

STATEMENT OF

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As part of a panel with:

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DR. J. MICHAEL BISHOP
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before the

**HOUSE APPROPRIATIONS SUBCOMMITTEE ON
LABOR, HEALTH AND HUMAN SERVICES,
EDUCATION AND RELATED AGENCIES**

on the

FUNDING FOR BASIC BIOMEDICAL RESEARCH

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11:10 A.M.

I am Marion Bernfield, Smith Professor of Pediatrics and Professor of Anatomy and Cellular Biology at Harvard Medical School. I'm pleased to be able to speak here today because I appreciate the help this committee and especially the chairman have provided in support of biomedical science over the last several years.

I'm a basic scientist who studies how organs form during embryonic development and a physician who directs a major clinical practice in newborn medicine that has the largest training program for specialists in newborn medicine in the United States. Therefore, I see two sides of biomedical research - the basic biology as well as the clinical application. From this vantage point, I see that we are at a crossroads. My message this morning is to indicate that the future productivity and viability of biomedical research in this country is in severe jeopardy. More than any time in the 25 years that I've been observing the scene, biomedical research is losing the best and brightest translators of basic research into clinical application. These translators are the young people who are both knowledgeable in basic biology and intimately aware of clinical needs. We are losing these young people because there are insufficient federal funds for research training and for investigator initiated research grants.

According to the Centers for Disease Control, birth defects are now the primary cause of infant mortality in this country. Most of the more than 20 physicians-in-training in my program in newborn medicine are studying the basic biology underlying this cause of infant mortality. These young clinicians have moved from the crib to the basic science lab because it is now known that studying the genes and proteins involved in the development of worms, fruit flies and frogs will provide the basic mechanisms involved in the development of higher forms, including humans. They are beginning to decipher, at a basic cellular and molecular level, the problems they see in the nursery. This is heady

stuff for someone who has a commitment to helping others by performing research on human problems. These individuals are obtaining the training in basic biology that will enable them to translate this knowledge to clinical applications.

But I see fewer and fewer of our brightest young people choosing this path. The path is a long one - to become an independent biomedical researcher requires twelve years of education beyond the bachelor's degree and these people are aware of the world around them. They know, for example, that NIH has funded the fewest investigator-initiated grants in the current year than in the past five, that full funding of grants for those lucky few who have competed successfully is impossible; 15 to 20 percent of the approved amounts are summarily removed from the awards without discussion, and that they will have trouble recruiting students because the number of research training positions funded by NIH has not increased significantly over the past 10 years.

What is their response? Last week, one of these young people, a talented young woman who graduated near the top of her class and who won an award for her basic research, said to me, "I don't think I'm good enough." She had seen her mentor fail to get funded, although his research had been funded for several years by NIH. Thus, she opted to go into clinical practice where she will no longer be able to perform research.

Therefore we have lost another potentially successful translator. This loss cannot be justified. In economic terms, we will not reap any tangible dividends in real productivity from the investment that our society has made in this young person. But, I can't convince her to decide otherwise. At the current time I am unable to tell these young people that the life of being an academic biomedical researcher is worth dealing with the vagaries of federal funding for biomedical research and research training.

We've done a remarkable job in this country by providing the best technological care possible for ill newborn infants. A low birth weight baby born in this country has a better chance of surviving than in any place else in the world, but technology and aggressive approaches to care in our newborn nurseries are both costly and inadequate. So far, our society has justified paying for this care, but further improvements for these infants will require application of new knowledge in basic biology. In the area that I see the clearest, I'm concerned that we will not have talented people available to make these applications.

What can we do to prevent losing these translators? First, we need to increase the number of new grants to ensure that our young scientists will have research funds after they finish their training. A large cohort of researchers trained in the 60's will begin to retire at the turn of the century. Not only are there insufficient new researchers in the pipeline to replace them, we are losing those who we have. We can work toward appropriating funds for the 12,020 training positions proposed by the Administration. These awards are critical for ensuring that we will remain able to maintain this pipeline.

I would like to go back to this young woman and tell her that the time she spent becoming knowledgeable about basic biomedical research was not be wasted because this committee understands that new resources must be made available to make a future career in academic biomedical research attractive. Thank you for your attention.