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# CHARLOTTE NEUMANN: Pediatrician Provides Food for Thought

In choosing where to devote her energies after her medical, pediatric and public health training, Dr. Charlotte Neumann was motivated by a desire to make a maximum impact. And for a pediatrician looking to have the most effect, the choice was clear.

“If you want to make a difference in the lives of large numbers of children in the developing world, you have to deal with malnutrition,” she says. “It affects everything – diet quality and quantity, physical growth, mental development and learning, infection risk, and mortality. Malnutrition is the basis for more than half of all the deaths of children in developing countries – and it is almost completely preventable.”

Neumann has spent more than three decades addressing the problems of under-nutrition among children in developing nations – specifically the lack of energy and insufficient level of micronutrients (vitamins and minerals essential in small quantities for normal growth) in the diet. Much of her work has been in India and West and East Africa, where poverty, poor infrastructure, HIV/AIDS, droughts and military strife have only compounded an already bleak situation. “We have serious problems in the United States, but the most severe health problems in developing countries are light years away from the worst problems here,” she says.

Neumann was introduced to these concerns shortly after she completed her training. While at Harvard’s School of Public Health, she and her husband, Alfred K. Neumann – who was also interested in international health – were approached by a prominent nutritionist, Jean Mayer. A leading expert on hunger who would later serve as president of Tufts University, Mayer had a new training grant to bring researchers to developing countries. He invited the Neumanns to spend a summer in Ghana. “We went with our one-year-old son and were overwhelmed with the nutrition and infection problems of mothers and children we encountered,” Charlotte Neumann says. “From that point, we were hooked and determined to work in developing countries.”

Their early research was in rural India. In 1969, when Alfred Neumann was recruited to join the faculty of the UCLA School of Public Health (where he is currently professor emeritus), Charlotte joined the UCLA Department of Pediatrics. In 1975 she also became part of the School of Public Health faculty, lured back to

her work in international health and nutrition by the arrival of the late Dr. Derek Jelliffe. “Dr. Jelliffe was the hero of all in international nutrition and health – he played a pivotal role in bringing pediatrics to Africa – and I always said that if he ever showed up, I was going to work with him,” Neumann recalls. In addition to co-teaching courses and developing curricula with Jelliffe, Neumann began to move her studies to Ghana and then Kenya, where she has been conducting seminal research since the late 1970s.

In collaboration with researchers at the University of Nairobi and Kenyan government agencies, Neumann carried out studies on infection, immune function and immunization response in newborns born malnourished. Ultimately, Neumann and her colleagues conducted a randomized controlled school-feeding intervention study in which they found that a high proportion of schoolchildren were lacking in the vitamins, minerals, and energy they needed for adequate functioning, learning and growth. They proceeded with a randomized controlled study of more than 9,000 schoolchildren in rural Kenya in which they confirmed that adding a small amount of meat to the diet dramatically increased the children’s school performance, physical activity, muscle mass and ability to ward off infection. (Populations in rural Africa consume little or no animal food due to poverty and inaccessibility.)

Any large-scale effort to enhance nutrition in a developing country such as Kenya has to consider the economic realities. “Many of the people we’re trying to reach are subsistence farmers who can’t purchase much, but rather are dependent on their abilities to raise food to be eaten by the family and sold for money,” Neumann says. While it would be costly to try to add beef to their diet, Neumann believes a feasible approach would be for households to raise small animals such as rabbits and chickens as food sources, along with fish from the lakes. So far, though, she and her colleagues in Kenya have had difficulty persuading officials to take action. “It’s been a slow process and frustrating, particularly given the striking differences in children’s cognitive performance and growth with what could be a relatively inexpensive addition to their diets,” Neumann says.

In Los Angeles, Neumann has often looked at the other end of the spectrum, studying over-nutrition and obesity in children. In the early 1990s, after the *Los Angeles Times* ran a series of articles about local children who were going to school malnourished, Neumann decided to investigate the nutrition-related problems in UCLA’s backyard. Sure enough, she found that 11% of the children in the Los Angeles Unified School District schools studied were

malnourished – and that approximately half of the children surveyed were overweight or obese. So Neumann, working closely with faculty colleagues Dr. Wendelin Slusser and Dr. Michael Prelip and staff research associate Dr. Stephanie Vecchiarelli, began a series of projects aiming to improve the nutrition environment in schools.

Their Nutrition-Friendly Schools and Communities concept has been testing the impact of eliminating junk food, adding salad bars, promoting physical activity and integrating nutrition into the classroom curriculum at eight low-income elementary schools in Hollywood and East Los Angeles. Neumann initially obtained a grant and played a leading role in UCLA’s evaluation of the educational programs and activities established through the California Nutrition Network, a state initiative funded by the U.S. Department of Agriculture. “I have thoroughly enjoyed working in the schools in Los Angeles to try to turn around this obesity epidemic,” Neumann says. “I think we have called attention to some very important problems.”

Neumann has also been actively involved with the Venice Family Clinic since the early 1970s, when she helped to obtain a grant to introduce pediatric care at the then-nascent facility, which is now the largest free clinic in the nation. As a volunteer pediatrician she sees patients at the clinic, albeit less than in past years because of a heavy travel schedule.

She and her husband, along with their friend, philanthropist and School of Public Health Dean’s Advisory Board member Robert Drabkin, have given back in another important way. Each year, the Neumann-Drabkin fellowship program sends UCLA School of Public Health students to developing countries for their first overseas field internships. “A lot of students say they are interested in going into international health, but unless they get that first experience, they can’t really know what it’s like and it can be just a pipe dream,” Neumann says. “This has been a great way for these students to get some real experience working in a developing country to see if that’s what they want to do. Quite a few have stayed in international health, and some have ended up in the agencies where they interned.”

In addition to these students, Neumann has trained a number of students who come to the school from developing countries and then return home to assume leadership positions. “There’s more interest in global health at our school than ever before,” she says. “In our research and training we’re adding to a body of knowledge and helping to build infrastructure. Eventually I think we’ll be able to look back and say that has made a difference.”

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