Boston Hospitals

Curing disease, improving lives • by scott P. EDWARDS

OSTON IS A MECCA of medicine, home to some of the most prestigious hospitals and medical schools, physicians and medical scientists in the world. Since the momentous day in 1846 when William Morton, a local dentist, for the first time publicly demonstrated the use of inhaled ether as a surgical anesthetic in Massachusetts General Hospital's nowfamous Ether Dome, the city has seen many medical firsts, including the first fertilization of an ovum in a test tube and the first successful human-organ transplant. Today it ranks as a preeminent center for healthcare and research. The city and its environs are home to top colleges and universities, and eastern Massachusetts, inside the Route 495 corridor, houses many leading biotechnology companies, providing both the brainpower and the cutting-edge research and product development necessary for quality care.

Boston proper is also home to more than 20 hospitals—from giants like Mass General, Boston Children's Hospital, and Brigham and Women's Hospital (BWH) to specialty institutions such as Arbour Hospital for psychiatric care and Jewish Memorial Hospital for long-term care. Dozens of smaller community and specialty hospitals lie within miles of the city's limits. In all, these hospitals produce billions of dollars in revenue each year, contributing to the local, state, and regional economies. In fact, 13 of Boston's 50 largest employers are

hospitals, according to the Boston Redevelopment Authority.

The clinical care provided by these institutions is widely recognized. For more than 20 years, U.S. News & World Report has published a list of the top hospitals in the United States, and Mass General and BWH regularly appear on its "honor roll." In its 2011 installment, Mass General was rated the number-two hospital in the country its highest ranking ever—and ranked nationally in 16 adult and four pediatric specialties. BWH, eighth on the honor roll, was ranked nationally in 12 adult categories, while Children's was rated the best pediatric hospital in the country. The Dana-Farber Cancer Institute. Beth Israel Deaconess Medical Center (BIDMC), Massachusetts Eye and Ear Infirmary, and Spaulding Rehabilitation Hospital also received top rankings in medical specialty categories.

But Boston hospitals derive their reputation as well from the quality of their





NEW ENGLAND REGIONAL SECTION

scientific research, as is evident in one metric that determines research strength: National Institutes of Health (NIH) funding. Mass General (with \$343.8 million in NIH grants), BWH, Dana-Farber, BIDMC, and Children's were the top five recipients of NIH research dollars. That funding enables fruitful collaboration between basic scientists and clinical researchers that helps generate new ideas in basic research

and supports the necessary clinical trials for new therapies. Dana-Farber, for example, runs one of the largest cancer clinical-trial programs in the country. Boston has become the place where many other scientists come to learn.

Among the luminaries of Boston research, two hospital-based scientists stand out. George Daley, professor of biological chemistry and molecular pharma-

cology and professor of pediatrics, directs the Stem Cell Transplantation Program at Children's. His contributions include two Science Magazine "Top Ten Breakthroughs" in stem-cell biology that have provided insight into improved therapies for many diseases (see "Stem-cell Science," July-August 2004, page 36). He is also an international advocate for responsible, ethical oversight of human stem-cell research. At BWH's Center for Neurologic Diseases, Coates professor of neurologic diseases Dennis Selkoe's work focuses on translating lab discoveries on the causes and mechanisms of Alzheimer's into therapeutic approaches (see "Diagnosing Dementia," May-June 2000, page 18). His contributions include identifying the neurofibrillary tangles that are hallmarks of Alzheimer's and their relationship to the tau protein, another key component of the disease.

The sheer physical presence of the city's hospitals, which continue to add beds and update their technology, underlines their clinical and scientific importance. At the heart of Mass General, for example, the new 530,000-square-foot Lunder Building provides 28 procedure and operating rooms, enhancing services in specialties such as neurology, neurosurgery, radiation oncology, and emergency medicine. Dana-Farber's Yawkey Center for Cancer Care houses adult treatment centers and an expanded clinical research center to support complex, early-stage clinical studies, among other facilities. BWH's 350,000-square-foot Shapiro Cardiovascular Center offers sophisticated imaging equipment, dedicated endovascular and electrophysiology procedure rooms, and 16 operating rooms that offer minimally invasive and image-guided technology, as well as robotic surgery. Children's has plans to expand its main building by enlarging the emergency department, increasing radiology capacity, and providing additional inpatient rooms to meet the future needs of specific subspecialties.

These and other, smaller, building projects offer further evidence that even as the healthcare landscape changes, Boston hospitals' commitment to quality medical care and research to improve patients' lives and cure disease remains firm

