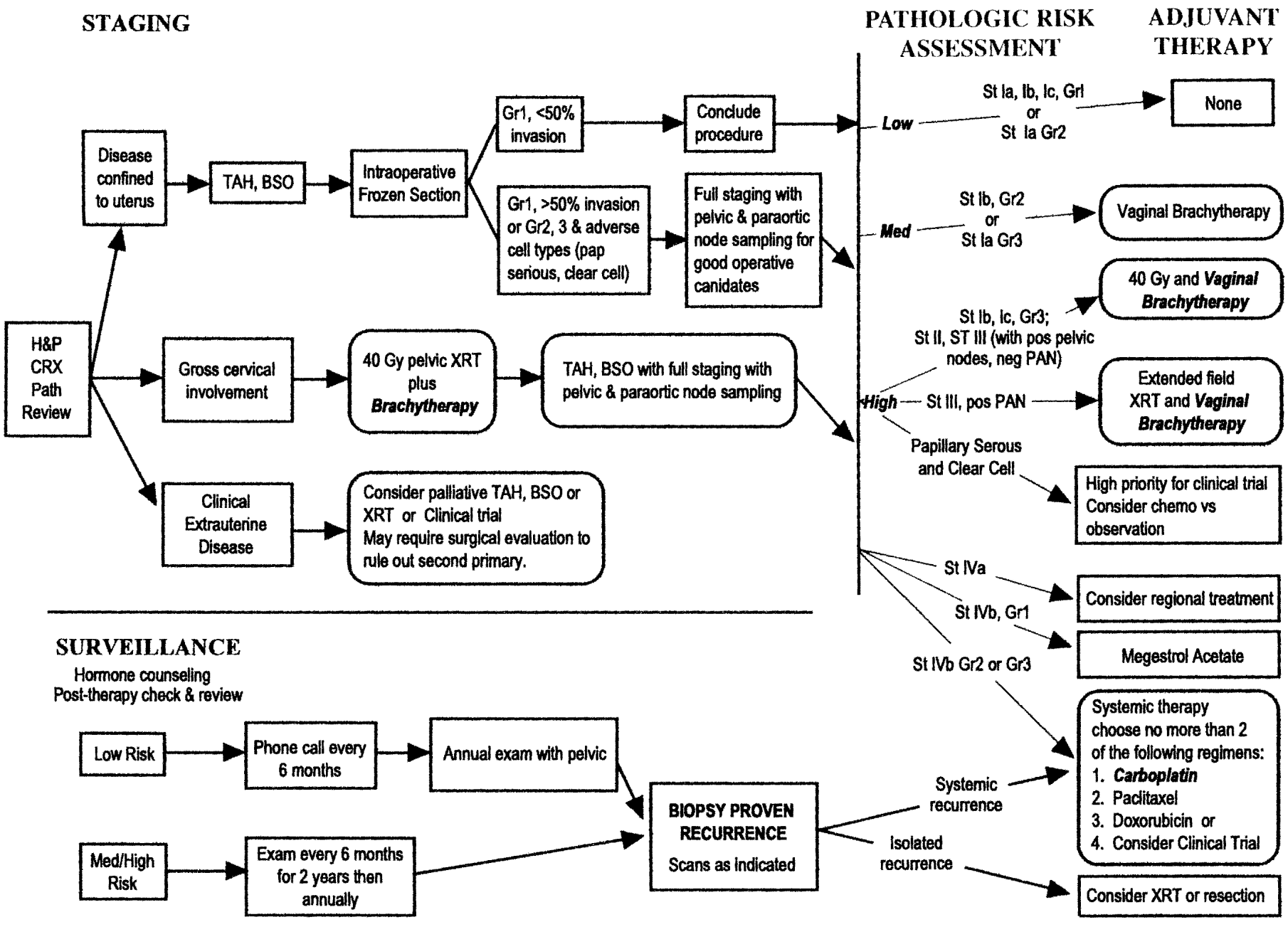
- **Objective - Maintain the highest quality and most efficient patient care based on medical evidence and independent of reimbursement methods.**
  - **Practice Guidelines - An algorithm or decision tree of an entire disease process that assists medical decison making.**
  - **Care Paths - Specific sets of treatment, evaluation and patient education to standardize episodes of care and ensure efficacy.**

    Number of pathways implemented 70
    Total number of patients placed on pathways 4053
    Types of pathways: Breast, Gynecological, Head & Neck, Thoracic, Gastrointestinal, Genitourinary, Sarcoma, Supportive
  - **Clinical Quality Improvement - Continually improve clinical care through feedback of data from paths.**

http://www.camanager.org

12

Endometrial Cancer Practice Guideline



Multidisciplinary Research Program

- **Multidisciplinary care is complemented by Multidisciplinary Research Programs so that there is a "translation" from laboratory to clinic of innovative discoveries in diagnostics and therapy**

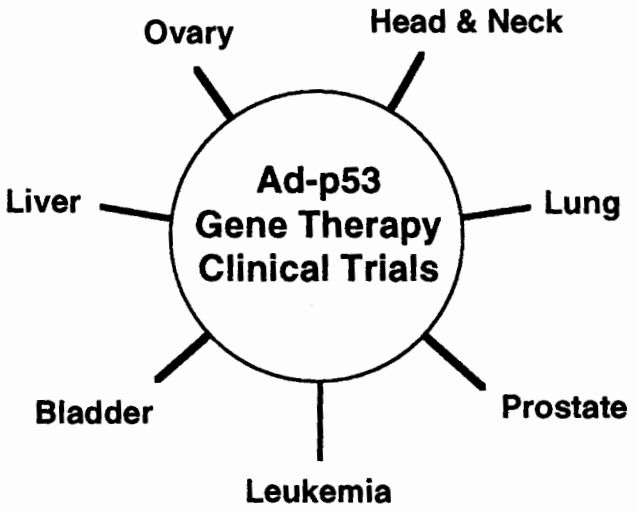
Multidisciplinary Research Programs

- Brain Tumor Center
- Breast Cancer Research Program
- Ovarian Cancer Research Program
- Prostate Cancer Research Program
- Skin Cancer Research Program

Multidisciplinary Research Programs Under Development

- Bladder Cancer
- Cancer Therapeutics Discovery Program
- Cell Cycle Research
- Clinical Research Center
- Developmental Biology and Cancer
- Gene Discovery Program
- Head and Neck Oncology
- Human Tumor Immunotherpy
- Leukemia
- Lymphoma
- Molecular and Cellular Recognition
- Molecular Mechanisms of Hematopoietic Malignancies
- Pancreatic Cancer
- Renal Cell Carcinoma
- Therapeutic Cell Sorting Facility
- Tissue Engineering Initiative

Ad-p53 Gene Therapy



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Research Driven

Constantly striving to develop innovative and more effective methods of therapy.

- Clinical Pathways and Practice Guidelines – to design and identify the most optimal standards of care
- Clinical Protocols – to develop and test the most effective therapies

16

Types of Clinical Trials at UTMDACC

- Phase I - A new drug that shows promise in the laboratory is given to patients with diseases that have no known effective treatment.
- Phase II - The maximal tolerated dose of the drug is given to patients with a variety of cancers to see if there is any antitumor activity of the drug in any specific cancer.
- Phase III - The drug is extensively studied in the treatment of any cancer which it is effective.

17

Magnitude of Clinical Research at UTMDACC

	1996	1997
Active protocols accruing patients	466	565
Protocols continuing to accrue data	1179	1717
Patients placed on protocols	5028	5853

18

Compassionate, Supportive and Comprehensive

In 1989, UTMDACC was the first comprehensive Cancer Center to establish a

Code of Ethics - Principle # 1

- **Reverence for the people for whom we are privileged to care is our primary concern**

Parallel to the high tech therapeutic intervention aimed at destroying the cancer is our recognition of the needs of the patient and their families who are coping with the cancer and the effects of the treatment.

Patient Support Services

Pain Service	Chaplaincy
Physical Therapy & Rehabilitation	Social Work - Support Groups
Life After Cancer Program	The Learning Center
Anderson Network	P.I.K.N.I.C. Series
Anderson Network Hospitality	Patient Advocacy
Cancer Information Line	Patient Education
Candlelighters - Pediatrics	Patient/Family Center & Library
Child Life - Pediatrics	Patient/Guest Relations - Rotary House
Child Visitation Room	Reach for Recovery
International Patients Center	Volunteer Services
Language Assistance	

19

Patient Care

Challenge for the future is to extend our standard of care to all patients with cancer

Cancer Manager Program

Contracts with other health care providers

Contracts with risk holders (insurance companies & employers)

Telemedicine Program (second opinion at a distance)

20

LAURA VILLALPANDO, ~~MALIGNANT BRAIN TUMOR~~

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

Making Cancer History™

PREVENTION

Cancer Prevention

Mission Statement

The University of Texas M. D. Anderson Cancer Center is dedicated to furthering the science and application of cancer prevention through multidisciplinary programs in research, service and education.

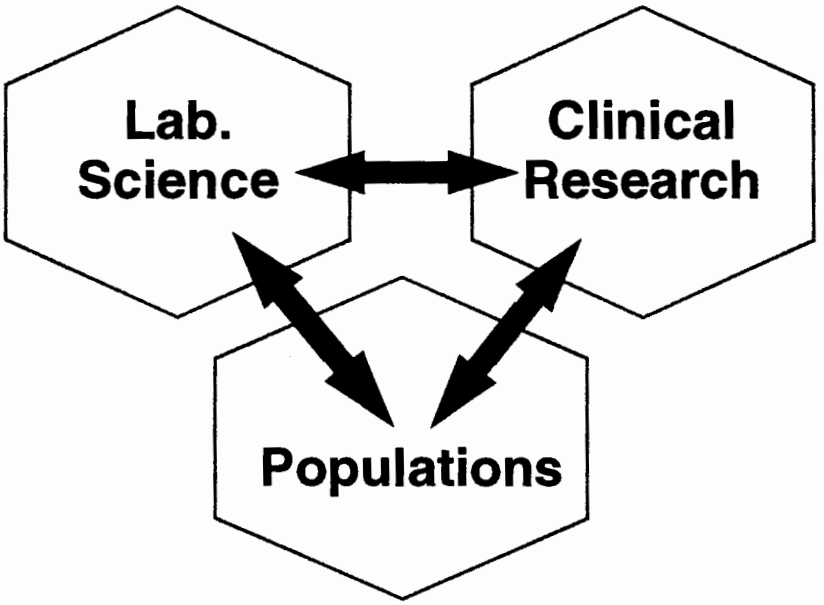
1

Cancer Prevention

- **Identify lifestyle factors, genetic predispositions and molecular events contributing to the development of cancer.**
- **Develop, implement and evaluate interventions that reduce carcinogenic risk (e.g. nutrition and chemoprevention).**
- **Assess and manage cancer risk through early detection and genetic counseling.**
- **Support and lead public policy initiatives that reduce the risk of cancer.**
- **Provide the public with accurate and helpful educational information about prevention and early detection of cancer**

2

Prevention Research



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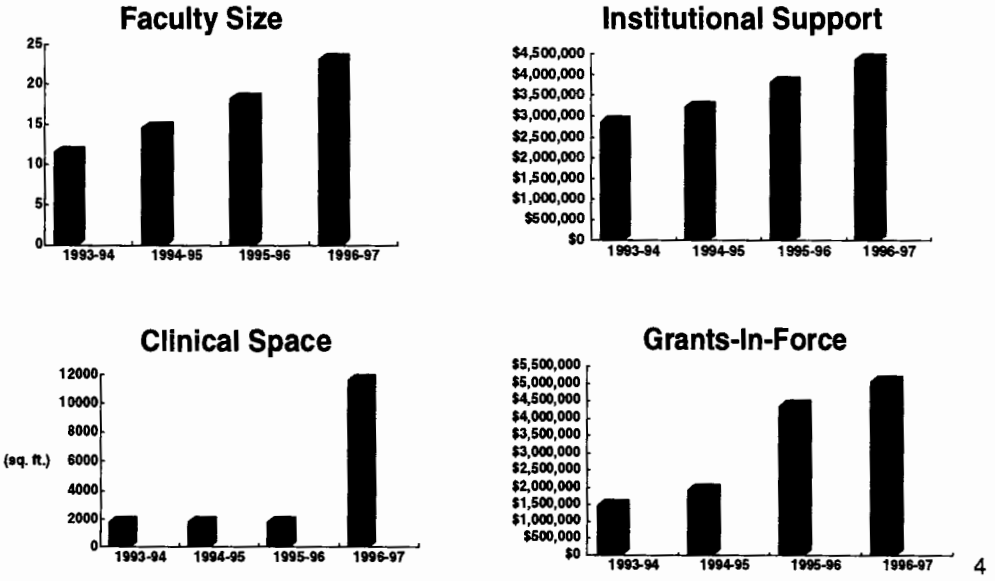
DIVISION OF CANCER PREVENTION



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Population-Based Research Program: Behavioral Science

- **Primary prevention**
  - **tobacco: initiation and cessation**
  - **diet: fruit and vegetable intake**
  - **sun-exposure: skin cancer prevention**
- **Genetic predisposition**
  - **psychosocial aspects of screening and assessment of hereditary cancer susceptibility: HNPCC**

5

Dietary Intervention Research

6

Population-Based Research Program: Epidemiology

- **Molecular epidemiology**
  - **Gene-environment interations**
    - » **susceptibility to tobacco, ultra-violet and hormonally induced cancers**
    - » **animal models of genetic susceptibility**
- **Genetic epidemiology**
  - **Familial aggregation of cancer**
    - » **statistical modeling procedures to study gene-environment interactions**

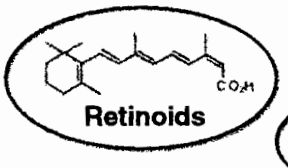
7

Population-Based Research Program: Clinical Cancer Prevention Chemoprevention

Use of specific natural or synthetic chemical agents to reverse, suppress or prevent the carcinogenic process from progressing to invasive cancer.

Targets
High Risk Groups

- **Bladder**
- **Breast**
- **Cervix**
- **Colorectal**
- **Head and Neck**
- **Lung**
- **Prostate**
- **Skin**



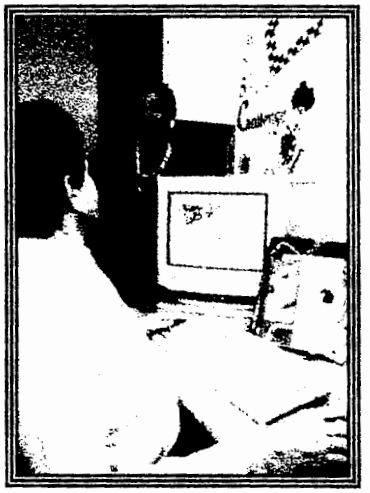
Tamoxifen

Calcium

8

Prevention Center

- Risk Assessment
- Chemoprevention
- Genetic counseling and testing
- Nutritional assessment and counseling
- Information resource



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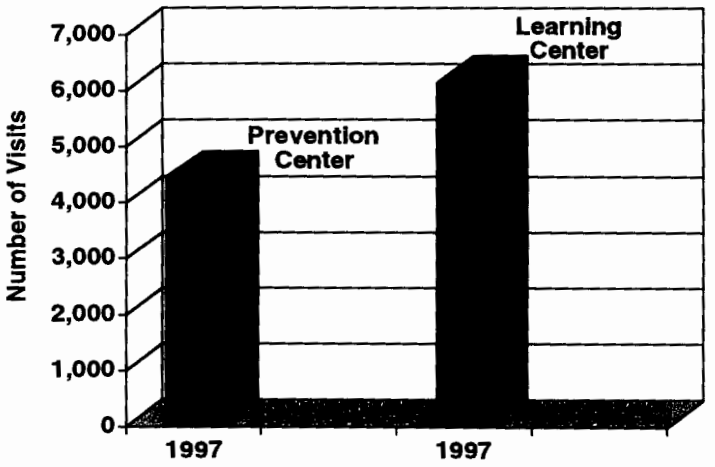
Cancer Prevention Center Activity



10

Cancer Prevention
Strategic Growth Opportunities

- **Genetics**
- **Nutrition**
- **Health Services Research**

11

JOSÉ PAREDES, ~~BONE CANCER~~

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Making Cancer History™

OPERATIONS

Topics

- Scope of Patient Activity
- Continuous Improvement
- Human Resources
- Informatics
- Facility Improvements

Scope of Patient Activity, FY97

Patients Seeking Care

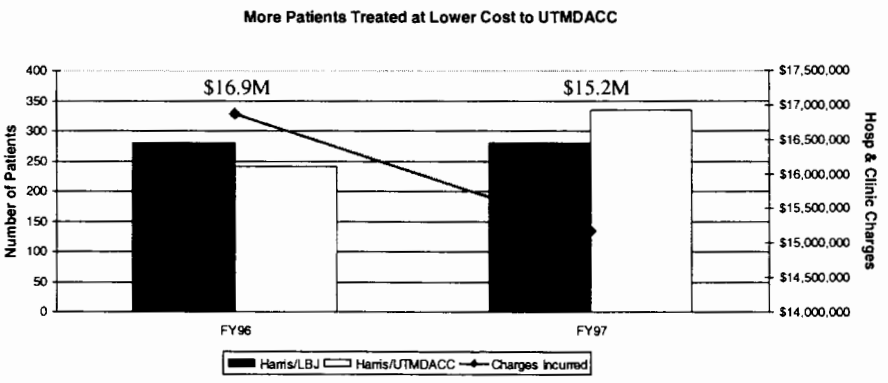
- 65,000 Total Patients
- 18,400 New Patients Evaluated
- 12,300 New Cancer Patients

Scope of Patient Activity, FY97

Multidisciplinary Care Center Patient Volume

MCC	Visits	MCC	Visits
Ambulatory Treatment Center	60,233	Infusion Therapy	25,493
Breast	19,740	Medical Specialties	15,940
Child & Adolescent	15,434	Melanoma & Skin	10,326
Fine Needle Aspiration	1,507	Neuro & Supportive Care	13,494
GI (incl Endoscopy)	20,057	Prevention	6,025
General Oncology	4,583	Radiation Oncology	91,481
GU	24,169	Sarcoma	8,673
Gynecology	14,025	Surg Specialty (Plastics)	4,982
Head & Neck (incl Dental/Opth)	24,629	Thoracic (incl Ortho)	13,255
Hematology	70,802		
	TOTAL	**444,848**	

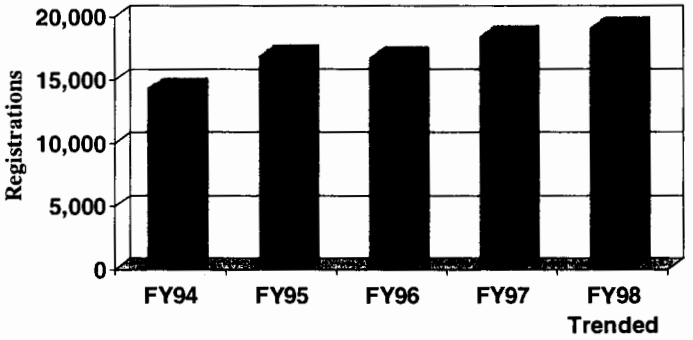
New Harris County Program has been Successful



The first contract with Harris County was effective 9/1/95.

New Patient Registrations are Up

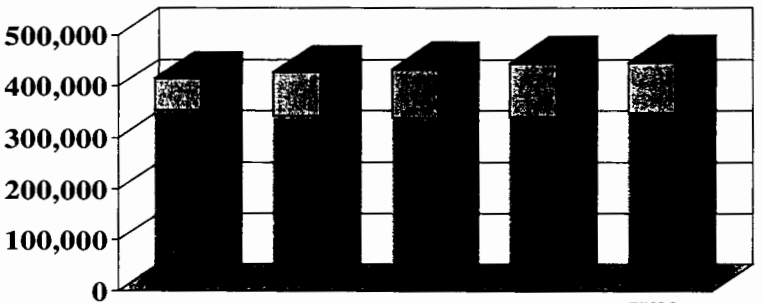
Hospital & Clinics
New Patient Registrations Trend
FY94 - FY98



	FY94	FY95	FY96	FY97	FY98 Trended
	14,314	16,880	16,701	18,400	19,076

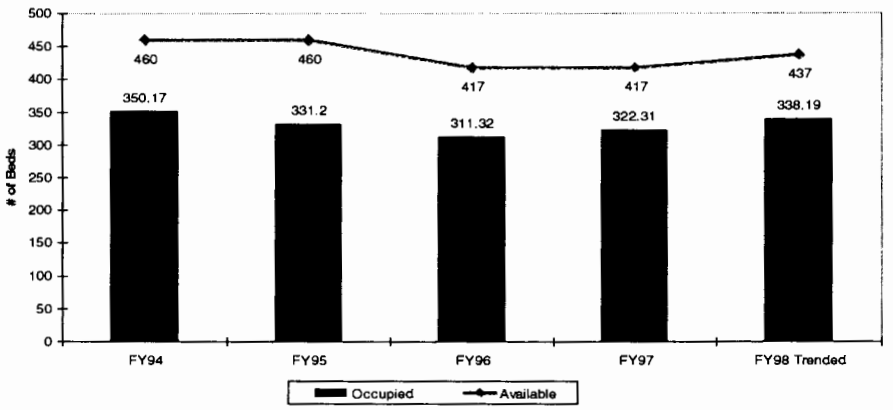
Clinic Visits are Beginning to Rise

Hospital & Clinics
Outpatient Visits Trend
FY94 - FY98



	FY94	FY95	FY96	FY97	FY98 Trended
Non-MD Visits	61,547	85,412	94,562	104,558	99,396
MD Visits	353,122	342,089	339,191	340,290	347,164

Average Daily Census is Rising



7

Understanding UTMDACC Growth

- Volumes up across Houston and nation
- Economic well-being
- Probable market-share gain in Houston
- SB 192…41 % of all new patients are self-referred; 32% of new Texas patients

8

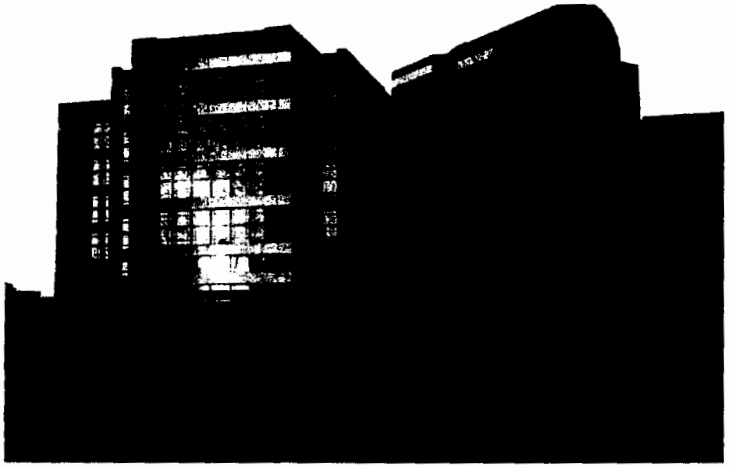
UTMDACC Growth (continued)

- Growing national and international reputation, increased consumer access to information (e.g., Internet)
- Managed care penetration is less than projected
- Technology, market, and new programs are increasing average length-of-stay

Implications for 1998

- Challenges to staffing and scheduling at peak times...volumes at systems capacity
- Re-opening 20 inpatient beds, January
- Re-opening 2 operating rooms, January
- 237 additional FTE staff between 9/1/96 and 9/1/97; staff has decreased by 834 since FY94
- Added clinical faculty: 22 FTE (more in the pipeline)
- Opening the Alkek Hospital

New Alkek Hospital



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Alkek Hospital Opens This Year

- Opening Late Summer, 1998
- 250 state-of-the-art patient beds: Pediatrics, Intensive Care Units, Leukemia, Lymphoma, Bone Marrow Transplantation
  - Total capacity after opening: 437 beds
- 26 new operating rooms
- Patient and Family Support Services
- Pathology
- Radiology
- Support Space

12

Commitment to Continuous Improvement

- Focus on our people: develop our culture based upon existing strengths
  - Service-orientation
  - Multidisciplinary Care
- Leadership development; commitment to learning
- Learn methods to solve complex "system" problems

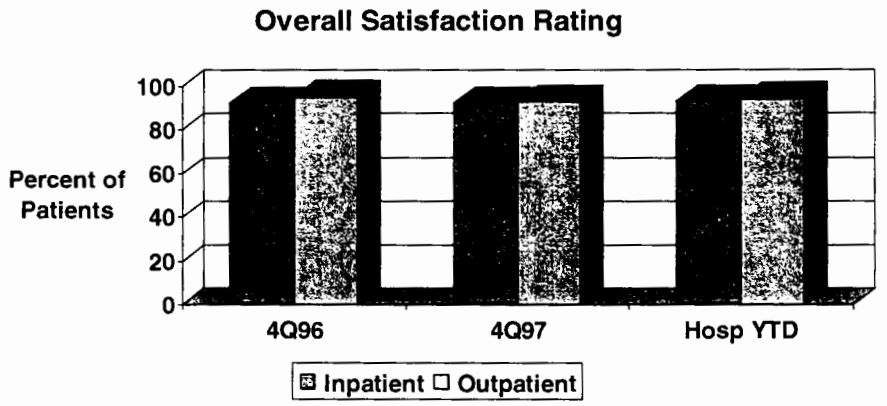
13

Continuous Improvement (continued)

- Standardization of diagnosis & treatment; focus on outcomes
- Decision-making at the point of action, de-centralized responsibility
- Comprehensive databases to improve operations and quality of care, and for research

14

Patient Satisfaction is Very High

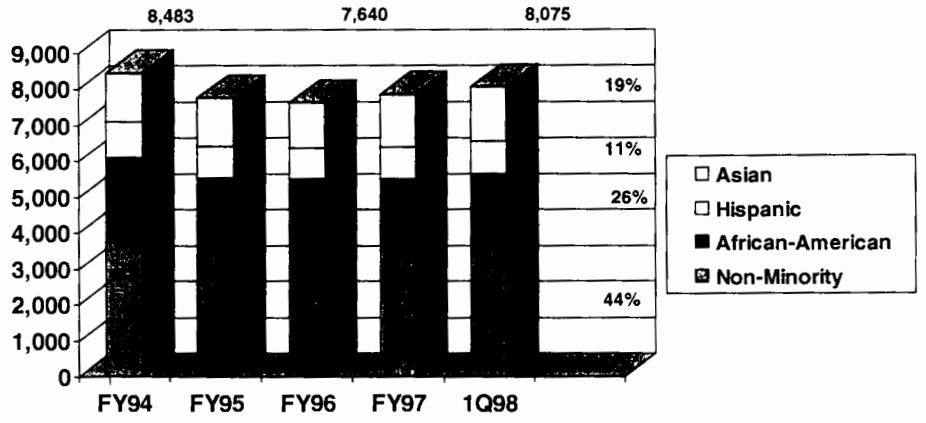


Source: AllianceResearch

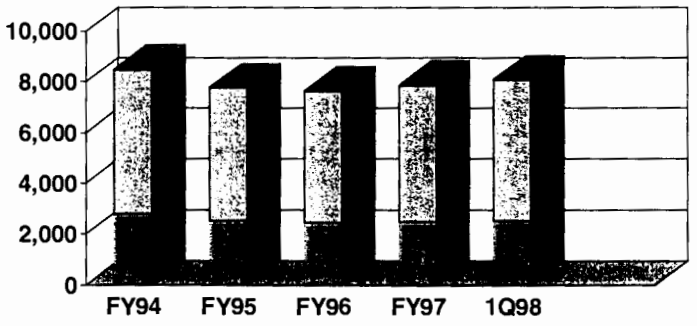
Human Resource Plans

- Human resource policy and practice consistent with our desired culture; rewarding desired behaviors and achievements
- Innovative practices which keep us competitive in attracting and retaining the best people in a tightening labor market
- Attention to the diversity of our workforce

Employee Demographics



Employee Demographics



	FY94	FY95	FY96	FY97	1Q98
Female	5,680	5,247	5,214	5,409	5,568
Male	2,803	2,529	2,426	2,468	2,507

Informatics

- Clinically-driven Informatics development
- All typical hospital/clinic and office systems available and periodically upgraded
- Continuing investment in leading-edge Informatics:
  - Cancer Manager software
  - Computer-based Medical Record
  - Pathways and Guidelines
  - Computerized Institutional Database Repository
  - Imaging
  - Telemedicine

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Informatics (continued)
1998-2000 Planning Implications

- Continued investment in rapidly changing, high-cost technologies
- Attract and retain high-quality Information Systems professionals
  - Competitive compensation
  - Professional Development Model
- Planning Process
  - High-level Information Systems Steering Committee
  - System Development Methodology
- Integration of existing, separate databases

20

UTMDACC Facilities Require Further Development

- Major Projects Approved or Underway
  - Alkek Patient Tower (1998)
  - Clinical Research Facility (1998)
  - Dock & Supercorridor (1998)
  - Smithville Lab (1998)
  - Beginning internal renovation of vacated space

21

UTMDACC Facilities (continued)

- Additional Major Projects being Planned
  - Replacement Research Facility
  - Consolidated Office Facility
  - Rotary House Expansion with Garage
  - Additional Clinical & Infrastructure Renovation

22

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Making Cancer History™

FINANCE

Financial Presentation

- **Financial Performance**
- **Environment**
- **Opportunities and Strategies**
  - **Managed Care**
    - **Cancer Manager**
  - **International**
    - **Spain**
  - **National FFS**
    - **National Insured Business**

1

STATEMENT OF CURRENT FUNDS REVENUES AND EXPENDITURES

For the Year Ended August 31, 1997

(in millions)

		Comparative	Change	
	FY97	FY96	$	%
CURRENT REVENUES				
State Appropriations	$121	$123	$(2)	-2%
Gifts, Grants and Contracts	90	85	5	6%
Sales and Services	384	358	26	7%
Professional Fees	110	111	(1)	-1%
Other Income	35	37	(2)	-5%
TOTAL CURRENT REVENUES	$740	$714	$26	4%
CURRENT EXPENDITURES				
Academic Programs	$140	$136	$4	3%
Patient Care	394	383	11	3%
Institutional Support	59	59	-	0%
Operation and Maintenance of Plant	73	69	4	6%
Auxiliary Enterprises	10	10	-	0%
TOTAL CURRENT EXPENDITURES	$676	$657	$19	3%

2

STATEMENT OF CURRENT FUNDS REVENUES AND EXPENDITURES

1st Quarter FY98

(in millions)

	FY98	Comparative FY97	Change $	Change %
CURRENT REVENUES				
State Appropriations	$34	$31	$3	10%
Gifts, Grants and Contracts	23	22	1	5%
Sales and Services	102	103	(1)	-1%
Professional Fees	28	27	1	4%
Other Income	7	4	3	75%
TOTAL CURRENT REVENUES	$194	$187	$7	4%
CURRENT EXPENDITURES				
Academic Programs	$37	$33	$4	12%
Patient Care	104	92	12	13%
Institutional Support	21	22	(1)	-5%
Operation and Maintenance of Plant	15	16	(1)	-6%
Auxiliary Enterprises	3	2	1	50%
TOTAL CURRENT EXPENDITURES	$180	$165	$15	9%

3

Insured Environment

- **Revenue:**
  - 34% of our revenue in 1994
  - 28% in 1997
  - 21% Budgeted for 1998
- **Per Diem Payment Trend is flat to slightly increasing at the CPI Rate**
- **Margins are reasonable**

4

Managed Care Environment

- **Revenue:**
  - 11% of our revenue in 1994
  - 23% in 1997
  - 31% Budgeted for 1998
- **Per Diem Payment Trend is decreasing**
- **Margins are tight**

International & Self Pay Environment

- **Revenue:**
  - 13% in 1994
  - 10% in 1997
  - 9% Budgeted for 1998
- **Per Diem Payment Trend is increasing at the CPI Rate**
- **Margins are good**

Governmental Environment

- **Revenue:**
  - 29% of our revenue in 1994
  - 31% in 1997
  - 29% Budgeted for 1998
- **Per Diem Payment Trend is flat**
- **Margins are tight**

Opportunities and Strategies Managed Care

- **Characteristics**
  - Growing rapidly
  - Opportunity for market share if we are efficient
- **Strategies**
  - Seek contracts with risk holder
  - Implement Cancer Manager
  - Seek more arrangements with national managed care companies

Cancer Manager

What do the risk holders want?

- Highest quality of care
- Reasonable price
- Managed environment
- Trend is towards Capitated payments

9

Cancer Manager

How It Works

- Guidelines & Pathways define the UT MDACC standard of care
- Community care using UT MDACC guidelines and pathways
- Roster defines procedures only at UT MDACC
- Quality and outcome measures based on UT MDACC established benchmarks
- Case & utilization management reduces Length Of Stay and unnecessary procedures

10

Cancer Manager

Fits with UT MDACC Strengths and Mission

- Utilizes our Intellectual Capital
- Allows UT MDACC to control referrals
  - Puts the oncologist (UT MDACC) in the position of "quarterback"
  - Intervention at the most appropriate point
- In line with our mission to improve cancer care

Opportunities and Strategies International

- Characteristics
  - Margins
    - Almost 20% of our margin, which is used to support research and our academic mission, come from this 7% of our patients
    - Greater than 90% Collection Rate
  - Opportunity for growth without pressure on reserves
- Strategies
  - Gain experience in a controlled friendly environment
    - Market analysis identified three target areas:
      - Spain
      - Latin America
      - Middle East

Spain

The Basics - Health Care Delivery

- Cancer Center And Radiation Therapy Facility
  - Care delivered by Spanish Physicians using UT MDACC guidelines and pathways
- Protection from Liability for Medical Care
  - Cannot be imposed simply because of the licensing
  - MDACC/Outreach will be additional insureds on all liability insurance policies
  - Coverage is required to meet commercially acceptable standards
  - Indemnity

Spain

The Basics - Insurance Program

- Insurance Program
  - Will be administered by one of the five largest insurers in Spain
  - Administrator will also be largest investor
- Protection From Liability for Insurance Product
  - Complete disclaimer, release, and covenant not to sue MDACC/Outreach on all policy documents
  - MDACC/Outreach - final approval on marketing material
  - Insurance company maintains liability insurance MDACC/Outreach are additional insureds
  - Indemnity
  - Tightly regulated insurance industry

Spain
The Basics - Financial Summary

- **We Receive:**
  - The greater of $100,000 or 10% of profits
  - $800 per patient
  - Regular charges for patients referred to Houston
  - Regular charges for telemedicine consultation
- **We Provide:**
  - Telemedicine Conferences
  - Education for Spanish physicians and patients
  - Access to Clinical Trials
  - UT MDACC Guidelines, Pathways and Outcomes Evaluation

Spain
Business Safeguards

- **The following requires M. D. Anderson Outreach Corporation Approval:**
  - The Business Plan
  - Corporate Bylaws and Additional Subsidiaries
  - Initial Investors
  - Medical Partnerships
  - Transfer of assets, material loans, payments, indebtedness, liens and redemption of shares

Opportunities and Strategies National Insured Business

- **Characteristics**
  - Shrinking at rate roughly corresponding to managed care growth
  - Opportunity for selective national marketing program aimed at patients that can choose their treatment center
- **Strategies**
  - Develop a targeted marketing program for potential patients with insurance programs that permit choice and self pay patients

Summary

- **Seeking business opportunities that support UT MDACC's mission**
  - Enables UT MDACC to more completely fulfill our mission
  - Reduces the pressure on the taxpayers of the State of Texas
  - Enables UT MDACC to increase our investment in our research and academic missions

GREG HEWLETT, ~~BONE CANCER~~

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Making Cancer History™

FUTURE PLANS

The Future

The University of Texas
M. D. Anderson Cancer Center

Draft of
Strategic Plan

Steering Committee Retreat
January 3, 1998

1

Outline Of The New Strategic Plan (1/98)

- Our vision statement is now based on our mission. Each component of the vision statement becomes a strategic goal.
- For each strategic goal we have developed a list of specific strategic objectives.
- For each strategic objective we are identifying:
  - performance criteria to measure success
  - quantitative or qualitative targets (1 year and 3-5 year)
- This process creates a strategic plan with a list of measurable objectives for each of our strategic goals.
- The strategic plan will be presented to each operating unit for review, feedback, clarification and potential revision.
- The operating unit will evaluate its activities against the specific objectives and measures/targets. Appropriate implementation plans and a projection of resource requirements will be prepared for review by the unit's supervisor (typically an EVP or VP) and will then be incorporated into the yearly budget plan for the unit.
- The process will recycle yearly, tying the strategic plan to the budget plan.

2

Patient Care Strategic Goal (1)

The University of Texas M. D. Anderson Cancer Center will set and continually advance the world's standard for the management of cancer. Our standard will be defined by compassion and respect for patients and their families, by the highest quality medical care, and by superior clinical outcomes.

Strategic Objectives

- We will provide multidisciplinary, comprehensive and expert cancer treatment.
- We will incorporate learning-based continuous quality improvement into our activities to ensure the highest quality and most efficient patient care.
- Every employee will understand and provide care in accordance with our values, characterized by compassion, respect and service for patients and their families.

Patient Care Strategic Goal (1)

Strategic Objectives (continued)

- The operations of our clinics will be designed and properly staffed to deliver prompt, effective and seamless care.
- We will employ standardized pathways and guidelines to ensure quality and enhance efficiency.
- We will provide all patients with supportive care, pain and symptom control, nutritional counseling, spiritual and psychological guidance, physical rehabilitation, and end of life care.
- We will design innovative and critically prioritized clinical trials to bring new discoveries to our patients.
- We will have a computerized patient data base on each patient that facilitates the delivery of prompt, effective and seamless care.
- We will use people and technology to enable patients to be active participants in planning their care.

Patient Care Strategic Goal (1)

Performance Criteria

- Clinical outcomes (internal and external benchmarks):
  - survival and response rates
  - pain and symptom control
  - spiritual and psychological support
  - quality of life indicators
- Patient feedback and satisfaction
- Internal benchmarks
  - 4 day wait for appointments
  - 30 minute wait at appointments
- Seamlessness of care
- Patients treated on clinical trials and pathways (percent)
- Number of unexpected events in the care setting
- Decrease in our comparative unit costs (compared to internal & external benchmarks)
- Results of CQI

Patient Care Strategic Goal (2)

The University of Texas M. D. Anderson Cancer Center will maintain leadership in the medical care market place and develop systems and partnerships to make our standard of care available in Texas, the nation, and the world.

Strategic Objectives

- We will create the infrastructure needed to implement Cancer Manager and to manage covered lives.
- We will contract directly with the financial risk holders, because that is the best way to ensure our standard of care.
- We will maximize the value of our products by providing the highest quality at the lowest cost that will maintain that quality.
- We will partner with selected providers in our various markets, to bring our standard of care and research to increased numbers of patients.

Patient Care Strategic Goal (2)

Strategic Objectives (continued)

- We will develop partnerships within the Texas Medical Center that will further our mission.
- Our business development activities will be centrally managed to achieve integration with our health care delivery processes.
- We will improve the accuracy and transparency of patient billing.
- We will maintain a patient and financial data base accessible in real time for business planning.
- We will develop an innovative compensation program in order to achieve our mission and to attract and retain the best faculty and staff.
- We will market our standard of care and carefully monitor the delivery of that care to ensure clinical and service quality.

Patient Care Strategic Goal (2)

Performance Criteria

- Numbers of patients receiving our standard of care (market share by geographic sector and by disease site)
- Net margins (by geographic sector and by disease site)
- Number of new cancer patients seen and number of new cancer patients treated
- Method of patient entry
  - Referrals from physicians
  - Contracts with payers and employers
  - Self-referred patients
  - Second opinions at a distance

Research Strategic Goal

We will foster advances in understanding the fundamental life processes, the fundamental nature of cancer and the human response to cancer through scientific research, and will apply this knowledge to the prevention, detection and treatment of cancer through clinical trials.

Strategic Objectives

- **We will evaluate and modify our research priorities with periodic research forums.**
- **We will support both investigator-initiated research projects and multidisciplinary research programs.**
- **We will discover and implement new diagnostic tests and procedures to detect cancer.**
- **We will discover and implement new therapies for cancer.**
- **We will explore and implement new supportive care interventions.**

Research Strategic Goal

Strategic Objectives (continued)

- **We will maintain a data base which is accessible in real time for research program management and cost analysis.**
- **We will recruit outstanding leaders and investigators.**
- **We will encourage creation of collaborations and partnerships in the private sector that facilitate translation of research findings into production of new drugs and biological agents effective in the treatment of cancer.**
- **We will provide an environment that rewards innovation, creativity and risk taking in research.**
- **We will maintain an oversight system for clinical research that sets priorities, evaluates costs and ensures regulatory compliance.**

Research Strategic Goal

Performance Criteria

- Peer reviewed grant support
- Peer reviewed publications
- Patents and licenses
- Patients on clinical trials
- National leadership roles
- Awards for accomplishments
- New diagnostic tests and procedures
- New treatments for cancer
- New supportive care measures
- Completion of protocol priority lists for disease sites
- Periodic review and prioritization of research
- Completion of research data base

Professional Education Strategic Goal

We will educate new leaders in all the scientific, medical and allied disciplines necessary to reduce the burden of cancer, and we will educate the public with accurate and helpful information concerning cancer prevention and treatment.

Strategic Objectives

- We will create a curriculum of courses for all clinical fellows, graduate students and postdoctoral trainees, who wish to pursue careers in cancer research.
- We will provide continuing education for our faculty and staff to enable them to grow in their capacity to achieve their career goals and to achieve the institution's mission.
- We will provide continuing medical education in cancer for professionals on the faculty and staff, and in the community.

Professional Education Strategic Goal

- We will provide training for faculty and staff to improve leadership, problem solving and integration of activities.
- We will continually raise the standards for admissions and courses in our graduate school, clinical fellowship and postdoctoral training programs.
- We will develop a continuum of well supported training and junior faculty positions for outstanding clinical fellows and postdoctoral trainees with research interests.
- We will create an environment in which learning permeates all activities in the center.
- We will introduce all new employees to our mission, vision and values, and will provide them with an overview of cancer and its treatment.
- We will have the most complete and authoritative Internet cancer site to educate the public about the prevention, detection and treatment of cancer.

Professional Education Strategic Goal

Performance Criteria

- Quality of students matriculating in the graduate school
- Quality of clinical fellows
- Numbers of trainees/fellows
- Numbers of trainees/fellows who enter full-time academic careers
- Number of faculty and staff who are assisted in career advancement by intramural educational programs
- Level of understanding of cancer exhibited by new employees
- Quality of courses as evaluated by students
- Improvement of performance evaluation of faculty leaders and staff administrators
    - By their superiors
    - By those they supervise

Prevention Strategic Goal

We will further the science and application of cancer prevention through multidisciplinary programs in research, service and education.

Strategic Objectives

- Identify lifestyle factors, genetic predispositions and molecular events contributing to the development of cancer.
- Develop, implement and evaluate interventions that reduce carcinogenic risk (e.g. nutrition and chemoprevention).
- Assess and manage cancer risk through early detection and genetic counseling.
- Support and lead public policy initiatives that reduce the risk of cancer.
- Provide the public with accurate and helpful educational information about prevention and early detection of cancer.

15

Prevention Strategic Goal

Performance Criteria

- Number of people reached by education and prevention activities.
- Number of people screened for genetic susceptibility to cancer.
- Transition of behavior modification discoveries into accepted practice in the community.
- New diagnostic tests for cancer prevention.
- New treatments for cancer prevention.

16

Resource Strategic Goal

Through a philosophy of continuous improvement, we will effectively and efficiently manage the resources necessary to support our mission: people, information, technology, facilities, and funds.

1. **People-Strategic Objectives**
   - **We will sustain a diverse and tolerant intellectual environment that rewards innovative and measurable achievements of faculty, administrators, staff, and rewards integration of activities to achieve a unity of purpose.**
   - **We will provide incentives that reward innovative changes and excellent performance.**
   - **We will recruit, nurture and reward faculty and staff who make outstanding contributions to our mission areas.**
   - **We will ensure adequate staffing of all activities, to enable each employee to focus on his or her responsibilities.**

Resource Strategic Goal

1. **People-Strategic Objectives (continued)**
   - **We will create learning-based training programs that focus on required skills and competencies, and on continuous quality and service improvement.**
   - **We will strive for diversity in the workforce.**
   - **We will decentralize responsibility and accountability for decision making.**
   - **We will perform both upward and downward evaluations of all employees.**
   - **We will put into place informative technology that supports rapid and uncomplicated electronic communication.**
   - **We will be aware of the market for talented people in order to respond to it optimally.**

Resource Strategic Goal

People-Performance Criteria

- Staff and faculty satisfaction and feedback
- Staff and faculty recruitment and retention
- Staff and faculty diversity
- Continuous improvement in quality benchmarks
- Staff and faculty knowledge of mission, culture, vision
- Staff and faculty level of skill
- Percent needed/available qualified employees
- Frequency of mistakes by staff and faculty

Resource Strategic Goal

2. **Facilities and Infrastructure - Strategic Objectives**
   - Our capital investment in facilities will be guided by a long term capital plan that reflects our mission priorities and capital capacity.
   - We will create information systems required for our mission and vision and provide broad access to centralized data bases.
   - Our investments in facilities will be prioritized, to enable an appropriate investment in the outstanding people who contribute to our mission.

Resource Strategic Goal

Facilities and Infrastructure-Performance Criteria

- Facilities and space adequate to meet the needs of the mission areas
- Information systems that meet the needs of the mission areas.

Resource Strategic Goal

3. **Funds - Strategic Objectives**
   - We will maintain or increase patient care margins.
   - We will ramp up our drive for philanthropic support, targeting $50 million or more per year.
   - We will continue to capture increasing levels of peer reviewed funding.
   - We will continue to increase our funding through licenses and partnerships with pharmaceutical and biotech companies.
   - We will defend and justify our legislative appropriation and federal designation with vigilance.
   - PRS will expand, as possible, its contribution to the academic and clinical missions of the institution.
   - We will shepherd our funding of indigent care with diligence.

Resource Strategic Goal

Funds-Performance Criteria

- Net margins from patient care
- Expenditures on indigent care
- Continued rise in yearly philanthropy for research support
- Endowment fund of $100 million
- Patents
- License income
- PRS funds for mission areas
- Funds from extramural research partnerships

THE UNIVERSITY OF TEXAS M. D. ANDERSON CANCER CENTER
LONG TERM CAPITAL PLAN - NEW PROJECTS
1998 - 2002
IN MILLIONS

RENOVATIONS OF HOSPITAL FACILITIES		
MULTIDISCIPLINARY CLINICS	$ 83	
LUTHERAN HOSPITAL UPGRADE	$ 10	
PHYSICIAN OFFICES	$ 18	
TOTAL RENOVATIONS		$ 111
NEW FACILITIES		
REPLACEMENT RESEARCH FACILITY	$ 68	
CONSOLIDATED OFFICE FACILITY	$ 25	
ROTARY HOUSE PHASE II WITH GARAGE	$ 26	
TOTAL NEW FACILITIES		$ 119
TOTAL NEW PROJECTS		$ 230