Message from the Dean & CEO

Three from the Heart

THIS ISSUE OF NYU PHYSICIAN explores the treatment of heart disease—one of our Medical Center's strategic priorities for the next decade—from three different angles:

- The genetic study of the inherited heart rhythm disorders that put patients at risk for sudden cardiac death—an approach that has not only diagnostic and prognostic power, but also the capacity to inform treatment decisions
- Catheter ablation to treat atrial fibrillation—a fast-evolving line of attack that helps patients avoid both the serious conditions that can ensue from arrhythmias (e.g., stroke), and the regimens of often-toxic arrhythmic drugs and blood thinners that so frequently prove unable to control the fibrillation in the longer term
- The Heart Failure Program, with its hands-on approach to patient monitoring and education and its search for new solutions to stopping the erosion of the heart's ability to pump sufficient amounts of blood

These three stellar programs share some defining themes of world-class patient care. All apply, and continue to perfect, the latest advances. All have laserlike focus on the patient's quality of life. And all exhibit a ceaseless quest for prevention—both of the conditions themselves and of their consequences.

The programs also illustrate a wider point about the essence of academic medicine: here are doctors whose fierce dedication to their patients not only helps those fortunate enough to be directly in their care, but also expands hope for millions of others across the country and the world. •

DEAN & CEO ROBERT I. GROSSMAN, M.D.

Life Saver

Q & A with Richard Cash, M.D.

IN THE SPRING OF 1968, a team of medical workers in East Pakistan successfully treated critically ill adult cholera patients with an oral solution of salts, water, and sugar, demonstrating for the first time that intravenous fluids were not necessary to save patients with life-threatening diarrheal disease. Since then, oral rehydration therapy, as it became known, is estimated to have saved 50 million lives.

A key member of that team was then 26-year-old Richard Cash, M.D. ('66), now director, Program on Ethical Issues in Global Health Research, Harvard School of Public Health, where he has been a faculty member since 1977. He earned an M.P.H. at Johns Hopkins University in 1973.

Since the worldwide adoption of oral therapy in 1978, the mortality rate for children under five suffering from acute diarrhea fell from 4.5 million deaths annually in 1979 to 1.6 million deaths in 2002, according to the World Health Organization. Lack of treatment continues to exact a high toll on children in developing countries.

For their work, Dr. Cash and colleagues Drs. David Nalin and Dilip Mahalanabis were awarded the 2006 Prince Mahidol Award, the "Nobel Prize" in Public Health. Previous winners include Margaret Chan, the current WHO director-general, and famed epidemiologists Sir Richard Doll and Sir Richard Peto.

Since November, Cash has been traveling in India and Bangladesh, where he is a visiting professor at the James P. Grant School of Public Health at BRAC University in Dhaka, and a member of its international advisory board. We reached him by phone in the seaport city of Kochi on the southwest coast of India, where he was leading a group of students from the Harvard School of Public Health.

Q: *In the late 1960s, how did you find yourself in East Pakistan, now Bangladesh?*

A: After an internship in surgery at Bellevue Hospital, I joined the U.S. Public Health Service and was assigned to the Cholera Research Lab in Bangladesh, where I fulfilled my military service. At that time, diarrheal disease was the number one killer of children in the world, so there was a great interest in developing an alternative to intravenous fluids, which were available in

PHOTOGRAPH: JOANNE SAVIO

hospitals but not in the rural areas.

Few doctors thought oral therapy could work in cholera, the most dramatic of all the diarrheal diseases. Instead, most thought that if they stopped the oral fluids going in, they'd stop the diarrhea at the other end. That's true, but a severely dehydrated child may die.

Our trial showed that oral therapy worked and, if given early in the course of illness, could eliminate the need for most or all IV fluids. Instead of giving oral therapy ad lib, as had been tried before, our system was to measure what patients lost and then replace that using a formula based on the known electrolyte composition of stool. From physiologic studies, we thought it would work in patients, but we were still pleasantly surprised when we saw just how effective it was. The next challenges were to see if it worked in children, in non-cholera diarrhea, away from the hospital in field situations, and ultimately in the home. It did in every situation.

Q: *How did oral therapy gain worldwide momentum?*

A: A number of forces came together that made its use widespread, especially the efforts of WHO and UNICEF and their joint declaration of "health for all" at the 1978 International Conference on Primary Health Care (in what is now Kazakhstan).

Early on, we got great advice from Alexander Langmuir, who founded and directed the CDC's Epidemic Intelligence Service. He said, "You guys have got to get this in lots of different places." So we published our findings in seven or eight journals and presented at many medical meetings.

People became advocates because it was low cost, effective, and could be used by nonprofessionals. Eventually, the nongovernmental organization BRAC (Bangladesh Rural Advancement Committee) literally put the formula in the hands of 13 million mothers: "a pinch of salt and a scoop (four fingers) of sugar in a half-liter of clean drinking water."

Q: *Did your 1968 article in* The Lancet *on the first successful trial of oral therapy attract attention in the United States when it came out?*

A: Very little, because IV therapy was widely available in the United States. A hundred years ago, however, the infant mortality rate from diarrhea in the U.S. was like that of many developing countries today.

Q: *Where did your career take you after Bangladesh?*

A: During my residency in internal medicine and infectious diseases at the University of Maryland in Baltimore, I was asked to join a Johns Hopkins study on the White Mountain Apache Reservation in Whiteriver, Ariz. Over two summers there, we demonstrated that oral therapy restored fluids and electrolyte balance in all causes of diarrhea.

When I came back to the States, I had been struck by the enormous disparity in resources between the U.S. and the developing world, especially Africa and South Asia. Working on the reservation reinforced ideas that I had carried back with me from Bangladesh, that the health status of the individual and society was very much related to poverty, education, living conditions, job security, and many other things. Focusing on the disease without understanding the context was going to limit our ability to correct the situation.

Dr. Cash (second from left) on a recent visit to Bangladesh

Q: *For the last dozen years you've focused on ethical issues in international health research. What are some of the most important?*

A: Informed consent is one. I really don't like the term because it implies a passive process of informing. I'm informing you now, but that doesn't indicate whether you understand what I'm saying. I'd prefer to use the term "understood consent," which to me is a more active process. Let's say I'm testing an AIDS vaccine. I'd want to be certain—either through oral or written responses to questions—that people understand that it might not protect them against infection and that they must still protect themselves.

Another important issue concerns the efforts of some Western countries to control disease in the developing world without paying attention to the social, economic, and political consequences. The recent alarm over avian flu comes to mind. We want rural farmers to kill their chickens if there is a suspected outbreak of avian flu, yet we are unwilling to compensate them for this economic loss. Is this fair or ethical? Is it even scientifically correct? If we inappropriately ban exports, countries may not report disease at all. If we are to control global epidemics, we've got to be aware of these issues. ● — *AUBIN TYLER*

Richard Cash, M.D., (right) in Bangladesh in the late 1960s