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REPORT TO PHYSICIANS

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THE UNIVERSITY OF TEXAS
MD ANDERSON
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Making Cancer History™

4

"Hitting a Wall"

Cancer's number one side effect, fatigue, takes a beating from multiple interventions.

6

Partnership Building

Strengthening relationships with community physicians is aim of Referral Relations.

7

Patient Education

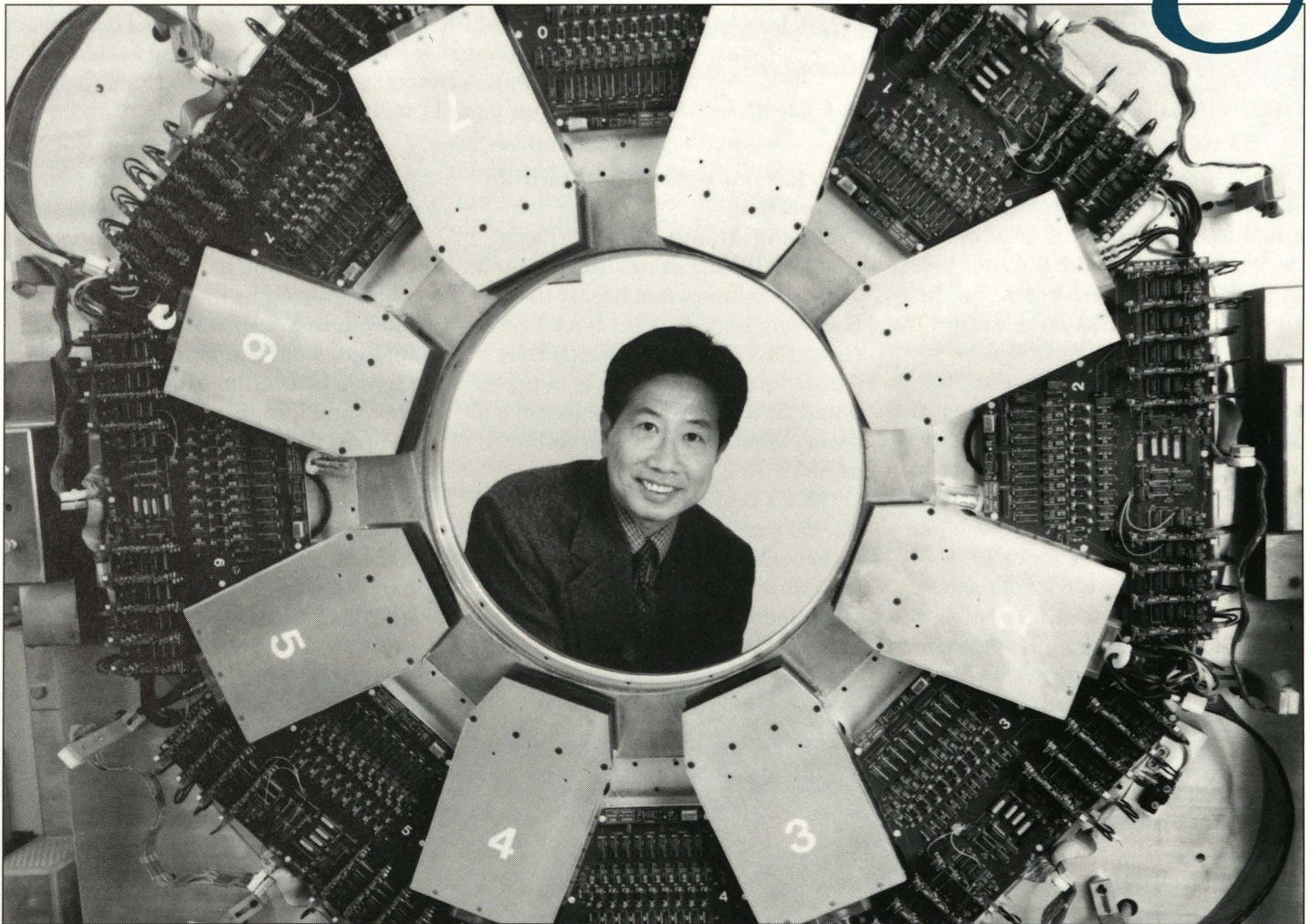
Help patients change "stressful" to "successful": share these tips for communication.

8

Access and Competence

What patients demand of physicians finds a parallel in what physicians demand of M. D. Anderson.

MD Anderson Oncology



Innovative PET Camera Readied for Tumor Detection Trials

Dr. Wai-Hoi (Gary) Wong looks out through the MDACAM, a prototype PET camera developed for low-cost, high-resolution tumor imaging. It has the highest resolution (2.8 mm) of any whole-body PET camera in existence, according to Dr. Wong, whose work is supported by grants from the National Institutes of Health and others. Design allows horizontal or vertical scanning and an adjustable opening to accommodate a single breast or an entire body. (see page 2)

High Resolution, High Sensitivity, and Variable Field of View Set MDACAM Apart

(Continued from page 1)

by Stephanie Deming

Every year in the United States, more than 400,000 women have so-called unnecessary breast biopsies—biopsies of lesions that are suspicious on mammography but turn out to be benign. Most of these “unnecessary” biopsies could be avoided if positron emission tomography (PET) became part of the diagnostic algorithm for breast cancer, according to Wai-Hoi (Gary) Wong, Ph.D., director of instrumentation development for the Department of Nuclear Medicine at The University of Texas M. D. Anderson Cancer Center.

Developing a high-resolution, high-sensitivity PET camera uniquely suited to breast imaging has been Dr. Wong’s aim for the last four years, and soon he hopes to begin testing his camera, the MDACAM, in the clinical setting.

PET, said Dr. Wong, has the potential to rule out breast cancer in patients with suspicious findings on mammography. With mammography, he explained, the contrast differential between less dense normal tissue and denser tumor tissue is about 1% to 2%—thus the difficulty of detecting tumors and the high number of suspicious mammographic findings that require confirmation with biopsy.

The contrast differential is improved somewhat with digital mammography, a technique currently under review by the Food and Drug Administration, but according to Dr. Wong, “digital mammography has a larger dynamic range than film, but it’s still just mammography, which images density differentials.”

With PET, however, the contrast differential between tumor and normal tissue is dramatic, thanks to PET’s imaging of physiologic function rather than density. “For tumor applications,” explained Dr. Wong, “you try to inject anything

that differentiates the tumor from normal tissue.”

Taking advantage of the fact that breast tumors metabolize more glucose than normal breast tissue, Dr. Wong and his team have been using fluorodeoxyglucose (FDG), whose uptake in tumors is between 3 and 20 times its uptake in normal tissue, creating a contrast differential of 300% to 2,000%.

PET’s cost—about \$1,500 to \$2,000 per scan—makes PET unlikely to become the first-line screening examination for breast cancer for all women; however, Dr. Wong hopes that PET will replace biopsy as the standard examination in women with a suspicious finding on mammography. But PET may be the method of choice for first screening for women at high risk and women with silicone implants.

“Last year, there were about 600,000 breast biopsies, and 400,000 of those lesions were not malignant,” he said, “so two thirds of those biopsies were unnecessary. Those are the statistics year after year. But if we put PET in the middle and eliminate, let’s say, 80% of those unnecessary biopsies, we save 320,000 biopsies a year.”

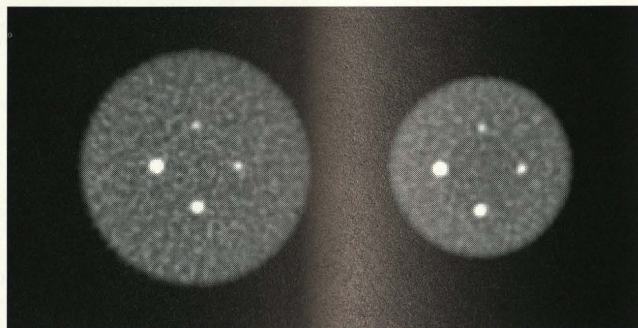
Were PET substituted for biopsy, women would be spared an invasive

procedure, and Dr. Wong estimates the cost of scans by his machine would be comparable with or less than the cost of some biopsy procedures.

Supported by more than \$3.5 million in grants from the National Institutes of Health and the Texas Higher Education Commission, Dr. Wong and his group have spent the past four years developing a prototype PET camera that offers several advantages over commercially available cameras.

First, the MDACAM has a unique, patented detector design that greatly improves the image resolution. “The detector in my machine is about one quarter of the size of [the detector in] a commercial machine,” said Dr. Wong. “That allows us to find much smaller tumors. We can see 3-mm tumors very well.” With the prototype camera, Dr. Wong said, “you can differentiate whether it is single-lesion or multilesion disease. In the case of a lower resolution camera, two nearby tumors probably would look like one.”

Ronald Nutt, Ph.D., senior vice president and technology director of CTI, Inc., which makes commercial PET cameras, has followed Dr. Wong’s work over the past decade and views this innovative detector



In tests of the MDACAM using a phantom breast, Dr. Wong produced these axial images of a breast 11.43 cm (4.5 inches) in diameter (left) and one 15.24 cm (6 inches) in diameter (right). Lesions were (clockwise, beginning at 12 o’clock) 3 mm, 4 mm, 5 mm, and 6 mm.



“ . . . a benign biopsy is not a benign experience for the woman.”

— **Wai-Hoi Wong, Ph.D.**, Department of Nuclear Medicine

design as “one of the breakthroughs that is very important to PET imaging.”

The second advantage of MDACAM is its lower cost, which is also a function of the unique detector design. “This design allows me to keep the cost lower than commercial tomographs,” said Dr. Wong. “We expect that this camera will have a production cost of only 60% of a regular machine.”

The third advantage of the prototype camera is what Dr. Wong calls its “convertible geometry.” Unlike commercially available PET cameras, in which the patient lies on a table that slides through a vertical opening, the prototype machine can be tilted so that the camera opening can be set to either vertical or horizontal.

“The machine that I developed here has a special breast mode,” said Dr. Wong. “The patient lies on top of the camera with the breast hanging down. In a regular commercial machine, the chest is inside the camera and the chest attenuates the majority of the signal. By having the breast hanging down and only the breast in the field of view of the camera, I can get eight times higher detection sensitivity.” The patient opening in the camera can also be adjusted to any diameter between

32 and 55 cm. “With the small-ring configuration,” Dr. Wong said, “the detector module is placed very near the breast, which also increases sensitivity.”

Plans are under way to begin testing the new camera in clinical trials. In these trials, patients will have scans with both Dr. Wong’s camera and a commercially available PET camera, and the results will be compared. The new camera will also be used for other imaging applications, including brain, head and neck, and whole-body imaging.

“All the advantages true for the breast will be true for brain tumors, for head and neck tumors,” said Dr. Wong, citing the size similarity between brain and breast.

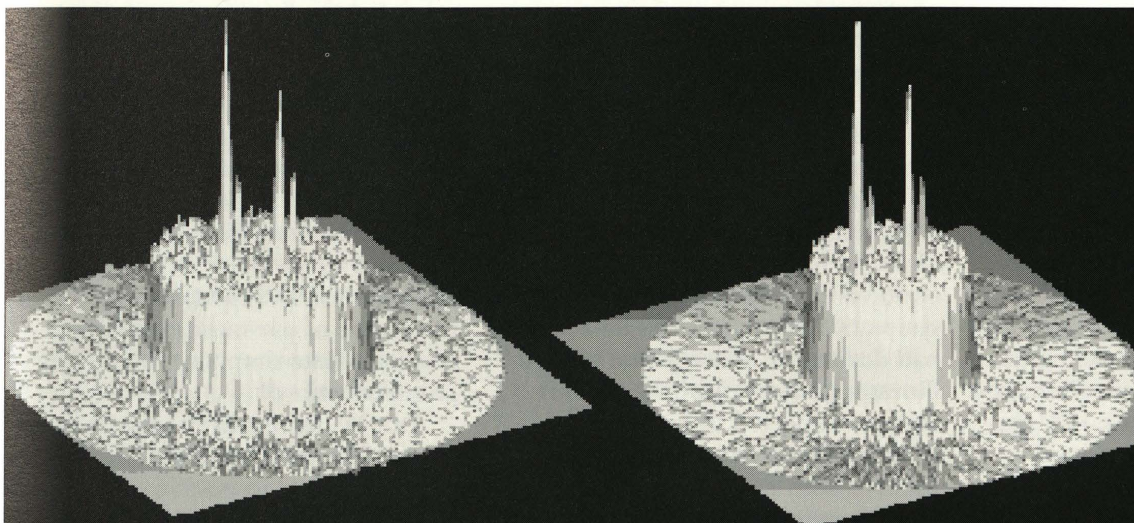
Use of PET remains somewhat limited at present, in large part because of financial considerations. According to Dr. Nutt, the major challenge to widespread implementation of PET is reimbursement regulation. The Health Care Financing Administration (HCFA), which administers the Medicare and Medicaid programs within the U.S. Department of Health and Human Services, only recently approved

reimbursement for a PET application for the first time—detection of lung cancer—but more approvals appear to be on the horizon.

“There’s a major effort going on in HCFA to have a broad-based reimbursement for PET for most all oncology indications,” Dr. Nutt said. “This is probably the most important milestone for PET to become really widespread.” HCFA sponsored town hall meetings in January to hear arguments for PET oncology application reimbursement. Other hurdles to overcome are the limited number of sites that produce the radio-pharmaceuticals required for PET and the high cost of the cameras. “I look forward to Gary Wong’s getting his tomograph in the clinical environment,” Dr. Nutt said, “and I would say the super-high resolution he’s got will pave the way for industries such as ours to bring forth commercial versions that will be very valuable in PET, especially in things like breast cancer.”

Dr. Wong is hopeful this will occur soon. “After all,” he said, “a benign biopsy is not a benign experience for the woman.” ●

FOR MORE INFORMATION, contact Dr. Wong at (713) 745-3069.



A three-dimensional image of the same phantom breasts pictured on page 2 shows peaks at the lesion sites proportionate to glucose uptake.

Fatigue

The Multidimensional Side Effect

by Sunni Hoseman and Beth W. Allen

For some people, fatigue means needing rest after exercise or a long day at work. For cancer patients, it means not feeling strong enough to move from room to room and not being able to eat.

Labeled by some as cancer's number one side effect, fatigue is part of the illness of 72%–95% of patients with cancer. Chronic or acute—some describe it as “hitting a wall”—the fatigue experienced by patients with cancer differs from that of healthy people. According to Carmen Escalante, M.D., it is debilitating and depressing, it interferes with normal activities, and it is a barrier to a person's enjoyment of life. The National Cancer Institute describes fatigue's social implications as potentially “profound.”

Fatigue, long discounted, has become more prominent because therapies have become more aggressive and exacerbated it and because health professionals have acknowledged it as a dose-limiting toxicity of therapy and as a quantifiable and treatable side effect. It is emerging as a serious topic of research, which encompasses biochemical, pathophysiologic, psychologic, and behavioral variables.

An internal medicine specialist, Dr. Escalante is one of two physicians at The University of Texas M. D. Anderson Cancer Center heading the newly opened Fatigue Clinic. They, as internal medicine specialists, manage such complications as anemia and comorbid conditions such as diabetes, while, as she says, “the oncologists take



care of the cancer.” Tejpal Grover, M.D., also serves the clinic.

Fatigue is related most often to treatment rather than to cancer, but that does not mean it ends when treatment ends. The tumor's theft of nutrients, a hypermetabolic state related to tumor growth, infection, and disruption of cellular processes also account for fatigue. In many patients, the fatigue persists for months after treatment's conclusion.

“By that time,” says Beth Johnson, R.N., senior research nurse with M. D. Anderson's Pain Research Group and the clinic's nurse, “the sympathy and support patients have had during the active phase of their illness is gone or diminished, and they are expected to be back and functioning. It's much harder for them to keep saying they don't have the energy.”

The study of fatigue was a natural extension of the work of the Pain Research Group and its head, Charles Cleeland, Ph.D., who conducts international pain studies. These researchers designed and validated the Brief Fatigue Inventory, a scale the clinic uses to quantify patients' experience of fatigue. A professor in the Division of Anesthesiology and Critical Care, Dr. Cleeland is part of the team coordinating the clinic's operation.

“We definitely find fatigue problems are worse when pain control is inadequate,” Dr. Escalante says. “In fact, some of our most impressive results to date simply resulted from pain reduction.”

Dr. Cleeland calls the patient's report “the gold standard” in evaluating fatigue and its costs. Using a 0–10 scale, the inventory includes mea-

Labeled by some as cancer's number one side effect, fatigue is part of the illness of 72%–95% of patients with cancer.

asures of fatigue's constancy, duration, time pattern, and effect on normal daily activities and quality of life. The inventory is similar to one Dr. Cleeland previously devised for pain that is now used internationally. Daily phone calls are also used to assess a patient's fatigue and the effectiveness of interventions.

At initial workup, Dr. Escalante's aim is to define the severity of fatigue and determine its relationship to physiologic variables. The assessment includes taking a history, performing a physical examination, and identifying such underlying or comorbid conditions as anemia, metabolic disorders, electrolyte imbalances, and low nutritional status. Of course, low hemoglobin and albumin levels correlate directly with fatigue, and such disease processes as chronic obstructive pulmonary disease can exacerbate it. Because pain, depression, and sleep disorders are intertwined and because all can produce eating dysfunction, these too are measured and their contribution to the patient's exhaustion evaluated.

Clinical Nurse Specialist Deborah Thorpe, Ph.D., R.N., C.S., incorporates evaluation of fatigue in her work in the M. D. Anderson Pain Clinic. "Fatigue is even more prevalent than pain," she said. "It is the number one complaint of patients with cancer." Dr. Thorpe's work encompasses the association between pain intensity, fatigue, and sleep patterns, and she has been collecting data and performing some analyses of fatigue severity in patients seen in the Pain Clinic. She was also part of the team involved in initial planning for the Fatigue Clinic.

She points to a cooperative program between Ortho Biotech, Inc., and the Oncology Nursing Society called FIRE (Fatigue Initiative through Research and Education) as helping spur interest,

Internet Sites Promote Fatigue Awareness

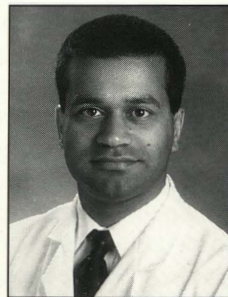
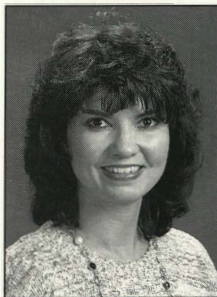
Health professionals can find additional information about cancer-related fatigue on the World Wide Web. Below are two recommended sites:

http://cancernet.nci.nih.gov/clinpdq/supportive/Fatigue_Physician.html

The National Cancer Institute sponsors PDQ, a 1.3 million-record database, which includes this review of fatigue. Part of the Health Professionals Supportive Care and Advocacy Issues section, the report includes the following topics: overview, fatigue factors, assessment, intervention, and posttreatment considerations. Each section includes bibliographical references.

<http://oncolink.upenn.edu/tv/conference/suf/>

The University of Pennsylvania's popular OncoLink site offers video segments from its conference "National Cancer Fatigue Awareness Week: Stand Up to Fatigue." Site visitors can select from presentations by physicians and nurses. Topics include "Anemia: A Reversible Cause of Cancer-related Fatigue," "Link of Nutrition to Cancer Fatigue," and "Exercise to Treat Cancer Fatigue." A link to free software to play the segments is provided.



Carmen Escalante, M.D. Tejpal Grover, M.D.

research, and education in fatigue. The program sponsors meetings and educational sessions for patients and health care professionals and last year established a Fatigue Awareness Week, to be held each April to bring attention to fatigue problems and solutions.

Begun six months ago, the Fatigue Clinic is open two half days per week and draws on members of many disciplines for consultation. It is expected to expand to full-time operation.

Many patients need a nutritionist to help them plan meals that will inspire them to eat when they don't

feel like eating. Although there is evidence that mild exercise, like walking, is helpful in combating not only fatigue but also depression, many patients need some coaching on how to exercise when physical activity seems beyond their ability. Drugs can also help patients manage anemia.

Rehabilitation, occupational, and physical therapists are at times consulted for modifications to routine activities of daily living that help conserve energy. A rolling stool in the kitchen, a seat in the shower, a rolling walker for support, and a person to help with daily chores are solutions that patients with fatigue find useful.

Such nonpharmacologic interventions as relaxation exercises, meditation, and self-hypnosis are also used to help patients to relieve stress and better cope with fatigue, according to Dr. Thorpe. ●

FOR MORE INFORMATION, please contact Beth Johnson at (713) 745-2934.

Community Physicians: Important Partners With M. D. Anderson

At the The University of Texas M. D. Anderson Cancer Center, the Office of Referral Relations, led by codirectors Lewis Foxhall, M.D., and Richard Babaian, M.D., works to strengthen relations between physicians and the institution.

"This program sustains the idea that physicians in the community are important partners with the institution," explains Dr. Foxhall, who is also associate vice president of health policy. "There has always been an intent and an interest in nurturing that relationship."

Important among those efforts are the almost 2,000 office visits four Referral Relations physician relations coordinators make every year. Traveling more than 200 miles east, north, and west of Houston, they provide information about M. D. Anderson programs and seek to answer any questions physicians have about the referral process and interaction with the cancer center. For physicians beyond this radius, the coordinators use phone, fax, and E-mail to provide information and to keep in contact.

Admission for evaluation or treatment of cancer makes hospitalization "more challenging and difficult," said Dr. Foxhall, especially when, for example, a child is admitted. "Stress, anxiety, and emotional and financial problems may be compounded," he said, emphasizing the importance of a good start.

That good start begins at the New Patient Referral Office, which Dr. Babaian serves as medical director. Coordinating this office is Belinda Weatherly, director of patient access services. Working with her in teams are nurses who assist physician-referred and self-referred patients through registration, admitting, and financial clearance and then triage them to the appropriate service. Across the continuum of care, Dr. Babaian says, the aim is to partner with the referring physicians and to ensure they get the information they need, especially if they are

providing outpatient or follow-up care.

Before or during treatment, the physician relations coordinators can provide referral assistance fax forms, financial assistance forms, Texas Medical Center maps, brochures on specific programs and departments, a new patient orientation video, information on M. D. Anderson's patient support group, information on protocols, and many other types of information. Referral Relations staff also assist in resolving complaints, billing questions, and follow-up questions, and such cases are reviewed monthly with the physician-in-chief.

Complementing the liaison function of Referral Relations are ad hoc advisory panels. "With these panels," Dr. Babaian said, "we are trying to improve the process, increase communication between Anderson physicians and community physicians, and get input on our operations that will help us enhance services beginning at the front door." A formal panel, the Executive Advisory Panel, made up of officers from state and local medical organizations, functions as a forum for exchange of ideas regarding health policy.

"We are very proactive in seeking out physicians' opinions," Dr. Babaian said, explaining that the institution is learning how to make itself more "user friendly" from data collected from surveys and referrals.

A second important focus of Referral Relations, according to Dr. Foxhall, is its community-based educational programs. Last year more than 750 medical professionals attended education events organized by Referral Relations and supported by the speakers bureau composed of M. D. Anderson faculty. Local

community hospitals are typical sites for such physician-requested programs.

A single comprehensive educational event held annually is *Primary Care for the 90's*, a seminar series jointly sponsored by M. D. Anderson, The University of Texas Medical School Department of Family Practice, and the Texas Academy of Family Physicians. M. D. Anderson faculty contribute presentations on prevention, diagnosis, and treatment for breast, cervix, colon, lung, prostate, and skin cancer. In recognition of his statewide leadership in launching and broadening the program, Dr. Foxhall last summer received the Texas Academy of Family Physicians' President's Award.

Briefly, other programs supported by the Office of Referral Relations include M. D. Anderson Associates, an organization of former faculty and physicians who trained at the institution, and the Texas Cancer Data Center, which serves as a clearinghouse of cancer-related data, now accessible on the World Wide Web at <http://www.txcancer.org>.

Referral Relations also publishes and distributes a biennial clinical staff directory and regularly supplies exhibits at annual meetings of professional organizations, including the American College of Surgeons, the American Society of Clinical Oncologists, and the Texas Medical Association.

Dr. Foxhall says that there are physicians who, after working with Referral Relations or attending a seminar, get involved by, for example, organizing programs themselves in the community. "It's gratifying," he says, "to see the cycle of partnership continue."

Physicians are encouraged to contact a physician relations coordinator at (713) 792-2200 or (800) 252-0502 for information about referrals or continuing education activities, or to resolve questions before, during, or after a patient's visit. ●



How to Talk With Your Doctor

Few experiences can be as devastating as learning that you have cancer or any other life-threatening disease. At a time when you are likely to feel overwhelmed and vulnerable, you're suddenly faced with obtaining important information from your doctor and understanding complicated medical terms. Here are a few tips to make that often-difficult process easier and help you to get what you need from your doctor.

- **Make a list of all your questions before you see your doctor.**

After writing each question, leave room underneath to write down the answers.

- **Bring a friend or family member with you to your appointments with your physician.**

New patients often are so anxious that they have trouble concentrating. Another person can help you ask questions about treatment and remember important information. Having someone along with whom you feel comfortable will make the visit less stressful.

- **Take notes or have a friend or family member do so during your doctor's appointment.**

Having the information written down will help you remember important details.

- **Consider tape recording discussions with your doctor.**

Recording allows you to replay the information later to make sure you understand it. (Ask the doctor's permission to record first.)

- **If you don't understand something your doctor tells you, keep asking questions until you do.**

No question that is important to you is "too embarrassing" or "too stupid" to ask. "Knowledgeable, active patients are more likely to do well and less likely to get severely depressed than passive

ones," wrote Dr. Harold Glucksburg in *Cancer Care: A Personal Guide*.

"They can," he said, "become active participants in their care and active partners with their physicians, rather than remaining passive consumers."

- **Offer information about yourself.**

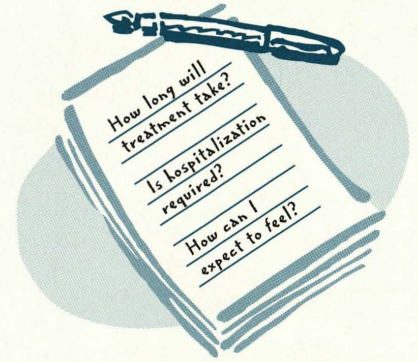
It is helpful for your doctor to know your family's history of cancer and any special stresses or problems you're encountering. Tell your doctor how much you know about cancer and how much you would like to participate in decisions about your treatment. Some patients want to know every detail about their illness; others prefer not to know everything and to leave the decision making to the doctor. Let your doctors and your family know how much information you want.

- **If you have an important question you want to discuss at length, let your physician know in advance so an appointment—either in person or on the phone—can be scheduled.**

It might also be a good idea to give the doctor's nurse a list of questions in advance so the doctor can consider them before talking to you.

- **Don't ask your doctor "leading" questions, which can result in incomplete or inaccurate answers.**

The National Coalition for Cancer Survivorship's publication "Team-




work: The Cancer Patient's Guide to Talking With Your Doctor" defines a leading question as one which is asked in a way that signals the answer you're hoping for. It suggests that instead of saying, for instance, "I'm going to be all right, aren't I?" you instead ask, "What do you think my prognosis is?" Instead of asking, "Have you done a lot of these operations?" ask "How many of these operations have you done in the last year?"

- **Investigate other methods of communicating with your doctor.**

In a recent issue of *Annals of Internal Medicine*, Drs. Kenneth Mandl, Isaac Kohane, and Allan Brandt wrote that E-mail could be an ideal means for doctors to answer patients' questions and relay simple advice. If this method would be good for you, see if your doctor is open to communicating with you in this way.

For more information, contact your physician or contact the M. D. Anderson Information Line:

 **(800) 392-1611** within the United States, or

 **(713) 792-6161** outside the United States.

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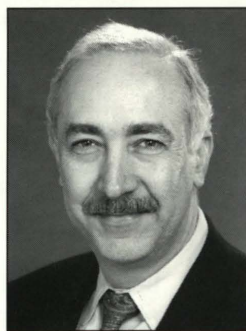
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Liaison Program Strives to Enhance Access

Lewis Foxhall, M.D.
Associate Vice President for Health Policy

M. D. Anderson has long had a tradition of extending a hand to community physicians. Nurtured under Drs. Joseph Painter and Joseph Ainsworth, Referral Relations, the multifaceted program that I



codirect, functions as a liaison between the institution and referring physicians.

The liaison program was created to provide ready access to M. D. Anderson and to its operations. Physicians who refer patients here know the care will be provided by a competent and well-trained faculty. They can consult Referral Relations' *Guide for Referring Physicians* to identify the clinical expertise of the physicians, to find clinical protocols, or to learn more about the multidisciplinary treatment planning approach M. D. Anderson practices.

Carrying that message to the field are representatives from the Office of Referral Relations who meet face-to-face with more than 2,000 physicians annually in their offices—not ours—to better understand their interests and concerns and to communicate ways M. D. Anderson can serve them and their patients. This introduction often grows into an association that helps physicians find appropriate, compassionate care for

their patients that while world-class in stature is individualized in nature.

But this is not a one-way street. In the past, specific barriers to the referral process have been identified through the work of advisory panels composed of community physicians and leaders of local and statewide medical organizations who made proposals to which M. D. Anderson responded. In fact, much of the Referral Relations program is a response to physicians' concerns.

That includes one top interest of community physicians: continuing medical education (CME). Because of the demands of ever-changing cancer care, M. D. Anderson strives to share its expertise through challenging presentations to the state's medical professionals. To make these opportunities more efficient, M. D. Anderson arranges off-site conferences, integrates its oncology curriculum within seminars of more general scope, and develops Internet-based learning.

What these programs demonstrate is that M. D. Anderson understands that what community physicians demand of it is not too different from what patients demand of community physicians—accessibility and competence. What good is one without the other? The two must be joined, and at M. D. Anderson, we're working every day to enhance both.

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