

## Case Study:

# Spirit Wireless brings “Hearts In Action” to life at King’s Daughter Medical Center

## Wireless EKG initiated in Rural Region to Improve Response Times and Save Lives

In a partnership between a large community hospital and several EMS companies in Northeastern Kentucky and Southern Ohio, an innovative program recently was enacted to improve the care of chest pain patients. In a metro area of 350,000, much of the population is spread among small towns and farms in the rolling hills and hollows of this Appalachian region. For King’s Daughters Medical Center, a Solucient 100 Top Hospital® with 385 beds, the geography and rural areas it serves bring unique challenges for local emergency medical services (EMS) teams, particularly for advanced life support transport services. The ambulance service area is very rural and drive times for some emergencies can be as long as 30 minutes just to reach the patient. The challenges are particularly acute when responding to patients suffering chest pain—where every second is critical.

King’s Daughters Medical Center (KDMC) has emerged as the region’s premier hospital for cardiovascular care, and patients are being referred to or transported to KDMC from increasingly distant localities. King’s Daughters provides a full range of services, from advanced diagnostics and testing to a nationally accredited Chest Pain Unit, cardiac catheterization, electrophysiology, heart and vascular surgery, and cardiac rehabilitation. KDMC earned five-star ratings for treatment of chest pain and congestive heart failure in the most recent survey by HealthGrades, the nation’s leading healthcare quality ratings company.

Pre-hospital care throughout the nation recently has started to include wireless transmissions of diagnostic quality 12-lead electrocardiogram (EKG) readings by emergency responders while en route to the hospital. The 12-lead EKG readings are

recognized by cardiologists as the “gold standard” for the diagnosis of heart attack and heart rhythm disturbances. Transmissions from the field usually are accomplished by interfacing EKG machines with cellular technology. With a cellular connection, paramedics can transmit valuable information to hospital staff so they can diagnose, respond, and prepare for the incoming chest pain patient.

Bound by the area’s rural and geographic make-up, however, cellular coverage is non-existent or intermittent at best in some portions of King’s Daughters market area. To improve the care of patients with chest pain, a multidisciplinary team of physicians, nurses, and administrators from King’s Daughters met with representatives from four EMS companies in the fall of 2004 to find the best way to enact a wireless EKG program for the region. King’s Daughters agreed to finance the costs of software upgrades and equipment to outfit 16 advanced life support ambulances, and the EMS companies agreed to put their paramedics through 12-lead EKG training and to

### HIGHLIGHTS

- **Wireless transmissions of diagnostic quality 12-lead electrocardiogram by EMS teams in the field.**
- **Solving Satellite phone connection needs within ambulances.**
- **Perfect data transmissions from defibrillator/monitor through satellite phone connections in local and remote service areas.**
- **Satellite phones are emergency communications tool of choice—filling the gap in places without terrestrial infrastructure.**



develop new treatment protocols. The project, called "Hearts In Action," includes EMS agencies in Boyd, Carter and Greenup counties in Kentucky, and SEOEMS (South-east Ohio Emergency Medical Services District) in Lawrence County, Ohio.

After investigating several options, the group decided that satellite technology was their best choice for transmitting data from the field. King's Daughters enacted an agreement with Spirit Wireless, an independent Master Agent and manufacturer of Globalstar satellite-based equipment, to develop a GPS-based system to improve response times and enhance communications for emergency staff.

Outfitting ambulances with Spirit's Globalstar GSP-1600 satellite phone, car kits with weather enclosures, and Spirit Wireless Globalstar data cables for Medtronic's LIFEPAK® 12 Defibrillator/Monitor Series gave emergency teams a solution that solved their connection needs. Because emergencies are unpredictable and the use of the equipment would vary, the emergency teams were activated on Globalstar's Liberty 1000 airtime plan which allows them to pool their minutes for use over a 12 month period of time.

Prior to delivering the satellite equipment to the EMS agencies, several King's Daughters staff members took the LIFEPAK® 12 defibrillator/monitor and phone on the road where they were pleased to find that data transmitted perfectly from throughout the service area, no matter how remote or "off the beaten path."

"We were very happy that King's Daughter Medical Center looked beyond traditional forms of communications to solve their needs," said Rod Cummings, president of Spirit Wireless. "In emergency response, reliable communications is paramount for field forces, and with satellite phones no matter how remote, there's always a connection."

"Emergency Department physicians at our hospital now have the ability to analyze cardiac information while the patient is en route," said Greg Eastham, M.D., medical director of the King's Daughters Emergency Department. "Having the EKG in advance allows us to assess the patient's cardiac

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—Rod Cummings  
President, Spirit Wireless

condition, and determine the best course of care before the patient arrives, which may include alerting the Chest Pain Unit or Cardiac Catheterization team. Everything can be in place for the patient's arrival, so no time is lost."

King's Daughters President/CEO Fred Jackson, FACHE, said King's Daughters donated the new EKG machines and related equipment to the participating EMS agencies because "our local EMS services provide outstanding patient care. We appreciate their commitment to this life-saving technology. This partnership is a great asset to our community, and will undoubtedly save lives." Jackson said that as the region's healthcare leader, King's Daughters continually seeks ways to "take medicine further," even beyond the bounds of the hospital.

Spirit Wireless says that satellite phones have become the emergency communications tool of choice for emergency personnel because they fill the gap in places where there is no terrestrial infrastructure. Most recently Spirit Wireless supplied over 400 satellite phone systems to the Federal Emergency Management Agency (FEMA) during the 2004 hurricane season that slammed the Southeast United States. Used in increasingly innovative ways, satellite phones have become the de-facto standard where traditional forms of communications are often not available, allowing emergency teams to quickly set up communications channels to improve response times and better prioritize emergency assistance.



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