

WHEN THE BEEPING WENT OFF, it was as if tornado sirens were ripping through Cheryl Hoover's home. The lights on her infant son's heart monitor flashed madly, indicating a heart rate of 260—twice the normal frequency. "I panicked; I didn't know what to do," says the rural Milan, Mo., mother of Beau Hoover. "You don't know if your son is going to live or die." That is truer still when the nearest pediatric heart specialist is 120 miles away.

minutes," says Viessman, "I was in the ER here (in Columbia) observing Beau and talking with Dr. Williams and Mrs. Hoover as if we were in the same room." A sophisticated, two-way television connection, part of the burgeoning Missouri Telemedicine Network, allowed the doctor to see and hear the struggling 7-week-old. She could see that his color wasn't bad, that some of his pallor was due simply to cold, and that he was alert. They could wait till the transport team arrived.

Still Truckin'

BY JONATHAN PITTS • PHOTO BY ROB HILL

What followed on that dramatic August 1996 morning—both in that north-central Missouri town and in Columbia, two hours to the south—shows how rural medicine is changing.

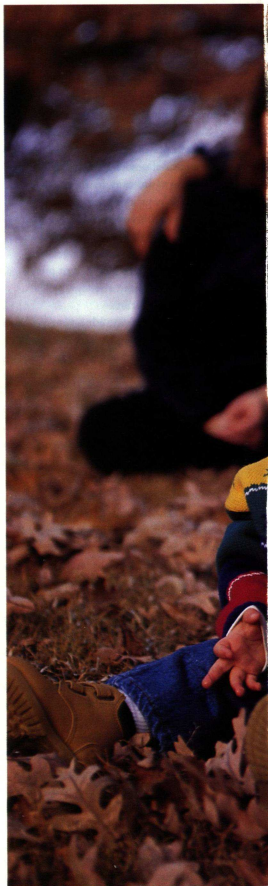
Cheryl stilled her nerves, dialed the number for University Hospitals and Clinics in Columbia, which had treated Beau 10 days before, and soon had Sara Viessman on the line. The pediatrician asked Cheryl to drive Beau to Sullivan County Memorial Hospital in Milan. There, physician Warren Williams faced a typically rural dilemma. Little Beau, he felt, needed emergency cardioversion—electric shock to normalize the heart. But the only cardioverter Milan had was for adults. "We feared the jolt would be too much for an infant like Beau," he says. The University Hospital's helicopter had pediatric equipment, but it was 45 minutes away.

Back in Columbia, as an anxious Viessman sorted options with Williams, a nurse interrupted to remind her that Columbia was linked to Milan's emergency room by telemedicine. "Within five

"Beau was spared a very risky procedure," she says.

The telemedicine network, an enterprise forged through both private and public funding, links 16 hospitals and clinics in 13 Missouri counties to MU's Health Sciences Center in Columbia, bringing rural health-care professionals (most of them generalists) face-to-face with specialists at the flick of a switch. The network's high-resolution, interactive TV systems do more than make possible dramatic reversals like Beau's. They save rural patients, accustomed to driving hundreds of miles for emergency or routine care, countless hours in the car. They relieve the stress and isolation that can plague rural health-care providers. And they make it possible to keep many follow-up procedures in rural communities, potentially stimulating their economies. Perhaps Viessman herself, a zealous con-

Instead of truckin' to Columbia for treatment, Beau Hoover's Milan, Mo., physicians consulted MU experts long distance by telecommunications hookup. His parents are Cheryl and Kevin.





vert, says it best. "Telemedicine," she gushes, "is so cool."

This boon to Missouri medical care got going in the early 1990s, when MU, already planning a mid-Missouri program, merged with a similar Missouri Public Service Commission-sponsored project in the Northeastern part of the state. By September 1994, the federal Office of Rural Health Policy (ORHP) and several telecommunications companies had pitched in more than \$5 million, an amount bolstered by ORHP's recent grant of an additional \$1 million in support of three more years. The network is one of several nationwide, but Missouri's is one of the best. First, says MU's telemedicine director Joe Tracy, it is among the most comprehensive: It includes not only the interactive component that helped Beau, but also a National Library of Medicine contract that will one day let physicians check patients' charts, read documents in distant medical libraries, and even consult with specialists worldwide, all without leaving their own computer screens. And Weldon Webb, MU's principal investigator for the ORHP grant, adds that Missouri's is "more fully integrated into the practice of medicine than any other network." Where other networks excluded physicians from the design process, Missouri's included them, tailoring an often complex and daunting technology to doctors' workaday routines. MU specialists also broadcast live lectures that physicians at the 16 sites can "attend" interactively. "We're removing the problem of distance from medicine," says Tracy.

In the end, patients benefit most. Beau had to be cardioverted some 20 times in follow-up treatment, but doctors in Milan and nearby Kirksville did the work. And mom sleeps a little better. "I've learned what to look for," says Cheryl. "I know what to do and where to take him." She disconnected Beau's heart monitor—perhaps for good—and says what no mother in her situation could have a few years ago. "It's possible," Cheryl says, "to live a pretty normal life." ❀