THE
VOICE

Devotion to Data

DR. CHARLOTTE FERENCZ FINDS CLUES IN GIANT JIGSAW PUZZLE

Dr. Charlotte Ferencz, professor in the departments of epidemiology and preventive medicine, and pediatrics, heads for her native Hungary (she was born in Budapest) next fall, having received a Fogarty International Fellowship to participate in the U.S.-Hungary Individual Health Scientist Exchange Program. This award falls on the heels of another notable achievement, the receipt of a National Heart, Lung, Blood Institute MERIT (Method to Extend Research In Time) award, which provides 10 years of continuous National Institutes of Health support for her long-standing research into etiologic risk factors in congenital heart disease.

What turned into the largest data collection of its kind began in 1978 when Ferencz was working with Johns Hopkins Medical Institutions researchers on the relationship of maternal hormone therapy to congenital malformations of the heart.

This effort was extended by collaboration with the Washington pediatric cardiology centers and led to what has become known as the Baltimore Washington Infant Study. In the study, data on all births in Maryland, Washington, D.C. and the Virginia suburbs are collected from the 52 hospitals with obstetrics departments. This amounts to data on 90,000 annual births. The data collection began in 1981 and the new award will take it to 1990.

This regional case-control study of congenital cardiovascular malformations—the only one of its kind—searches for all live-born infants in the community in whom the cardiac diagnosis has been confirmed by echocardiography, cardiac catheterization, surgery or autopsy. Their families are studied in comparison to those of a representative sample of resident live-born infants.

When Ferencz and fellow researchers began their inquiry more than eight years ago, they did not expect the epidemiological study to unearth the wealth of information it has to date or to be used by so many disciplines. But bit by bit, the data revealed patterns. Immediately, the data revealed differences between cases and controls. For example, clotting disorders such as hemophilia were readily apparent. This showed that more biological studies were needed. So Ferencz sparked an alliance with genetics, working with Dr. Joann Boughman, associate professor of obstetrics and gynecology.

"All kinds of genetic disorders are showing up," says Ferencz. There are 400 to 500 cases of congenital heart disease annually, with

Rick Lippenholz

Dr. Charlotte Ferencz, center, and two students look over reams of data to be analyzed.

500 control cases selected by computer program. From the first six years of data entry, they now have 2,300 cases and 2,500 controls and are analyzing the data.

"A tremendous amount of biological information," is how Ferencz explains the data collected. Possible clues to genetic disorders and a true interdisciplinary approach have been two outcomes to date. Today, embryologists are now involved, including those in the new fields of mathematical genetics and embryology.

Three cardiologists evaluate the diagnosis: Dr. Joel Brenner, chief of pediatric cardiology at UMMS, Dr. Catherine Neil of Johns Hopkins Hospital and Dr. Lowell Perry of Children's Hospital National Medical Center in Washington. Drs. David Wilson and Judith D. Rubin, fellow faculty in the department of epidemiology and preventive medicine, offer additional insight.

The data collected has yielded invaluable information on the high frequency of Down syndrome and congenital heart disease. The researchers have been able to observe very unusual family combinations which provide new genetic theories, says Ferencz.

This is the most extensive data base on case and control infants ever collected. Ferencz notes the similarity in the scope of information to that of MRFIT, the 10-year data study of men considered at risk for heart disease, also conducted by the department of epidemiology and preventive medicine. That study, now concluded, continues to yield valuable medical information, much of which was never considered at the outset of the study.

As a follow-up to the initial study, Ferencz and Drs. Spencer F. Johnson and Robert J. McCarter, studied 1,336 mothers of infants selected as controls in the BWIS study with respect to alcohol, cigarette, and recreational drug use prior and during pregnancy. This sociodemographic profile suggests subgroups which must be targeted for intervention by prenatal care providers, as well as intervention strategies.

Results of the study appeared in the *American Journal of Epidemiology* last year.

Ferencz is particularly pleased to have a chance to study with researchers in her homeland, thanks to the Fogarty award, since Hungary has an excellent birth defects registry which includes cardiac malformations. She will work with researchers at the National Institute of Hygiene for two months next fall, providing an additional use for the BWIS data. "I am personally committed to making the most of the data," says Ferencz.

"My role is to promote international and interdisciplinary collaboration to spin off new designs," says Ferencz. She also emphasizes the need to encourage the involvement of young investigators to carry on the effort.

Analyzing the data is like solving a giant jigsaw puzzle. Without other disciplines involved, the task would not be possible sums up Ferencz.

Dianne Burch

Fogarty Fellows Find a Place at UMAB

Two young scientists from abroad are studying this year in the School of Medicine, thanks to the International Research Fellowship Program of the John E. Fogarty International Center for Advanced Study in the Health Sciences. The fellowships promote collaborative relationships between established American biomedical scientists and superior young foreign scientists who desire postdoctoral training in the United States.

Dr. Carmele Speciale of Italy came to campus last November to

science program of the Maryland Psychiatric Research Center. Her work focuses on pathogenic factors in epilepsy, particularly with the examination of the function and dysfunction of quinolinic acid in the brain.

Dr. Cao Chengjing of the People's Republic of China is the School of Medicine's second Fogarty fellow. An instructor in the School of Public Health at Beijing Medical University in China, she is working this year in the laboratory of Dr. Adil E. Shamoo, professor of biological chemistry. Chengjing's research

A Sneaky Feat

Whether they're Nike's, Tretorns, Pumas or Reeboks, your comfortable, rubber-soled friends are invited to spend a day at UMAB. In honor of UMAB's second annual 8K Run for Kids, Dr. Edward N. Brandt, UMAB's chancellor, and Dr. Morton I. Rapoport, president and CEO of UMMS, have declared Friday, March 25 "Sneaker Day." All UMAB and UMMS employees are encouraged to wear their favorite running shoes that day to show their support for the kids of the Children's Cancer Center who are the recipients of the race's proceeds.

And as long as you've got your tennies on, why not join Drs. Brandt and Rapoport, at noon on the 25th, in a brisk walk about campus. Last year's walk brought an enthusiastic crowd of 75 from UMAB, UMMS and CentraBank (one of the co-sponsors of the race). Once again, the walk will begin in front of CentraBank, at 502 W. Fayette St., and travel around the campus, ending at Davidge Hall. Anyone can participate. It's a great way to be a sport and show your support.

8K RUN