

M Dinnovator

Childhood accident propelled Hey's interest in error prevention

By Neil Versel

As a teenager in Oyster Bay, N.Y., Lloyd Hey, M.D., nearly lost his left leg in an automobile accident. Instead, he found his calling.

Through a grueling recovery period that included a three-month hospital stay, 11 surgeries and painful therapy, Hey experienced all that was good and bad about healthcare. He noted the compassion his medical team showed, but he also endured months of fear and uncertainty—as well as what he believes were preventable errors.

His leg would not heal properly for months, until Hey, who had a strong interest in engineering, designed his own fixator to replace the metal frame that had been holding his broken bones in place. A year after the accident, Hey, then 17, was able to walk again.

The experience convinced Hey not only that he wanted to study orthopedics but also that he should apply his natural technical aptitude toward finding new ways to avoid medical errors.

"I like to use my tinkering to improve care," says Hey, founder and chairman of MDeverywhere, a Durham, N.C.-based developer of charge-capture software for handheld personal digital assistants.

Hey also is a practicing spine surgeon and assistant professor of orthopedic surgery at Duke University Medical Center in Durham, N.C. He directs Duke's Center for Clinical Effectiveness, an outcomes research laboratory he founded.

Hey spearheads product development at MDeverywhere but, as a full-time surgeon, plays a limited role in the company's day-to-day operations. He admits it's a hectic schedule, but he is used to keeping himself busy.

Hey earned both his medical degree and a master's in clinical epidemiology from Harvard University. As an undergraduate, he studied electrical engineering at Massachusetts Institute of Technology. His creativity blossomed while a resident at Harvard and at Children's Hospital Boston.

"During my residency, I realized there are three worlds in healthcare: the patient care world, the administrative world and (the) outcomes assessment/process improvement (world)," Hey says.

"Bottom line: These three worlds aren't connected very well."

As a resident in 1989, Hey began writing what evolved into MDeverywhere's software code. Children's Hospital still uses the clinical database



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Lloyd Hey, M.D.

application he helped create then.

Originally, he developed the software for a standard desktop PC. "I never envisioned that the computer would get this small," Hey says, brandishing a Palm Pilot PDA.

The desktop version worked well in outpatient environments but was not practical for capturing inpatient encounters at the point of care, Hey says. In the mid-1990s, he began experiments with a laptop computer set on a mobile cart and connected to a small wireless network in Duke's intensive care unit.

"It worked OK for the ICU because all the rooms are usually close together and on the same floor," he says. But there were problems for physicians in other areas of the hospital because they typically went from floor to floor during their rounds—and preferred to walk. "It's kind of hard to take a cart down the stairs," Hey says.

At about the same time, Hey was searching for a mobile device to read bar codes to verify patient information and physician orders before surgeries.

"I was so desperate for something handheld that I was programming really dumb barcode readers like the kind you see in supermarkets," he says.

That was about eight months before another researcher produced the first commercial integration of a barcode scanner into a PDA, according to Hey. "The technology," he says, "has finally evolved."

So has MDeverywhere. For five years after he started the company in 1995, Hey financed operations out of his own pocket, twice putting his home up as collateral against loans.

Then, in February 2000, MDeverywhere obtained \$11 million in venture capital. The privately held company last year landed its second round of funding, a \$15 million investment from six different firms. Hey says MDeverywhere will be profitable by the second half of 2002.

Today, MDeverywhere combines PDAs with practice management software to provide what Hey calls "encounter capture" functions. To Hey, the system provides clinical value by preventing errors in order entry and financial value through more accurate coding.

"We're getting a more accurate snapshot of what's wrong with the patient because the doctor is doing the coding," he says. "We are providing a compelling reason for a doctor to carry an error-prevention device." ●