

Want Fries With That? A Brief History Of Medical MRI, Starting With A McDonald's

Ellie Kincaid Forbes Staff

Follow

Apr 16, 2018, 08:00am EDT

 This article is more than 5 years old.



Where patrons once ate burgers, patients now get scanned. CLAY WIELAND PHOTOGRAPHY

In 1983, Robert "Bob" Kagan, a 36-year-old pathologist, set out on foot from Holy Cross Hospital in Ft. Lauderdale, Florida, looking for a place to birth an industry. He'd find it in a McDonald's, which would become one of America's first outpatient MRI centers.

Kagan had become convinced of the promise of magnetic resonance imaging, a now-commonplace technology that was then still experimental. The Food and Drug Administration would not approve MRI until 1984, and Medicare wouldn't cover it until 1985. Holy Cross Hospital refused to spend the \$1.2 million (\$3 million in 2017 dollars) for an MRI machine. But other doctors at the hospital saw the potential, and 40 put up \$25,000 each for Kagan's new business: an MRI machine that would sit outside the hospital walls.

"We didn't know what it would be used for, necessarily, at that time," says Kagan, now 71. "I said this is what I want to do. I just knew it would revolutionize medicine."

Like a toothpick on a tidal wave, Kagan's medical imaging center, which now brings in \$5 million in revenue a year, can be used to chart the course of a breakthrough technology: from its adoption and widespread use to the subsequent backlash against it.

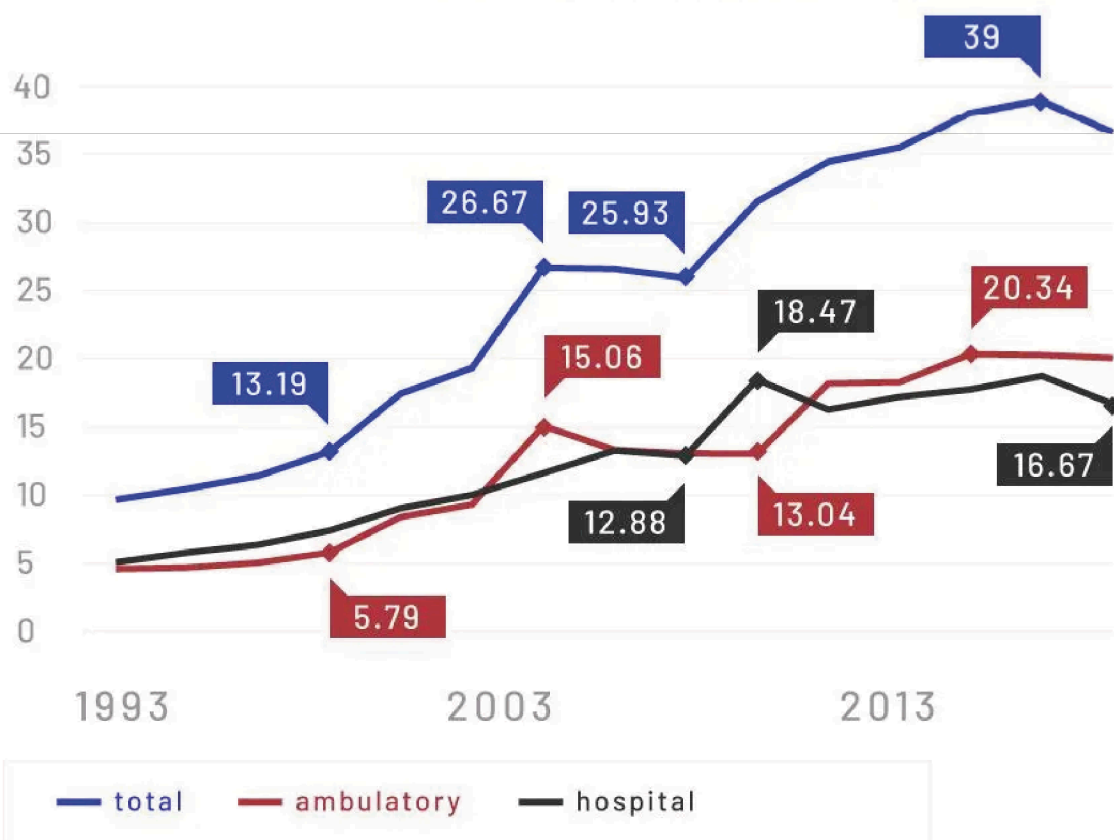
"It's one of those great examples of a huge increase in intensity, and that leads to higher spending," says economist Joseph Dieleman of the University of Washington, using the economics term for the healthcare trend in which new technology comes along that's more

expensive or involves doing more than what it replaces. “Doctors get more information from MRI, and patients want the best care possible, so that can lead to more spending very quickly.”

Though first approved in 1984, MRI was a niche business until the early 1990s, when its use skyrocketed. There were fewer than ten MRI scanners per million Americans in 1993, according to OECD data. That number had spiked to 27 by 2004, and it peaked at 39 in 2015. Nearly \$50 billion is spent on almost 40 million MRI scans in a year in the U.S., the consulting firm Frost & Sullivan estimates, and selling the machines themselves is a giant global business worth \$5 billion, led by General Electric’s healthcare unit and Siemens Healthineers, a spin-off of the electronics conglomerate.

“It’s just grown like crazy,” says David Levin, a radiologist and a scholar of the history of MRI at Thomas Jefferson University Hospital in Philadelphia.

MRI SCANNERS PER 1M AMERICANS



Source: OECD

Design: Aliza Grant, Forbes

Kagan fell in love with MRI at a medical conference that began on Valentine’s Day, 1983, at a fancy hotel in Colorado Springs, Colorado. MRI had been sketched out as an imaging technique by two physicists, Paul Lauterbur and Peter Mansfield, beginning in 1973, but it took a decade to turn their theories into reality. (They’d win the 2003 Nobel Prize). The early images were grainy and indistinct, but at the conference in Colorado Kagan could see the potential. Unfortunately, when he returned home to Holy Cross Hospital, his bosses couldn’t.

Kagan’s brother, a lawyer, suggested that he form a limited partnership of physicians to back his business. Ophthalmologists, plastic surgeons and cardiac surgeons gave him the cash to purchase a scanner from Disonics, which Toshiba would buy in 1989 for just \$187 million (\$370 million in today’s money). Then he needed a place to put it. At the time, worries that MRI scans might damage pacemakers meant the machines were required to be in freestanding buildings. There was only one such building near the hospital: the McDonald’s. He walked in and offered to buy it.

It turned out the McDonald's was owned by Ray Kroc, the legendary CEO who built McDonald's into an international force. Kroc agreed to sell for \$550,000 so long as the building wouldn't be a restaurant, or look like one. The golden arches and fake-thatch roof were removed, though the building's familiar shape remained. Kagan also kept the distinctive flagpole. He gutted the building, filling in the windows to protect from flooding during hurricanes. A metal-working artist who'd built a nearby bar installed radio-frequency shielding for him out of copper for \$30,000. Then he spent a week at Huntington Research Laboratories in Pasadena, California, learning to read MRI scans with MRI pioneer Bill Bradley. Before his death last November, Bradley recalled that Kagan, "one of the very early guys" in the space, was "literally a doc in the box," confusing McDonald's with its smaller competitor Jack in the Box.

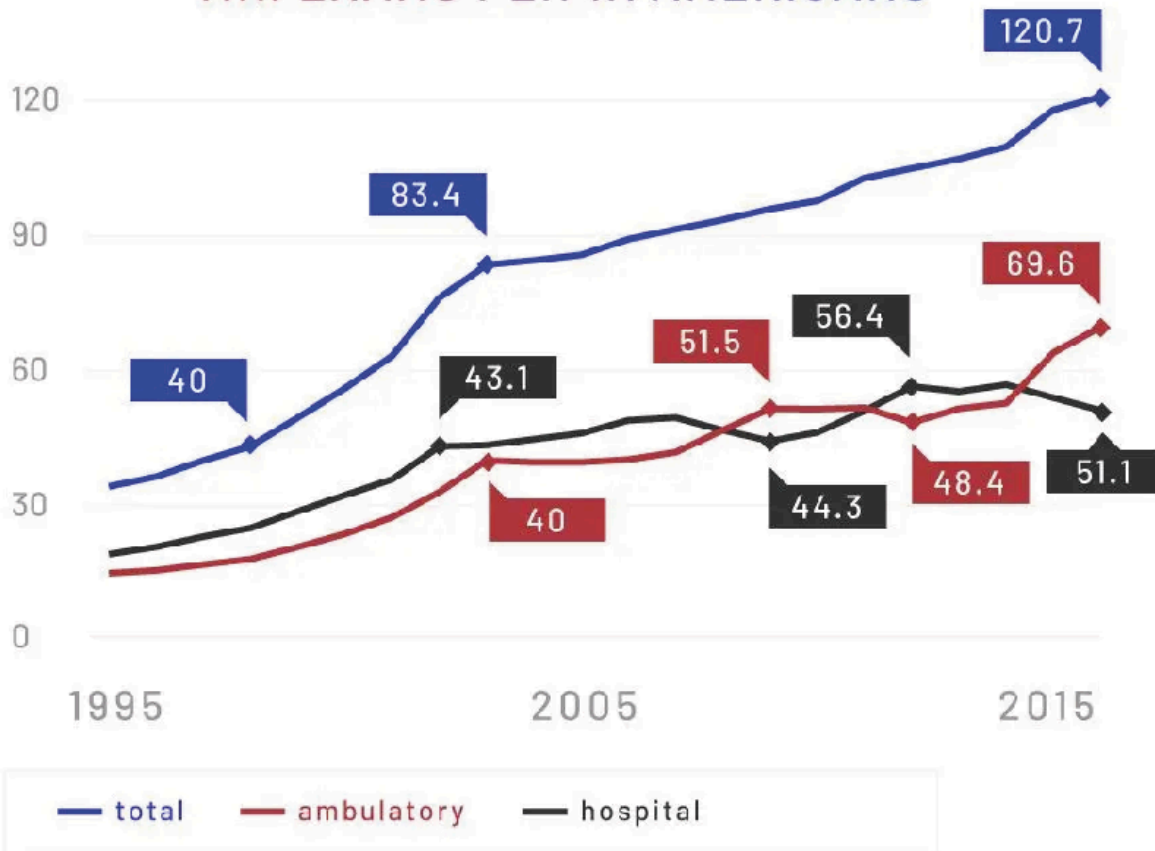


Dr. Robert Kagan still operates an MRI scan center in the McDonald's building he bought from Ray... [+]
COURTESY OF THE MRI SCAN & IMAGING CENTER



\$1,080 in America and \$280 in France" was the headline of a *Washington Post* story from 2012.

MRI EXAMS PER 1K AMERICANS



Source: OECD

Design: Aliza Grant, Forbes

Outpatient MRI was once seen as part of the problem. Between 1995 to 2014, scans were approximately evenly split between hospitals and centers like Kagan's, but at times the growth spurts of outpatient facilities alarmed healthcare's bean counters. "There's so much entrepreneurship here that is superseding what is truly needed," Allan Korn, the chief medical officer for the Blue Cross and Blue Shield Association, told *the New York Times* in 2004. "It's becoming a huge problem."

Insurers fought back by slashing payments and denying claims, paining even suppliers, David Whelan wrote for *FORBES* in 2008. GE lobbied unsuccessfully to have Medicare rate cuts reversed and began to sell some machines close to cost to keep its customers.

More recently, outpatient MRI has been seen as part of the solution. Entrepreneurs like Kagan have had their margins squeezed. They now charge far less than large hospital systems for the same scans. Health data company Amino says the national median network rate for a scan at a freestanding center is \$504—a third of the \$1,567 rate in a hospital. To radiologists, this decrease in cost is coming out of their pockets. "Now you can't survive just doing an MRI scan center anymore," Kagan says.

These days Kagan does CT, PET and ultrasound in his original (now expanded) center. He has added new revenue streams to supplement physician referrals: consulting on legal cases and offering full-body MRI and CT scan "checkups" for \$3,500 cash. A full-body PET scan is another \$2,000. The center brings in at least \$5 million a year, but expenses run \$4.5 million to \$5 million, so he feels lucky to net \$500,000 a year.

But he remains an MRI evangelist, saying the technology is still "in its infancy" and will become a noninvasive biopsy that can identify tumor types one day. What it can do already, he says, is "kind of like magic."



Ellie Kincaid

Follow

Ellie Kincaid covered medicine and health care at Forbes from September 2017 to April 2019. She previously wrote... [Read More](#)