

# One Call Does It All:

## *Surviving a Heart Attack The Benefits of Integrated Cardiac Care at UT Medical Center*

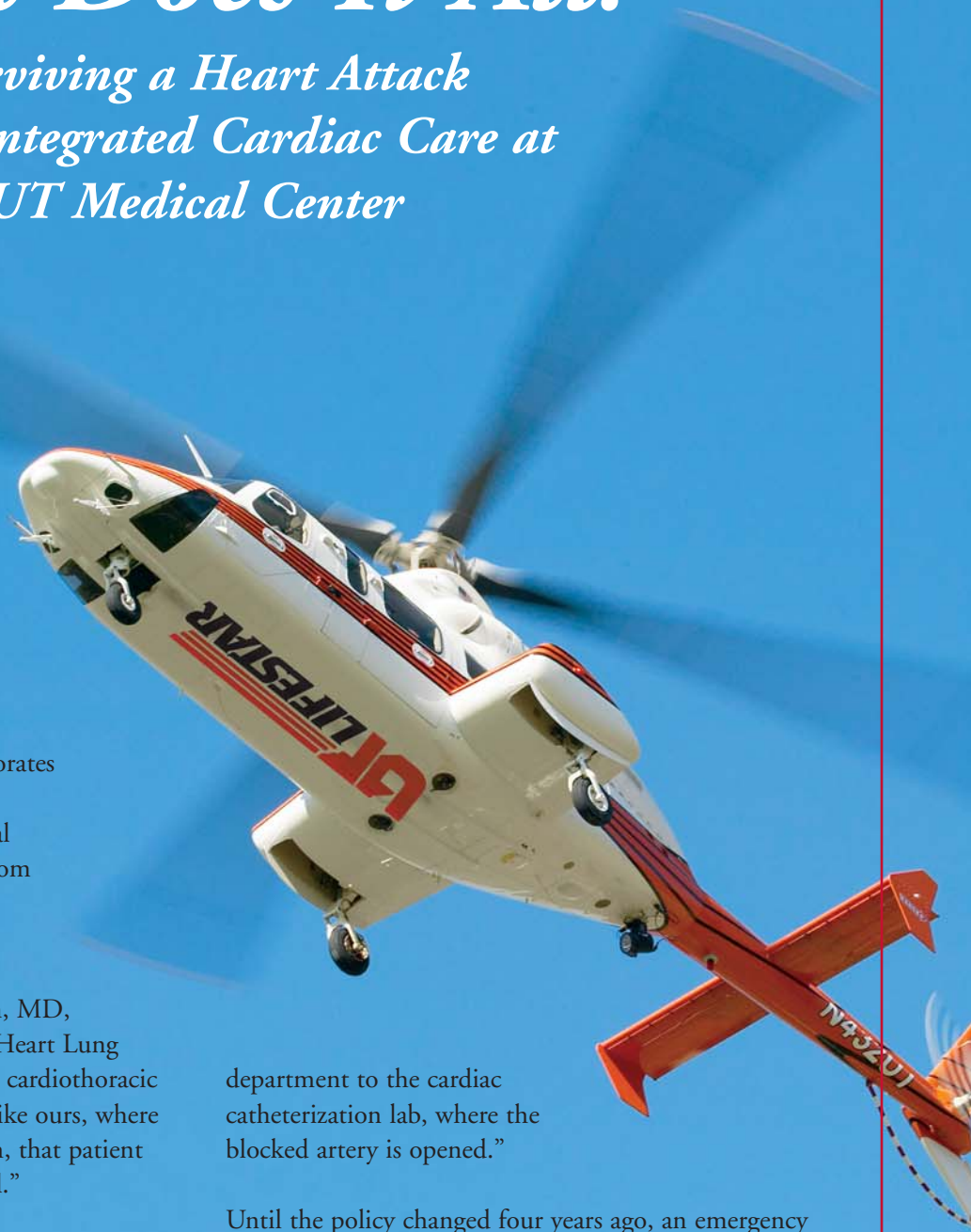
A MIDDLE-AGED MAN IS ENJOYING A ROUND OF GOLF in Loudon, a 45-minute drive from the University of Tennessee Medical Center, when he begins to suffer chest pain and shortness of breath. His condition deteriorates to cardiac arrest. The local emergency department calls LIFESTAR, UT Medical Center's emergency helicopter service. From the time the call is made to the moment the man's blocked artery is open again: 45 minutes. "He walked out of here a few days later," says George Schuchmann, MD, medical adviser to UT Medical Center's Heart Lung Vascular Institute and retired chief of the cardiothoracic surgery division. "But without a system like ours, where one phone call activates the whole system, that patient would have stood little chance of survival."

When there's a heart-attack victim to be saved, timing is critical. Cardiologists have about two hours from the beginning of the attack to open the blocked artery; otherwise, injury to the heart muscle will lead to irreversible damage or death. That's why the cardiology department's automatic-acceptance policy—which allows LIFESTAR to airlift patients in severe cardiac distress without waiting for physician consent—saves lives. "We're on a stopwatch system," Schuchmann says. "We time every minute from the outlying emergency

department to the cardiac catheterization lab, where the blocked artery is opened."

Until the policy changed four years ago, an emergency room had to speak to a cardiologist before LIFESTAR could send a helicopter. "Contacting a cardiologist could take 20 minutes," says Stuart Bresee, MD, chief of UT Medical Center's cardiology division and a clinical associate professor in the Department of Medicine. "And every 10 minutes you wait before opening the blocked artery amounts to a 1% higher death rate."

Now LIFESTAR, founded in 1984, can automatically send a helicopter to pick up any patient with one of the



following conditions:

- Acute myocardial infarction, or heart attack
- Unstable angina, or pain from lack of oxygen to the heart
- Life-threatening dysrhythmia, or abnormal heart rhythm
- Cardiac arrest
- Sudden congestive heart failure

About 230 cardiac patients a year arrive at UT Medical Center on one of LIFESTAR's three aircraft.

"We have a similar automatic-acceptance system in area counties that don't have a hospital, like Union County," says Christopher Brooks, MD, medical director of aeromedical services. In these cases, ambulance personnel assess a patient's condition, then make the call.

"For a patient suffering from a heart attack, time is heart muscle. The sooner we're able to get that patient into the cardiac cath lab and restore blood flow, the better the outcome will be," says director of aeromedical services Jeffery Gregory. "One phone call to LIFESTAR activates air medical transport, patient acceptance, consultation

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*—Stuart Bresee, MD*

with a cardiologist, and notification of our cath lab. Our goal is to make it a seamless process without delays."

While the helicopter speeds to the patient, the outlying emergency department or ambulance personnel confer with a consulting physician at UT Medical Center. Once the patient is aboard the aircraft, he or she is attended by a nurse and a paramedic, who perform tests including a 12-lead electrocardiogram to assess or confirm the patient's condition. From the helicopter, the medical personnel communicate the test results to the in-house attending cardiologist.

"Waiting for the patient's arrival at the new cardiac catheterization laboratory is a cardiac team that includes a cardiologist, a registered nurse, and two cardiovascular



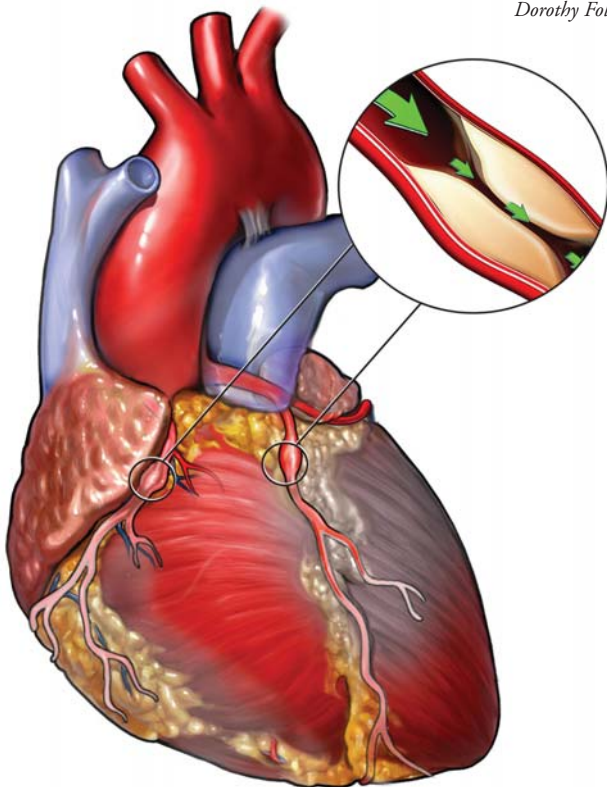
*Dale Wortham, MD in heart catheterization lab.*

technologists,” says Dale Wortham, MD, the lab’s medical director. UT Medical Center cardiologists treat about 500 heart attacks a year. A quarter of them require immediate angioplasty, a procedure in which a cardiologist snakes a balloon-tipped catheter through the femoral artery. The balloon expands, opening the blocked coronary artery.

“The best way to treat a heart attack is to do an immediate angioplasty with a stent,” Bresee says. A stent is a tiny metal sleeve that is inserted after angioplasty to keep the artery open. Angioplasties have lowered the mortality rate from heart attacks to 5%.

Only 18% of hospitals nationwide are equipped to perform the lifesaving angioplasties and to insert stents—a figure that may explain why a national movement has arisen to establish cardiac centers for the treatment of heart-attack victims. “Our protocol is part of that,” says Bresee. “The key is quick transfer. That’s what automatic acceptance is all about: you can get the same care if you’re flown from Sweetwater as you can if you walk into UT Medical Center. That’s a much better situation than we had 10 years ago.”

*Dorothy Foltz-Gray*



*Heart Attack: Cholesterol plaque blocks blood flow to vital heart muscle (shown in grey).  
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## **The University of Tennessee Medical Center Heart Lung Vascular Institute**

Our physicians provide care for conditions that represents six of the top seven leading causes of death in the United States. Acute heart attack, heart failure, peripheral vascular disease including aneurysms and carotid artery blockage, respiratory problems such as chronic obstructive pulmonary disease (COPD), and pneumonia are among the conditions treated at the Institute.

The concept of the Heart Lung Vascular Institute developed in 1999 and culminated in the opening of a new building in May 2004. Because heart, lung, and vascular diseases are interrelated and have common issues, we have integrated cardiology, cardiothoracic surgery, pulmonary medicine, and vascular surgery under one roof. Our team provides coordinated diagnostic, surgical, therapeutic, rehabilitative, and preventative services for patients with heart disorders, breathing difficulties, or problems with arteries and veins.

Our purpose is to provide the best patient outcomes for the citizens of East Tennessee.

