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Delivering hope

By **Adrian Hirsch** | Also by this reporter

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OB/GYN Jason Collins monitors patients' high-risk pregnancies all over the country from his New Roads offices thanks to a Web-based solution he developed with software designer Will Jarvis.

Every day, 100 American families lose an infant to stillbirth. Of the 4 million stillbirths that occur annually worldwide, nearly a quarter result from umbilical cord accidents, a disruption of blood flowing through the umbilical cord to the baby.

Recently, a New Roads physician and a software designer have harnessed technology to save the lives of infants not just in Louisiana but around the world.

During his 25 years as an OB/GYN,

Jason Collins, M.D., has investigated the similarities among cord accident stillbirths. These tragedies captivated his interest because of the pall they cast on future attempts to deliver a healthy baby. A woman who loses a baby to a cord accident stillbirth is five times more likely to experience the cord problems in subsequent pregnancies.

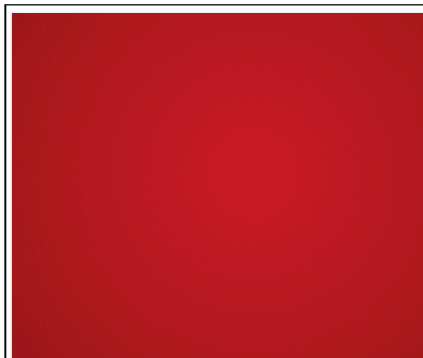
After reviewing data and conducting independent research at his non-profit Pregnancy Institute, Collins concluded fetal death from some 25 distinct cord accidents does not happen suddenly. In fact, the fetus may adjust and compensate for blood supply changes due to cord compression for several hours or days.

Because the changes unfold gradually, Collins suspected the majority of cord accident stillbirths could be prevented with a combination of careful monitoring and decisive action. So the Pregnancy Institute began a study to determine whether nighttime monitoring of pregnant women predisposed to cord accidents could provide enough time to evaluate, intervene, and even safely deliver a distressed baby.

"We know most women start their contractions between 9 p.m. and 12 a.m. (accompanied by) 30 minutes of fetal activity," Collins explains. "Most people deliver between 10 p.m. and 3 a.m. That's the way we're designed."

"Most stillbirths happen before 37 weeks, which is when Braxton-Hicks contractions start, when labor begins," he adds. "(In the case of stillbirth), you have babies who are weakened by something, and the onset of labor kills them. The discovery we've made by interviewing 1,000 parents of stillborn infants is most fetuses die between 12 and 6 a.m."

When an infant goes into distress, the heart rate drops below 90 beats per minute for longer than one minute. This deceleration is most noticeable at night. As the mother relaxes and drifts off to



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sleep, her heart rate also drops, resulting in lowered blood pressure.

Collins' research suggests the combined effects of the low maternal blood pressure, uterine contractions, fetal hormones and umbilical cord compression between 2 a.m. to 4 a.m. puts the fetus at greatest risk for injury or stillbirth.

Even though electronic medical records have come a long way, until recently there was no way for a physician to comprehensively evaluate both mother's and baby's health around the clock without hospital admission. "Prior to 2000, you could use equipment, attach a laptop in the car, dial a modem at a house and look at the heartbeat and the uterine contractions," says Collins. "With the Internet, now it's all multimedia."

Five years ago, Collins and software designer Will Jarvis developed e.Care Solutions Inc. The company provides high-risk cord accident patients with a small, lightweight home monitor that records fetal heartbeat, maternal blood pressure, blood sugar levels and uterine contractions and transmits the data over the Internet for physician evaluation.

Since insurance has not caught up to the technology to cover the expense, the flat fee for service is \$2,000, which includes a baseline ultrasound and 30 minutes of fetal monitoring, education on fetal behavior, monitoring tutorial, equipment and 24-hour access to an e.Care physician.

At a predetermined time, typically between 10 p.m. and 6 a.m., the patient connects herself to the monitor for a 30-minute fetal reading and then attaches the monitor to her home computer. When e.Care Solutions' server receives the new reading, it automatically sends a text message alert to a physician, midwife or home health agency to review the information.



Dr. Jason Collins (left) and software designer Will Jarvis with three generations of technology used to monitor high-risk pregnancy. Now moms can upload crucial monitoring data about their unborn baby over the Internet via hand-helds such as a Palm Pilot or iPhone.

"It's a remote system that allows care providers to do disease management over the Internet—for a provider to review (even) on a Palm Pilot or BlackBerry. The patient can be next door or in another country," says Jarvis.

All of the nearly 70 women enrolled in the study who have been consistently monitored by e.Care Solutions have delivered healthy babies.

Not surprisingly, word of the company's success has spread worldwide. "Women with (previous) cord accidents or stillbirths find us on the Internet and self-refer," says Collins. "OB/GYNs really treat two patients. After the mother has had a loss, she's terrified. So we address the emotional condition as well as the physical condition. At the least, knowing there is a heart rate at night can give (the mother) comfort and confidence." To date, Collins and Jarvis have monitored patients in Ireland, England, Japan, Germany and Switzerland.

While Collins has been gratified by the praise he receives from parents, he has not only contributed infinitely to the happiness of families but to medical science as well. "What is enjoyable is solving a problem that has never been solved before," says Collins, "and creating a methodology that did not exist before. It's like trying to solve polio."

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It's a simply delicious read!

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