



# Duke University Medical Center Intercom

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## Computations could predict cancer cures

By William Erwin

A physician at the Comprehensive Cancer Center has come up with a mathematical way to predict when some cancer patients will be cured.

Dr. Edwin B. Cox has proven his method thus far with multiple myeloma, a cancer of the bone marrow. Animal studies done elsewhere suggest that the formulas Cox uses should work for many other types of human cancer as well.

Cox is an associate in the Department

of Medicine as well as a Comprehensive Cancer Center faculty member. He reported on his work Thursday afternoon at a meeting of the American Association for Cancer Research in Washington, D.C.

### Optimal number of treatments

Prior to the meeting, the researcher said that his method could spare certain patients on anticancer drugs from getting too few treatments or too many.

Too few treatments would allow a patient's cancer to return; too many

treatments would prolong unpleasant side effects after the person had been cured.

Equally important, Cox said, the math formulas could allow doctors to judge very soon after treatment begins whether the therapy they have chosen will cure the patient. If it will not, they could choose another type of treatment without delay.

### Life insurance formulas

Cox starts with formulas first used in the early 1800's by life insurance companies.

With these formulas, he estimates the number of cancer cells in a patient's body. Then applying some complicated algebra of his own, he figures the percentage of cancer cells killed with each treatment.

Projecting ahead, the physician explained, "We can determine from these formulas whether a given dose of chemotherapy (drugs) repeated over time will cure the patient. This gives us a way of determining how long it will take to kill the last cancer cell."

### Fine tuning

Tests will begin soon to prove the method with two more types of human cancer — breast cancer and medullary cancer of the thyroid.

Cox said he wants to help fine tune the treatment of breast cancer with drugs.

"When chemotherapy is given after surgery for breast cancer," he said, "the duration of treatment has been picked out of the air — six months or a year or whatever we think the patient can tolerate. We may find from the formulas that one patient needs three months of

chemotherapy while another needs three years."

### Shouldn't give up hope

What if the method shows that a patient can never be completely cured? The patient and his doctor shouldn't give up hope, Cox said.

"We've found that a myeloma patient can have as many as 10 billion cancer cells in his body and not have any signs of the disease. The patient can be perfectly healthy, but the remaining cells hiding in the cracks will continue to divide," he said.

This means simply that patients and their doctors should watch for any new cancer signs that appear, so treatment can begin again. Cox's formulas could even predict when treatment should resume to keep the number of cancer cells manageable.

### Cancer growth predictable

The method works, the physician said, because certain cancers grow in a predictable way.

Soon after the disease begins, cancer cells divide very quickly. But later, the accumulated cells divide more slowly and may slow down so much that they actually divide less often than their normal counterparts.

The disease can still kill at that point, nonetheless. The patient would then have billions of cancer cells. If these cells have piled up into a tumor, they can cut off the blood flow to a vital organ. They can damage an organ by robbing it of nutrients. The tumor can also break

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**MOVIE DIRECTOR ON LOCATION**—The Department of Surgery cooperated with the Central Motion Picture Corp. of Taiwan during filming of "The Eternal Love" here last summer by making an operating room available one Saturday night. Here Director David Ting instructs the patient (out of the picture) prior to a filming sequence. (Photo by David Williamson)

## Lights, camera, action...Duke

## Local 'stars' in movie premiere

By Joe Sigler

Attention all you stars of the Chinese movie that was shot here last summer.

If your scenes didn't end up on the cutting room floor, you'll be able to see yourself in living color on the screen in Page Auditorium at 8 o'clock next Thursday night (April 13).

And your family and friends will be able to see you too, as long as the tickets last.

There will be no admission charge, but admission will be by ticket.

Arrangements for obtaining tickets may be made by contacting the Office of Public Relations, 219 Bell Building, or by calling the office at 684-4148.

Page Auditorium, the entrance to which is just to the left of Duke Chapel on the main campus, seats 1,507 people, and arrangements for tickets will be made on a first-come, first-served basis.

### Expression of appreciation

The movie, called "The Eternal Love," will be presented through the generosity of the Central Motion Picture Corp. of Taiwan. The director of the film, David

Ting, and its producer, George Chang, are bringing a copy of the Cinemascope film here especially to be shown to the Duke and Durham community as an expression of appreciation for the cooperation received here during its filming last summer.

Director Ting is the winner of three Asian Film Festival awards, for best director in 1974, for best director and screenplay in 1975 and for director of the best film in 1976. In addition to directing, he also wrote the screenplay for "The Eternal Love."

The movie is based on the true life of Fred Chan, a young man from Hong Kong who was a student at N.C. State University in Raleigh when he was diagnosed at Duke in April of 1970 as having cancer of the thymus gland.

### Young man's determination

Despite his illness, he continued his studies in engineering. He earned his bachelor's degree in 1972 and entered graduate school.

From the time of his first diagnosis at

Duke, and while continuing his work at State, Chan underwent surgery, radiation therapy and other forms of treatment for cancer during four more admissions to Duke Hospital.

On Feb. 8, 1974, Fred Chan entered Duke for the last time. He died the next day.

Chan's father, a Hong Kong newspaperman, wrote a book about his son, telling not only of his struggle with cancer but also of the young man's determination to continue his studies and of the support and encouragement he received from his family, his friends in Raleigh and the people who cared for him at Duke.

### On location

After reading the book, Director Ting gained the support of Producer Chang to come on location to film the picture. In addition to Durham and Raleigh, other on-location filming was done in Boston and Los Angeles.

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**KNOWING HE HAS CANCER**, Fred Chan (portrayed here by Louis Castro, a television singing star in Hong Kong) seeks out the quiet of Duke University Chapel. (Photo by John Becton)