



DIAGNOSTICS

BY BOB SKIPPER



Dr. Jannice Owens Aaron

DR. JANNICE OWENS AARON SAYS SHE WAS "IN THE RIGHT PLACE AT THE RIGHT TIME" TO BECOME A PIONEER IN THE DIGITAL TRANSMISSION AND READING OF DIAGNOSTIC IMAGES.

DR. AARON, A 1974 GRADUATE OF WESTERN KENTUCKY UNIVERSITY, WAS THE MEDICAL DIRECTOR OF THE ST. ANTHONY MEDICAL CENTER IMAGING CENTER IN LOUISVILLE, KENTUCKY, WHEN IT WAS PURCHASED BY VENCOR HOSPITALS IN 1995. SHE CONVINCED THE NEW OWNERS TO BEGIN A TELERADIOLOGY PROGRAM TO LINK THE FIFTY-FOUR VENCOR HOSPITALS IN FORTY-TWO STATES — THE LARGEST SUCH PROGRAM ATTEMPTED AT THAT TIME.

EXAMINED
IN INDIA

"No one had done this in quite this magnitude or quite the way we were doing it," she said. "The technology was brand new. There was a steep learning curve. Some people didn't believe you could read something on a screen as well as, or better than, having the X-ray in hand."

Teleradiology is transmitting diagnostic images from one location to another over fiber optic cables or internet connection for reading and interpretation by a physician. Many smaller facilities cannot afford to keep a radiologist on staff twenty-four hours a day, or they might not have enough volume to justify having a radiologist on staff. They can transmit the images to a central reading facility and the results can be sent back to the physician, rendering "very good, very quick care," Aaron said.

Vencor, which is now Kindred Hospitals, was establishing long-term, critical care facilities. They needed someone to read radiological films to monitor patient progress. There is often not enough work to keep a full-time person on staff to read the films, Dr. Aaron explained.

Because the technology was so new, there was a lot of trial and error. They experimented with different brands of transmission systems, and Dr. Aaron was able to work directly with software developers to help them understand needs and workflow.

"No one had done this in quite the magnitude or quite the way we were doing it," she said. "We had a lot of technical problems to work out. We worked closely with the company that produced the monitors and transmitted the images and eventually got most of the bugs worked out. The main thing is to maintain high standards and to have really high quality. I particularly like to be creative and to come up with creative solutions."

Once the system was in place, Dr. Aaron had to be licensed in every

state and get medical privileges for each hospital involved in the program — fifty-four hospitals in forty-two states. "States vary significantly in their requirements for licensure," she explained, adding she had to travel to each state and meet face-to-face with members of licensure boards. "It was very interesting to see the differences from state to state."

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To counter some of the resistance to teleradiology, Dr. Aaron became the first person to publish a paper on a double-blind study that showed that physicians actually picked up more information from the monitors than from the films. "A film is fixed shades of gray," she said, adding that a monitor displays varying shades of gray and the contrast can be adjusted so that more information can be seen.

Now, Dr. Aaron estimates that teleradiology is used by ninety percent of hospitals. "Emergency physicians have become used to this and it is difficult for them to do without it," she said. The technology even allows her and other radiologists to read diagnostic images at home, which became a problem. It was getting to the point that Dr. Aaron and her partner were reading films at home at night, and then coming to work during the day. The solution was partnering with a group of physicians from India who went through the same training at Yale University. Since it is day in India when it is night in the United States, the images can be transmitted to India for reading when needed, she explained.

While the scale of Dr. Aaron's work in teleradiation was groundbreaking, it was not the first time she was considered a pioneer in the medical field. Even her beginning

in the pre-medicine program at WKU was unusual in that she was already a nurse and a mother.

Dr. Aaron grew up in Campbellsville, so she was familiar with WKU. "I thought Western was the only university when I was in high school." She often visited campus for sporting events, concerts, speech contests, and her sister went through

the pre-med program. But when Dr. Aaron graduated from high school, she didn't know what she wanted to study. She had another sister who was a nurse, so she became a nurse. Aaron decided she liked medicine, but didn't like nursing, so she came to WKU because of the reputation of its pre-med program, and because her husband (at that time) was in graduate school there. Her son Trent would often stay in the residence hall where her husband was a director.

"People were incredibly supportive. I made every effort to do a little more than was expected because I never knew when I was going to have to be away because of a sick child," Dr. Aaron related. Trent was always with her and she chose where to live based on living next to someone she could trust to help with child care. "I always made it known that he was a priority and that worked for us."

After graduating from WKU, Dr. Aaron entered medical school at the University of Louisville. "It was a breeze compared to what I had been doing at Western," she said, adding she had been working while at WKU, but not while in medical school. Being a woman in medical school posed its own challenges, and sexist jokes and derogatory comments in class were not unusual. However, her class was



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the first large class of women, twelve of them. They began standing up to even the professors who tried to make it difficult on the women, she said.

"The women in my class just wouldn't take that. Times have certainly changed."

Once in medical school, Dr. Aaron said she had a hard time deciding her specialty. "I enjoyed every rotation," she asserted. She liked pediatrics, but became too emotionally involved in

physicians by leasing and staffing facilities. "It really works well."

Dr. Aaron described radiology as a visual field that requires tremendous self discipline to look at every image intently. "It requires a phenomenal background in anatomy to be able to detect what is normal and what is abnormal," she explained. For people who are artistic and visual, reading is easier than for those who are not innately visual. "I was not one of

process of shooting, developing, reading, and storing. Success depended on good positioning and technique. Now, positioning and technique are still important, but the images are digital files and can be immediately accessed on a computer, she said.

"It's wonderful to be able to see what's happening inside the body. It's like magic," Dr. Aaron said. In the early days, "so much of medicine was good guessing."

One concern she has about radiology is a lack of direct patient contact. "You can't lose that personal touch," she said. Even though the patient can be on the other side of the country, or the world, she still remembers that she is dealing with people. "When we see something, we will still call the physician and discuss what we found. That's a key to good health care. That's become a very rewarding part of teleradiology," she said. This interaction with the physician helps fill the gaps created by not interacting with the patient. And sometimes doctors will send the patients to her so she can explain what she's found in the images.

"There's no substitute for persistence and hard work. ■

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the children. She decided cardiology was a lifestyle that was incompatible with being a single parent. She then decided that radiology would offer more regular hours that would go better with parenting. "It was a great decision!"

She completed residencies at the University of Louisville and Yale University and a fellowship at Harvard Medical School. She was a staff physician at several hospitals before becoming the chair and medical director of St. Anthony Medical Center in Louisville. She also began teaching at the University of Louisville where she became chair of Diagnostic Radiology — one of three women to hold such a position at the time in the United States. In 1999, Dr. Aaron was recognized for her accomplishments and inducted into the WKU Hall of Distinguished Alumni.

As her career progressed, Dr. Aaron wanted to go into something a little less demanding and began working with outpatient centers. She now works with a group of six doctors providing teleradiology for six small hospitals. "We try to have the best equipment and the best credentials," she said. They are starting to partner with other

those visual people," she said, adding she developed systems such as check-off lists for different kinds of images so that she wouldn't miss anything.

Many of the advances in digital imaging started in the medical fields, especially in radiology, which she says is the fastest growing specialty in health care. When she started medical school, CAT Scans were just starting to be used. As a resident, MRIs were starting. She was one of the first physicians in the world to publish articles about and interpret MRIs. At that time, X-rays involved a laborious

