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Marshall's MIST Changes Lives, One Pregnancy at a Time

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HUNTINGTON — Hypertension and preeclampsia are serious medical conditions that affect many pregnant women in West Virginia.

But technology developed at **Marshall University** is trying to change that.

Dr. **David D. Chaffin**, professor of obstetrics and gynecology and director of internal fetal medicine at the Joan C. Edwards School of Medicine at Marshall University, read a 2001 article from **Washington State University** about techniques to treat hypertension.

At the time, Chafin had been at Marshall for three years and noticed diabetes and hypertension were rampant in the pregnant patients he was seeing. He also saw a high percentage of premature births because of preeclampsia.

"Desperate disease by desperate application is relieved or not at all," Chafin said, quoting a line by **William Shakespeare**.

Chafin and Dr. **Tom Easterling** began developing an approach to man-

aging hypertension in pregnancy. The goal was to help women deal with hypertension and carry their babies to more than 37 weeks in relative comfort.

Through the partnership, Easterling developed the medical approach while Chafin focused on the technological approach. Chafin used already developed EKG technology to test women based on the physiological underpinnings of their hypertension. He would measure them periodically and adjust their medication if necessary.

Chafin wanted a way to tally and store the patient's progress in a database. So he developed one. And a business idea bloomed.

"I went to **Strictly Business** owner **Tom Pressman** and asked if there was any commercial use for this kind of database," Chafin said.

Chafin said Pressman saw possible commercial applications in the database. So Chafin collaborated with the **Marshall University Research Corp.** and **Strictly Business** to create **Medical Information Systems Technology**, or **MIST**.

"Chafin came in and wanted to revamp the software database that **Cliff Webb** had first developed, and I was impressed with what he brought me, and we just went with it," Pressman said.

Chafin said since he started using his technique and information gathering, the number of preeclampsia diagnoses in his patients has declined. In addition, the rate of patients with hypertension has decreased, as has the premature birth rate.

Chafin published a study outlining the outcomes and results of 400 patients in November 2009. Since then, the **University of Tennessee** at Knoxville, the **University of Tennessee at Chattanooga**, **Raleigh General Hospital** in Beckley and **Holzer Medical Centers** have bought the **MIST** system.

Chafin said he and others are trying to get the information out one hospital at a time, but response has been slow because of what he calls "medical inertia."

"It is hard to do something new when people have been doing it another way for more than 20 years," Chafin said. "People are skeptical, and it takes time to prove the validity to the masses."

Chafin said he hopes the published results of his studies and physician referrals will encourage more hospitals to embrace the technology. He said he believes interest will grow if other educational institutes publish positive results about the technology.

Chafin and Pressman are not discouraged by **MIST**'s slow growth. Instead, both men said they are proud of the technology they developed and the progress they are making medically.

"The fact we are right statistically is the huge payoff," Pressman said.

"The proof is in the results, and the fact we have proven we are helping people is reward enough that money cannot measure," Chafin added.