

Shortening the research lag

Children's research centers push the use of newly discovered techniques into hospitals

by Faye Marley

An 11-year-old Negro boy was brought to the Columbus, Ohio, Children's Hospital bleeding from an ulcer in his small intestines. He already had had two feet of his intestines removed; further surgery could not be performed because his entire small bowel had become affected.

Dr. Juan F. Sotos, director of the center, says the boy had been receiving transfusions to stay alive.

"We gave him a milk-free diet and medication with azulfidine," Dr. Sotos explains, "and he no longer needs transfusions and is on the road to health."

The case is an example of the way death and disability in children are being avoided in 28 centers in the United States where recent research is being applied to conditions that have escaped the harried family doctor. This General Clinical Research Centers program was initiated by the National Institutes of Health in 1959.

Its goal is to provide centers where physicians and scientists can "define and attempt to conquer," in the words of an NIH program statement, the great unsolved problems of human disease. The lag time between discovery and application has been shortened so that basic science can be translated into treatment tools. In the current year \$30.5 million in funds from the Division of Research Facilities and Resources supports 91 centers, including those for adults.

The Columbus center covers neighboring states, including West Virginia, Kentucky and Indiana, but accepts patients from farther away when they are recommended by their physicians.

A number of children have been brought to the center from as far away as Texas and Florida, with a hoarse condition of the larynx caused by papillomas or wart-like tumors. "We are using ultrasound instead of surgery because surgery has resulted in regrowth of the benign tumors," says Dr. Sotos. "The previous treatment has been so poor that we are encouraged over our ultrasonic approach although the study is not completed."

Children only one or two months of age, who would have died from malabsorption of food, have become normal

through elimination of glucose, gluten and milk in their diets. Allergy to these substances was discovered through patch tests, and the children are now thriving.

A similar center at Johns Hopkins University in Baltimore reports one life-saving diet in the case of a 17-year-old boy whose two brothers have died of chronic nephritis, a kidney inflammation, from which he also has suffered. Dr. Sidney Levin's answer to the problem, which formerly involved biweekly dialysis and constant hospitalization, has been a powdered form of whey, mixed with safflower oil and dextralmaltose to make a beverage like a milkshake. It can be flavored and served as a frozen custard.

Fluid intake is restricted to 900 cubic centimeters daily so that urine output is limited to 20 cc's per week. With this low-protein, low-salt regimen, the boy returns to the hospital for bi-weekly checkups and for monthly dialysis. Without this he would be hospitalized or dead.

Three other children at the Hopkins facility who are victims of polycystic kidneys, cystinosis and chronic glomerulonephritis, are also thriving on the regimen that combines a special diet with monthly dialysis. They, too, have hopes of returning home to lead productive lives.

At the recently opened center at Children's Hospital, Washington, D.C., a procedure perfected some years ago at Johns Hopkins is being put into use with later improvements. Mike Nicholson, a blue baby who had undergone open-heart surgery only a week previously, gained six ounces overnight and his growth following the operation was expected to continue.

Another patient was Laura Eddy, a four-year-old who was receiving treatment for a fungus growth on her face and arms.

At the ceremony dedicating the Washington center, Dr. Alfred Bongiovanni, president of the Children's Hospital of Philadelphia, spoke on his treatment of a rare hereditary disease called hypophosphatasia. By giving his patients a high intake of the enzyme phosphatase he was able to improve

poor bone calcification, which had been caused by low phosphatase concentrations in the blood, bone and other organs, producing a skeletal abnormality resembling rickets.

Some units specialize in the problems of the newborn child. The Dana Perinatal Center at Yale University in New Haven, Conn., which includes five beds and several laboratories funded by the NIH General Clinical Research Centers program, has reduced deaths from 25 per 1,000 live births, the current U.S. rate, to 11 per 1,000 live births, less than half the national average.

The U.S. has a higher infant mortality rate than 17 other countries.

One simple innovation developed at the Yale-New Haven Community Hospital, which could be used anywhere at very little cost, deals with the basic problem of cross infection. It is well known that infants have suffered from numerous staphylococcal infections in hospitals. Center research has proved that staph infections are not primarily airborne. When the babies are protected by antiseptic bathing with hexachlorophene, the danger of cross infection is almost nonexistent. This precaution at Yale has made possible the care and discharge of 35,000 consecutive infants without a single staph infection.

The sudden stopping of a baby's breathing—a not-uncommon problem—can be detected by a monitor, used at the Dana center, which was first developed by Dr. William J. Daily and associates at the Clinical Research Center for Premature Infants at Palo Alto-Stanford Hospital, Palo Alto, Calif. Apnea, which means the sudden cessation of breathing, occurs in approximately 30 percent of all infants weighing less than five and one-half pounds.

This monitor incorporates a warning alarm system based on fluctuations in electric current between electrodes attached to the infant's chest. If he stops breathing, the variations in electric current stop. An alarm is set off 20 seconds later to alert the nursing staff. It is only necessary for a nurse to tickle the baby or in some other gentle way remind him that he should go on breathing.

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