Last fall marked a high point in the distinguished career of Dr. Paul C. McAfee, chief of spinal reconstructive surgery at St. Joseph Medical Center in Towson and director of the Maryland Spinal Reconstructive Fellowship Program for the past 20 years.

It was then that the Food & Drug Administration approved the Charité Lumbar Artificial Disc Replacement, which is used to treat patients with chronic lower back pain and degenerative disease. McAfee was the lead investigator of the five-year study for the device.

Previously, lumbar spinal fusion surgery, which limits motion and places stress on the adjacent spinal discs, was the most common surgical treatment of degenerative disc disease. It has been predicted that 20 percent of spinal fusion cases will be replaced by artificial disc surgery within the next two years.

McAfee’s study demonstrated that patients who received implants with the Charité disc improved more quickly, were discharged from the hospital a half-day earlier, and had less pain and function scores statistically superior to those of fusion patients.

“When patients come to the office for their follow-up appointments after disc replacement, the receptionist can tell which surgery they had because they are moving in a more fluid manner and seem happier,” McAfee said. “The patients who had spinal fusion surgery are in more obvious pain.”

Just one month after receiving FDA approval, McAfee performed the first two-level artificial disc surgery in the United States at St. Joseph. This type of surgery allows patients with more than one diseased disc to be treated in one procedure; almost one-third of patients who require surgery suffer from multiple diseased discs.

Disc replacement is not the first breakthrough for McAfee: He also invented a cervical disc replacement prosthesis and procedure used in 37 countries to treat patients suffering from severe neck pain, and he invented and tested spinal rods for scoliosis and fractures for the National Institutes of Health.