



DR. GEORGE H. MCCRACKEN, JR.

**Recipient of the 2004
Maxwell Finland Award for
Scientific Achievement**

It is a popular view that the successful control of many infectious diseases is due to the development of antibiotics. Certainly antimicrobial agents played and still play a major, if not essential, role. But without careful studies into their use, showing when and where a particular agent is effective, the mere elimination of pathogens by inappropriate treatment is unlikely to be clinically successful and, indeed, may result in adverse effects.

In this respect, by his evaluation of the appropriate use of antibiotics in pediatric patients, George H. McCracken, Jr., M.D., this year's recipient of the Maxwell Finland Award for Scientific Achievement, broke important new ground. Dr. McCracken is professor of Pediatrics and the Sarah M. and Charles E. Seay chair in Pediatric Infectious Diseases at the University of Texas Southwestern Medical School in Dallas.

Dr. McCracken's award is especially appropriate since, in many ways, he followed in the footsteps of Dr. Finland himself, who demonstrated the proper use of antibiotics for their effectiveness against pneumonia, meningitis, and other infectious diseases.

But where Dr. Finland's studies were done in adults, Dr. McCracken's studies on the safety and efficacy of antimicrobial therapy were performed in infants and young children. Prior to his work there were very few studies of the pharmacokinetics of therapeutic agents in children, particularly in newborn and young infants.

Although Dr. McCracken has contributed so much to improving pediatric infectious disease, this was not his initial professional goal. When he was at Cornell University



Medical
College in New

York, one of his teachers was Dr. Henry Shinefield, now co-director of the Kaiser Permanente Vaccine Study Center in Oakland, California. "A wonderful friend," says Dr. McCracken. "He gave me lab space and, as a student and then a house officer, steered me away from going into internal medicine, which was my original intention, and encouraged me to go into pediatrics."

Dr. McCracken received his M.D. from Cornell in 1962 and after an internship in medicine and a residency in pediatrics, he went to Southwestern Medical School and Children's Medical Center in Dallas.

"When I started at Southwestern in 1965 it immediately became apparent to me that there was very little information on the pharmacokinetics of antibiotics in infants and young children, particularly newborn infants. Indeed, for all practical purposes when it came to the use of drugs in the early years of life there was nothing," Dr. McCracken re-



calls. “What there was, was based on arm-chair reasoning, such as extrapolation of dosing from adults: ‘Since infants are half the size of adults, the dose is reduced accordingly.’ Of course this was totally inaccurate. To use the current popular phrase, infants and children were considered therapeutic orphans.”

Dr. McCracken tackled the problem by defining the uses and doses of antibiotics in many pediatric infections, including bacterial meningitis. In meningitis he demonstrated that corticosteroid therapy reduced the incidence of hearing loss, the most frequent complication of this disease in infants and young children. “Using animal models we showed first how the antibiotics should be used, what the appropriate dosage should be and formulated the proper dosage that should be tested in children. For meningitis we showed that steroids, if

given at the proper time relative to antibiotic therapy, significantly reduced long-term sequelae, such as hearing abnormalities,” he said.

He admits it took a lot of convincing. “At first, people were very skeptical of our data on steroid therapy in meningitis. We had to do a number of studies both in animals and humans to establish firmly its effectiveness.”

“His studies have had an enormous impact on the therapy of meningitis and many other infectious diseases in both children and adults,” commented Dr. William Craig, Professor of Medicine at the University of Wisconsin. “There are a lot of kids out there who might have lost some or part of their hearing if George and his colleagues had not done the appropriate studies,” adds Dr. Jerome O. Klein, Professor of Pediatrics, Boston University School of Medicine.

Not only did Dr. McCracken shed new insights on the proper use of antibiotics in the young, but in doing so, his work has illustrated the importance of evaluating the clinical pharmacology of antibiotics in this age group. “There’s no financial incentive for many of these drugs to be studied in infants and children because the total amount used in children is small compared with that used in adults. Most of these drugs are not big money makers except for a few commonly used agents. So pharmaceutical manufacturers may not perform complete evaluations of all drugs in infants and children. The recently approved Pediatric Rule legislation will ensure that these studies are performed.”

“I recently received a grant from NIH to continue these studies in infants and children. To date I think we have studied more than 30 different antibiotics that are now com-

monly used in infants in children, and evaluated how they should be administered and in what dosage,” he adds.

Besides studies into the optimal therapies of neonatal infections, Dr. McCracken runs a training program at Southwestern that is making a major contribution to the training of future leaders in infectious diseases. “We have trained more than 80 pediatric infectious disease specialists, the majority of whom have remained active in teaching and research positions worldwide.” In addition, he has personally raised more than \$3.5 million to support 43 pediatric infectious disease fellowship awards under the auspices of the Pediatric Infectious Diseases Society.

In 1982, in association with Dr. John Nelson, also of Southwestern, Dr. McCracken started the Pediatric Infectious Disease Journal. Starting the Journal was a pioneering step. “At the time there was nothing like it,” notes Dr. McCracken. “We started it on our own and on a shoe-string budget. There was no societal support.” He remembers that when the Journal was started, it faced a great deal of opposition. “We had a lot of disgruntled editors of other journals telling us that by starting our journal we would be stealing from them and that another journal wasn’t necessary. We have been fortunate that it has been very successful,” says Dr. McCracken.

Dr. McCracken has received many awards for his achievements as a medical researcher and teacher. As Dr. Klein puts it: “he personifies the qualities of teacher, scholar and investigator

that would make Maxwell Finland proud. As was true of Dr. Finland, George McCracken is a superb role model for the academic clinical investigator.”



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