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Introduction to the Newborn Symposium

MARY ELLEN AVERY

Department of Pediatrics, Harvard Medical School, Boston, Massachusetts 02115

After such an extraordinary and inspirational symposium on genetics, this session on the newborn will emphasize the need to look back and look ahead. This is the largest meeting in the history of the American Pediatric Society and the newborn is on center stage, complete with poster sessions, plenary presentations, and sessions on the newborn in most of the subdivisions of pediatrics. It appears that growth and development of neonatology is proceeding very well indeed. No one of us can possibly hear all the papers being presented on the newborn.

The early beginnings of descriptions of causes of infant death to the present burgeoning of investigations at the cellular and molecular level has really occurred in less than half a century. In the crescendo of interest in the past decade, as the speakers just before me have made so clear, despite some halting steps forward and a few painful steps backwards, on balance, we can take pride that infant mortality in 1987 in the United States was less than 10 per 1000 births. It was 9.9. That compares to a number of 40 in 1940, and 26 deaths per 1000 live births as recently as 1960. We have gone from 26 to less than 10. That is not good enough, but it is a major step in the right direction.

I think we can ask, "How did this happen?" I would like to suggest that impressive improvement depended in part on social legislation that improved access to prenatal and perinatal care. Some came in improvements in obstetrics—prenatal diagnosis, perinatal monitoring, more liberal use of cesarean section, and the availability of abortion. But most has come from advances in understanding the biology of the premature infant; the technology that has made microanalyses, as well as monitoring, possible, and that complex package of services we call neonatal intensive care. Collectively they have certainly contributed dramatically, not only to the reduction in mortality, but significantly to the reduction in morbidity.

Our knowledge base and practices deserve ongoing evaluation and improvement as long as we continue to have excess mortality and morbidity where the application of knowledge at hand would make all the difference and where, in some instances, new knowledge is desperately needed. It is the purpose of this morning's session to allow us to focus on some of the frontiers and reflect on how we are to approach them.

Our first speaker is Merton Bernfield, the Josephine Knowles Professor in Human Biology at Stanford. A graduate of University of Illinois, he was chief resident pediatrician at Stanford who then had the good fortune to work with Marshall Nirenberg at NIH and Clifford Grobstein at University of California at San Diego. I do not know whether that was good fortune or superb good judgment.

His research interests are in developmental biology with a focus on extracellular matrix interactions. He is a pioneer at the forefront of the developmental biology of vascular disease. It is a special pleasure to welcome Merton Bernfield to this platform.

Dr. Bernfield has shown us how to build bridges between cell biology and embryology and their interaction with clinical neonatology. I am going to leave with not only a new acquaintance, but new respect for "syndecans."

It was obvious in planning this program that one has to be selective in the choice of only some aspects of our burgeoning field of neonatology. It was clear that the central nervous system is of enormous importance and receives relatively little study. There was no question in our minds that Dr. Joseph Volpe was the person we should ask to speak about this, not only because of his multiple titles—he is Professor of Developmental Neurology, Professor of Pediatrics, Neurology, and Biological Chemistry, and Director of the Division of Pediatric Neurology, Washington University School of Medicine. Born in Salem, Massachusetts, he graduated from Harvard College and trained in neurology at the Massachusetts General Hospital. Since 1979, he has held his professorship at Washington University and established himself as a leading pediatric neurologist whose research has been devoted to the neurologic problems of premature infants.