

President's Message

By Michael Thomas, MD, PhD, FACE



Raleigh has had three medical schools in its past. The Leonard Medical School at Shaw University was one of the first black

medical schools in the nation, opening its doors to students in 1882. However, they eventually closed in 1918. In 1901, the University of North Carolina appointed Dr. Hubert Ashley Royster Dean of the Raleigh Department of Medicine, which lasted until closure in 1909, in order to consolidate the two-year medical program at Chapel Hill. Nevertheless, prior to closure of Raleigh Department of Medicine, eighty-seven students matriculated and seventh-six students graduated from the capital campus. In 1902, Wake Forest College of Medicine opened and stayed until 1940 when it relocated to

Winston-Salem as Bowman Gray School of Medicine.

Although it has been ninety-two years since the Leonard Medical School at Shaw University closed and seventy years since Wake College School of Medicine moved, Wake County continues to enjoy a rich academic medical tradition. Medical residents perform their postgraduate training at WakeMed, and medical students rotate through various medical practices. Many Wake County physicians are employed by Duke University Medical Center or University of North Carolina Hospitals, and some private Wake County physicians have joint academic appointments at University of North Carolina, Duke, and other institutions. A large proportion of Wake County physicians are graduates of local medical training programs. Some individuals, including myself, have had careers in academic medicine before moving on to private practice in Wake County. Several of our practitioners are experts with national and international reputations, presenting at professional conferences

and Grand Rounds beyond Wake County borders. Thus, academic medicine continues to pervade Wake County at multiple levels.

With this in mind, I am pleased to announce that the Wake County Medical Society will be hosting an evening event on the role of academic medicine in Wake County on November 18, 2010, at the North Raleigh Hilton Hotel, at 6:30 PM. This venue will feature speakers from our two nearby medical schools, Dr. Victor Dzau and Dr. William Roper. We will explore what the academic missions of these institutions are in Wake County, and the impact they will have in the forthcoming years. We invite physicians to attend and carry on our academic tradition into the twenty-first century. §

Time to Apply Cutting Edge To the Brain, Nobelists Say

James Watson helped figure out the structure of DNA, and now he wants a crash multibillion-dollar research program to figure out the brain.

From Wire Services

The time has arrived for a massive push to explore the roots of psychiatric illnesses with the latest scientific tools, according to the scientist who helped define the double-helical

structure of DNA 60 years ago.

A research agenda that leads to intensified study of neural circuitry and sequencing the genomes of 100,000 individuals would push neuropsychiatric understanding ahead substantially, said James Watson, PhD, in an interview.

Writing in the March 26 Science, Watson and colleagues (including fellow Nobel Prize winners Sydney Brenner, M.B., B.Ch., and Eric Kandel, M.D.) called for spending \$2 billion over the next decade to use "a new perspective and a combination of novel tools and analytical

[Continued on page 3]

methods” to understand the origins of psychiatric disorders. The article grew out of a conference in December 2009 at the Cold Spring Harbor Laboratory on Long Island, where Watson is chancellor emeritus of the Watson School of Biological Sciences.

Two factors besides the prestige of the Nobelists add weight to their conclusions, said Thomas Insel, M.D., director of the National Institute of Mental Health (NIMH), who attended the December meeting.

“People outside the usual realm of psychiatric research, from oncology to immunology, now think that really exciting breakthroughs will come from research into mental illness.”

Insel told *Psychiatric News*. “In addition, the scientific tools for studying genetics and neural circuitry have progressed dramatically in the last two years so that the field is ready for increased investment.”

These tools include high-throughput gene sequencing, quantifiable studies of brain circuitry, and the use of optogenetics to manipulate circuitry in rodent models. The last technique has transformed the study of circuits and behavior, the said.

The problem is one that is familiar to psychiatrists: few breakthroughs in treatment have occurred in the last decade, and treatment effects vary so widely among patients that a “sizable proportion are resistant to all currently available treatments.”

Still, research efforts to date have not failed, said lead author Huda Akil, Ph.D., the Gardner Quarten Distinguished University Professor of Neuroscience and Psychiatry and codirector and senior research professor at the University of Michigan’s Molecular and Behavioral Neuroscience Institute.

“It’s not that people haven’t contributed real understanding or that different perspectives are not valid, but the techniques in genetics and neuroscience are just catching up to the challenge that psychiatric disorders demand of use,” said Akil in an interview.

The complexity of the human brain lies at the core of the challenge, said the authors.

problems.

Some of these illnesses are heritable, as twin studies have shown, but many possible most—mutations occur de novo in the developing organism, and hundreds of genes may be involved in one psychiatric illness, said Watson.

Thus, many individual genomes must be analyzed to detect the patterns that characterize a disorder.

“Given the complexity of schizophrenia and most other mental illnesses, we’re going to have to sequence a large number of people,” said Watson. “As long as there’s this sense of urgency, and it won’t bankrupt anyone, why not get it done fast?”

The cost of sequencing the ge-



James Watson, Ph.D., of the Cold Spring Harbor Laboratory, leads a group of scientists urging a \$2 billion “Manhattan Project” to define the genetics and neurocircuitry underlying psychiatric illness and achieve needed breakthroughs in diagnosis and treatment.

If any of the thousands of genes that regulate neural development or function go awry, the result can lead to a variety of neuropsychiatric

problems. Some of these illnesses are heritable, as twin studies have shown, but many possible most—mutations occur de novo in the developing organism, and hundreds of genes may be involved in one psychiatric illness, said Watson. Thus, many individual genomes must be analyzed to detect the patterns that characterize a disorder. “Given the complexity of schizophrenia and most other mental illnesses, we’re going to have to sequence a large number of people,” said Watson. “As long as there’s this sense of urgency, and it won’t bankrupt anyone, why not get it done fast?” The cost of sequencing the ge-

nome of one individual is expected to eventually fall below \$10,000. At that price, sequencing the genomes of 100,000 [Continued on page 6]

people would cost \$1 billion. If a similar sum were allotted for imaging neural circuitry, the project Watson envisions would cost \$200 million a year over a decade.

The payoff would presumably be a more precise understanding of the origins and development of mental disorders and new avenues of treatment.

Insel agreed with the added emphasis on genetics and circuitry but also noted that NIMH “needs to have a very diverse research portfolio,” a view with support from within organized psychiatry.

The focus on the basic research and translational research for genetics and neurocircuitry has to be supplemented by work on clinical trials, services research, epidemiology, and health policy research, said Jeffrey Lieberman, M.D. chair of the Department of Psychiatry at the College of Physicians and Surgeons at Columbia University, director of the New York State Psychiatric Institute, and director of the Lieber Center for Schizophrenia Research.

Lieberman is chair of APA’s Council on Research and Quality Care. He was invited to the Cold Spring Harbor meeting but was unable to attend because of prior commitments.

“Genetics are a high priority because genes identify pathogenic factors that influence brain development and pathology, but there are other

perspectives, too.” Lieberman told *Psychiatric News*.

“For example, we might define phenotypes better and look at social and environmental factors, from urbanism to cannabis, which can increase susceptibility and precipitate mental illness,” he said.

Breakthroughs in understanding the origins of psychiatric illness must also be translated into therapeutics, he said. “Research has yielded genes for cystic fibrosis, Huntington’s disease, and Alzheimer’s disease, but not effective treatments.”

Realizing Watson’s proposal agenda would demand some combination of federal, private, and foundation money.

“We want to get the White House and Congress interested,” Watson said.

One model for coordinating the enterprise might be the federal Interagency Autism Coordinating Committee, set up by Congress in 2008, said Insel. The committee pulled together all parties interested in autism, planned research directions, and identified gaps in funding.

More planning will be needed if the equivalent of a Manhattan Project for neuropsychiatry is to become reality.

“We welcome a statement calling for increased emphasis and resources for research on the causes of mental illness from such an eminent group of scientists,” said Lieberman. “We would hope that the response to their call also considers the importance of immediate clinical needs of patients in terms of development of more effective therapeutic agents and interventional strategies.

“We should not forget the patients who are currently affected by mental illness and need treatment and care.” §

An abstract of “The Future of Psychiatric Research: Genomes and Neural Circuits” is posted at <www.sciencemag.org/cgi/content/summary/sci;327/5973/1580>

