

Charting **Pioneering Doctors and Patients Pave the Way for Medical Breakthroughs** New Territory

BY LAURIE DAVIES

At the turn of the 20th century, Baylor founding father Dr. Charles Rosser converted a 14-room house into a hospital, while envisioning a “great modern teaching hospital for the City of Dallas.” His vision endures today as Baylor Health Care System turns 100 with a reputation for technologically advanced medical research and treatment.

Baylor’s research innovations are improving lives one at a time. Meet four patients who can vouch for it.



An innovative procedure performed by Baylor physicians helped keep Juanita Vigil alive while she waited for a liver transplant.

Juanita Vigil graduated from high school in 1998 with a bright future in front of her. Five years and a liver transplant later, she says her future is brighter than ever.

Now 23, the Albuquerque woman reflects on the fateful post-graduation summer that began her journey to Baylor University Medical Center (Baylor Dallas). “I should have been celebrating with my friends, but I was tired all the time,” she says. Then she noticed a bulge in her abdomen—the result of fluid buildup caused by a genetic disorder that prevented her liver from processing copper.

Her symptoms worsened quickly, and she arrived at Baylor Dallas in October 1998 in a coma and in dire need of an organ transplant.

“When she came to us, she had hours to live. She was on a ventilator with horrible liver failure. What we did was probably buy her some time with an organ from another species,” says Marlon Levy, M.D., now surgical director for liver and kidney transplantation on the medical staff at Baylor All Saints Medical Center.

A pig liver—genetically modified to minimize the risk of rejection between a human being and an animal organ—was brought to Vigil’s bedside and connected to her externally, filtering her blood via plastic tubes. “After 10 hours, we learned a human liver was on its way from the Midwest. Had we not used the pig liver, it is likely Ms. Vigil would have died or suffered brain damage,” Dr. Levy says.

“If there was the slightest chance to save my life, my family was going to take it. Baylor offered it, so my family took it.”

Too sick to realize she was forging a new path, Vigil was only the second patient at Baylor to undergo the procedure. Baylor surgeons had successfully performed the world’s first

extracorporeal perfusion, or bridge to transplantation, with a genetically engineered pig liver in 1997.

Dr. Levy credits Baylor with the skilled clinical teams, nursing staff and strong interest in research needed to accomplish such a feat.

Meanwhile, Vigil is doing well with her transplanted human liver and has aspirations of becoming a lawyer. “If there was the slightest chance to save my life, my family was going to take it,” she says. “Baylor offered it, so my family took it. It’s a good thing they did.”

1921 Texas Baptist Memorial Sanitarium changed its name to Baylor Hospital to reflect the relationship with Baylor University in Waco and the different schools on the Dallas campus: the Baylor Dental School, the Baylor

Nursing School, the Baylor Pharmacy School and the Baylor College of Medicine. Baylor University accredited the schools.

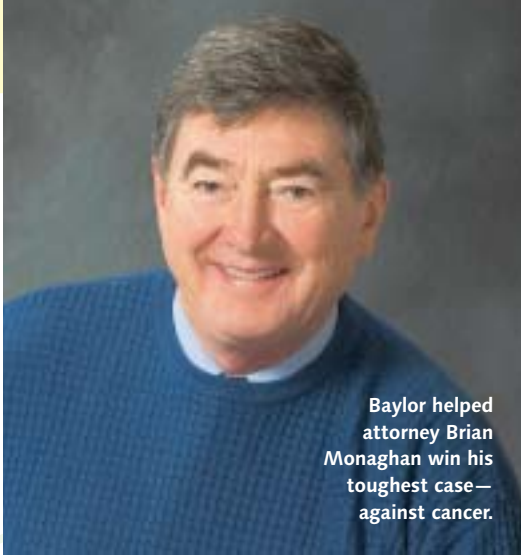
1929 The “Baylor Plan,” founded at the dawn of the Great Depression as an

avenue to affordable health care, allowed patients to pre-pay for future hospital bills. It evolved into the Blue Cross of Texas plan and later the national Blue Cross Plan.



1937 The Florence Nightingale Maternity Hospital (left) opened at the corner of Gaston Avenue and Adair Street.

1938 Dr. Joseph M. Hill invented a machine that could freeze-dry blood plasma, which ultimately saved the lives of countless American soldiers on the battlefields in World War II.



Baylor helped attorney Brian Monaghan win his toughest case—against cancer.

A San Diego trial attorney, **Brian Monaghan** knew how to manage stress. But in the spring of 1998, when he started mixing up numbers both on paper and in his speech, he decided to get it checked out. His doctor's discovery of three tumors—one situated perilously close to the part of the brain that controls speech—revealed he had melanoma.

One top cancer hospital gave him three months to live. He began furiously researching his options, learning about an experimental procedure being tested by Jacques Banchereau, Ph.D., director on staff at the Baylor Institute for Immunology Research.

"I was going to die. No one said I had a chance of success, so my wife and I decided we wanted something even if there was a risk," says Monaghan, who enrolled in Baylor's first dendritic cell study, pioneered by a team led by Dr. Banchereau.

Named for their long arms, or dendrites, dendritic cells are a class of white blood cells that "educate" the immune system about what belongs in the body and what doesn't. In Baylor's study, Monaghan was vaccinated with an injection of dendritic cells loaded with melanoma antigens, or fragments of tumor molecules.

"We turn on the immune system, we arm it and then it goes and kills the cancer," says Dr. Banchereau, a

renowned expert in cellular and molecular immunology.

Dr. Banchereau believes the procedure holds great potential to treat other types of cancer. "We had identified the specific molecules in melanoma that could be targeted. Undoubtedly there are molecules in breast, lung and other tumors—we just have not identified them yet.

You can see the power here," he says.

Monaghan, 64, is still cancer-free. "I've had five 'extra' years now," he says, "and every time I wake up, everything is more beautiful."

Sixteen-year-old **Amanda Lacey** danced the night away at a school-sponsored Valentine's dance in 1997. She enjoyed the free movement of her legs and feet, although she didn't think too much of it at the time.

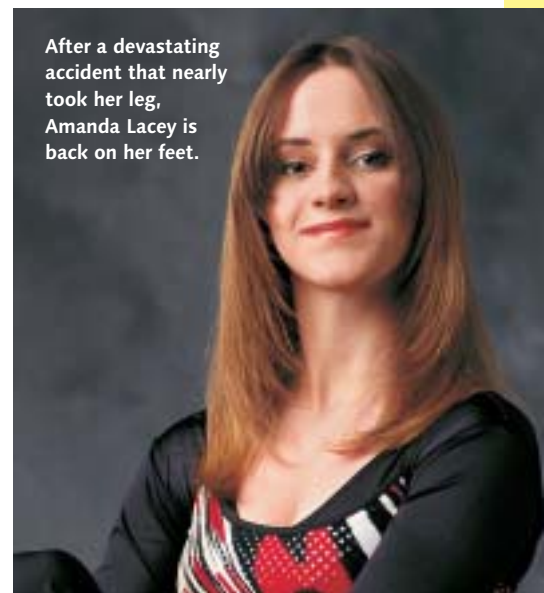
As she drove home that night, a drunk driver hit her car head-on. With broken bones literally from head to toe, she amazed her teachers by returning to school 11 days after the car wreck. But one bone just wouldn't heal. Her right tibia, the thicker of the two bones between the knee and ankle, was infected. Because of the extensive damage, her right leg also was three and a half inches shorter than her left leg.

Fearing amputation, Amanda's parents learned of Paul Freudigman, M.D., medical director of orthopaedic trauma on the medical staff at Baylor Dallas. He utilizes a "bone-growing" technique discovered in the 1950s by Russian professor Gavril Abramovich Ilizarov.

"Dr. Freudigman happened to come to Texas right at the exact moment my other doctor was ready to amputate," says Lacey, now 22.

Dr. Freudigman actually lengthened her tibia using Ilizarov's method of "growing" new bone by first pulling it apart and stretching it. This was accomplished by a device called an Ilizarov Fixator, which is a set of rings connected to each other by rods that penetrate skin and bone.

"It looks like a bicycle wheel with spokes going from one side to the other," Dr. Freudigman says, adding that the device essentially pulled Lacey's bone apart at a certain rate and rhythm, causing it to regenerate.



After a devastating accident that nearly took her leg, Amanda Lacey is back on her feet.

While Lacey admits that numerous surgeries—more than 20—in addition to wearing the contraption for 18 months was hard, it was worth it to walk on her own two feet. "I like my leg. I'd rather have it—scars and all—over a prosthetic leg."

Meanwhile, Dr. Freudigman, the only physician routinely employing Ilizarov's method of orthopaedic correction on adults and children in the Metroplex, finds satisfaction not only in saving

1943 Baylor College of Medicine moved to Houston, and ultimately separated from Baylor University. Lawrence Payne, administrator of Baylor University Hospital, as it was now named, realized that for the hospital to survive it would

need to build more facilities that would serve more private patients rather than a majority of charity patients, as the association with the medical school had dictated.

1946 The Baylor University Hospital trustees,

in order to advance the quality of the hospital and help it recover from the Great Depression, WWII and the Baylor medical school's departure, appointed its first medical board (right). The board was composed of 13 physicians, who were



chiefs of the departments at Baylor and had formerly been associated with the Baylor College of Medicine.

1947 The American Association of Blood Banks was founded at Baylor University Hospital at a meeting of blood bank representatives from 39 states and five foreign countries.

Research at the Bedside



At Baylor Research Institute (BRI), studies are more than microscopic. They are directly benefiting patients in North Texas and worldwide every day.

"In our lifetime we want to see better care for patients, so everything we're investing in is clinically relevant research," says Michael Ramsay, M.D., a member of the medical staff at Baylor Dallas and president of BRI. "It's not just laboratory research. It's clinical trials and new technology—it's understanding the basis of diseases and identifying potential treatments or preventive therapies."

This means expanding recent dendritic cell discoveries (see main story) to treat lupus, or thinking about other ways to use robotic technology with minimal incisions. "Such research brings the latest care to patients. And it brings the best health care providers and physicians here to Baylor," Dr. Ramsay says.

Of course, with research safety is key. That's one reason BRI is undergoing national accreditation through the Association for the Accreditation of Human Research Protection Program, Inc. (AAHRPP) and the Partnership for Human Research Protection, Inc. (PHRP), a joint venture with the Joint Commission on Accreditation of Healthcare Organizations and the National Committee for Quality Assurance. Every study's prime investigator also must undergo Baylor-specific research education and be credentialed through BRI.

"We want to make sure our research is structured correctly—and that it is ethically right. We are setting ourselves up to be a leader in that area," Dr. Ramsay says.

With 400 research studies currently under way, BRI's scientists, laboratory assistants and research coordinators are making better tomorrows for patients today.

Lacey's leg, but in helping her return to a normal walking stride. "I'm pretty comfortable saying this was the best and only way to salvage her leg," he says.

Two years ago, an irregular heartbeat led **Carole Whitlow** of Garland to the doctor. She learned she had mitral valve prolapse, a condition in which one of the heart's valves does not close well, leading to overwork of the heart and eventually heart failure.

Terrified at the prospect of conventional surgery—which requires either an incision under the breast or the breaking of the sternum—Whitlow remembers the day Robert Hebel, M.D., cardiothoracic surgeon on the medical staff at Baylor Dallas, lessened her fears.

"He told me about this new procedure that could repair my mitral valve with a robot. I had never heard of it, but I remember thinking, 'Do anything, but don't break my breastbone,'" Whitlow says.

In July 2001, she enrolled in an FDA-approved research study at Baylor Dallas designed to test the safety and effectiveness of robotic mitral valve surgery.

Dr. Hebel repaired Whitlow's mitral valve while seated at a console, manipulating instruments through a small incision while viewing a high-resolution, 3-D image. The procedure helps surgeons see the heart better and allows patients to heal more quickly, with less trauma, inflammation and discomfort.

Whitlow was the first patient in the southwest United States to undergo robotic mitral valve repair, and the FDA study, which encompassed 12 medical centers nationwide, "was a resounding success," Dr. Hebel says. The FDA approved the procedure in fall 2002.

Dr. Hebel believes robotic mitral valve repair will catch on among physicians with pioneering minds. "This is a whole mind shift of how we've done things. Looking



Robotic surgery helped heal Carole Whitlow's heart.

at problems and how we can simplify them using new technology—that's what medical progress is all about," he says.

As for Whitlow, now 66, she says her recovery was smooth, her scar is tiny and she no longer has an irregular heartbeat.

One more life improved by Baylor's research innovations.

1948 Boone Powell Sr., the hospital's business manager since 1946, (right) was named administrator/CEO when Lawrence Payne became director of the hospital and



responsible for planning and fund-raising for a new hospital to be completed in 1950.

1950 On Nov. 30, Baylor opened the \$5.5 million, 436-bed George W. Truett Memorial Hospital,

called the "hospital of tomorrow" because of innovations, like year-round air conditioning and phones in every room.

1954 The post-war "Baby Boom" crowded the Florence Nightingale Hospital so much that

new mothers sometimes recovered in hallways. The hospital was closed to make room for construction of a new larger facility.

1959 Baylor University Hospital changed its name to Baylor University Medical

Center and opened the new Women and Children's Hospital on Gaston Avenue. That same year, the Texas Baptist Memorial Sanitarium building was renamed the Minnie S. Veal Hospital in honor of Mrs. Veal, who was the daughter of Col. C.C.