

## [Race to the Top](#)



Courtesy of Advanced Medical Transport

*Winning the battle against sudden cardiac arrest...*

To save more lives in central Illinois, an innovative new program has been set in motion. The objective is to markedly improve emergency care and patient outcomes by bringing together an entire community as a team of qualified lifesavers. By concentrating on eight highly-interdependent elements of a world-class emergency cardiac care and response system, we can soldier more forces together and win more battles in the war on sudden cardiac arrest.

*Race to the Top* is a new evidenced-based program sponsored by Advanced Medical Transport (AMT), headquartered in Peoria, Illinois. Developed in conjunction with physician experts, medical centers and biomedical manufacturers, AMT formulated the program—a roadmap with qualified inputs, action steps, measures and outcomes—to fundamentally change the community's emergency response paradigm to life-threatening sudden cardiac arrest events.

In the United States, emergency medical services (EMS) systems have largely been organized to respond to and treat victims of sudden cardiac arrest (SCA), the leading cause of death in adults over the age of 40. More than 325,000 Americans suffer SCA outside of a hospital or medical center. Nationally, only 10 percent of these victims are resuscitated out-of-hospital by emergency medical personnel, with less than eight percent of those resuscitated by EMS surviving to discharge.

Advanced Medical Transport is a nationally accredited ambulance provider with regional services across Illinois and Iowa. In Greater Peoria-Pekin, our teams of paramedics and EMTs respond to more than 25,000 emergency medical calls each year. AMT's out-of-hospital cardiac arrest saves are already *three times the national average*, with nearly twice as many surviving to hospital discharge. Our relationships with physician experts in resuscitation, emergency medicine and interventional cardiology have afforded AMT the opportunity to continuously improve these results



over 25 years.

But more needs to be done. As predictable as it may sound, we can and should be saving more lives—and communities as a whole can help. A select few communities in North America are demonstrating that it is possible to save more victims right here in central Illinois. Using a layered response strategy with tiers of supporting players and new methods, AMT is leading the way with an innovative, evidenced-based approach to vastly improve the survivability of sudden cardiac arrest. Eight specific, measurable and actionable objectives comprise the foundational elements of Race to the Top:

- Immediate recognition of sudden cardiac arrest;
- 911 activation, “First-Care” hands-only CPR, GPS to the rescue;
- Access to and utilization of AEDs;
- Pit crew resuscitation by EMS providers;
- Deployment of Advanced Practice Paramedics;

- Advanced biomedical tools;
- Immediate provider feedback; and
- Community and caregiver recognition.

### **Immediate Recognition of Sudden Cardiac Arrest**

“With steadily improving outcomes during our 25 years providing paramedic care, we suddenly bumped into a ceiling,” says Kelly Walsh, RN, BSN, PHRN, AMT’s senior nurse manager of clinical quality improvement and acute care services. “Peer communities offered perspectives, including better teamwork, and we dug into researching international best practices.”

Although clinical practices in resuscitation are a key tactic in Race to the Top, the real opportunity to succeed rests with how quickly “recognition” and “First-Care” are initiated. AMT CEO Andrew Rand says, “Essentially, our community needs to realize they have the most significant role in someone surviving sudden cardiac arrest.” *The first five minutes are the most critical.* The survival clock starts when the victim’s heart stops beating and “First-Care” must be provided.

AMT and its partners are refining the campaign to emphasize awareness and action. “Our new community outreach strategy will continue to support education,” says Josh Bradshaw, AMT’s public affairs manager. “But instead of our traditional show-and-tell at health events, career fairs or medical standbys, AMT now uses these touch-points as teaching moments to promote sudden cardiac arrest awareness, 911 access and First-Care CPR.”

### **911, “First-Care” CPR, GPS to the Rescue**

No ifs, ands or buts about it: your brain and major organs need a working heart. Without blood being circulated by mechanical means, everyone begins to die. Notification to your 911 emergency call center begins the process of dispatching professional response organizations (police, EMS, fire) to victims of SCA. The very best intervention, however, is “First-Care.”

Our data shows that only 12 percent of sudden cardiac arrest victims receive CPR prior to our arrival. Emergency medical dispatchers are trained to help callers provide CPR and use an emergency defibrillator. Victims of sudden cardiac arrest require immediate “First-Care,” which means hands-only CPR from a bystander, coworker or family member. Matthew Jackson, MD, FACEP, medical director for emergency medical services at OSF Saint Francis Medical Center, is an advocate of evidence-based practices in EMS. “We are using data to qualify inputs, measure outcomes, provide feedback and improve our dispatch processes,” says Jackson. “911 call centers will now encourage more ‘First-Care’ and hands-only CPR where it is urgently needed.”

Faster than any ambulance, police officer or rescue vehicle is a bystander willing and motivated to act. Altogether, it takes several minutes for professional responders to be dispatched and navigate streets, traffic and numerous impediments to be able to help. Upon arrival, these responders must then locate the victim, adding to the urgency of applied, hands-only CPR, or “First-Care.”

“Hands-only” CPR takes about 10 minutes to learn, compared to the previous four-hour CPR class. During hands-only CPR training, participants learn why mouth-to-mouth is unnecessary and how to apply an automated external defibrillator (AED). Current resuscitation science firmly establishes the effectiveness of immediate—and we mean *immediate*—compression-only CPR. Studies also indicate that performing mouth-to-mouth is the most commonly-cited reason people are unwilling to provide CPR. AMT has retooled its community CPR education programs and now plans numerous “hands-only” training events.

AMT also plans to deploy a new technology that will enable anyone with a “First-Care” registered smartphone (or GPS-equipped device) to receive instant notification when they are close to a First-Care incident, as well as the location of the nearest AED. This new smartphone application means sudden cardiac arrest victims can receive bystander CPR faster, saving more lives. Application users can notify AMT if they are able to respond, start compressions, and if they are obtaining a nearby AED.

### **AEDs and Early Defibrillation**

In addition to compression-only CPR, the application of an AED is the next most important action step in Race to the Top. An AED first analyzes the electrical impulses of an SCA victim and applies a pre-programmed “shock” to the victim’s heart when it determines one is required. The simplicity and usefulness of these devices have become a common sight in many central Illinois communities. Since 2001, AMT’s CardioReviver (AED) Program has donated more than 550 AEDs for public access throughout the communities we serve.

AMT is also working to develop a registry of community-based AEDs and their locations. “By compiling and sharing an AED registry with 911 dispatchers,” says Walsh, “the location of these valuable lifesaving devices will be made known to ‘First-Care’ providers and bystanders.” AEDs also help those giving CPR by providing simple instructions and voice prompts while professional responders are on the way.



### **Pit Crew Methods**

Have you ever watched a NASCAR pit crew in action? It's amazing how so much work can be done in such a short period of time. Moreover, the quality of the effort often nears perfection. Coordinated by Dr. Matthew Jackson, an emergency medicine physician, Race to the Top's pit crew-inspired protocols champion similar team principles and practices for all professional responders when treating sudden cardiac arrest. Each team member knows the specific tasks that are required, when to provide them and how to perform every task efficiently. Altogether, the result is a highly choreographed exercise in clinical best practices.

Practice and repetition are essential for Race to the Top to be successful. Advanced clinical education in AMT's Resuscitation Academy focuses our clinical care teams (pit crews) on process, data and results. Team members receive four hours of highly-specialized training to develop proficiency. At the conclusion of the Academy, teams are required to test and complete simulations based on real-life events. The Resuscitation Academy was recently expanded to increase awareness and help train more emergency responders in AMT's service area.

### **Advanced Practice Paramedics**

Anyone who has witnessed resuscitation efforts during sudden cardiac arrest can tell you the effort requires a leader, or champion. AMT will dispatch specially-trained Race to the Top champions, dubbed Advanced Practice Paramedics (APP), to every cardiac arrest event. APPs are expert clinicians specially trained in new, evidenced-based resuscitation protocols and techniques.

APPs will coordinate pit crew efforts and provide important leadership during resuscitation efforts, ensuring that members of the resuscitation team are focused on providing protocol-specific care and organized resuscitation as required. After each event, champions will organize and report the clinical data for review, feedback and

process monitoring. Race to the Top is central Illinois' only program participating in a national event registry to report outcomes and measures of cardiac arrest survival.

### **Biomedical Advances**

Advances in biomedical device technology have improved both the efficacy and safety of mechanical CPR devices for patients and providers. AMT introduced LUCAS 2 last fall as a premier, mechanical chest compression/decompression tool for use during cardiac arrest. Race to the Top incorporates LUCAS 2 for professional responders to provide the best-quality chest compressions available.

In conjunction with Race to the Top protocols, LUCAS 2 can be found onboard every ambulance deployed in AMT's Peoria-Pekin response area. Clinical research correlates improved patient survival when mechanical chest compressions are provided. After several minutes, manual CPR quality is adversely impacted by provider fatigue, a common problem with sustained resuscitation events. Our patients can continue to receive the best care with LUCAS 2, and clinical teams no longer need to provide unsafe manual chest compressions in the back of moving vehicles.

### **Quality Matters**

Post-call event review is one of the final elements of the new program. AMT's new biomedical devices now record multiple streams of data simultaneously during sudden cardiac arrest. Sophisticated cardiac monitors provide remarkable quality metrics regarding chest compressions, rate and depth. Compression initiation, pause times, defibrillation and changes in the underlying cardiac rhythm are also recorded, and APP champions help review events after each call. The goal is to provide feedback within 12 hours of the event so our clinical care teams understand how best practices increase best outcomes. As a result, quality improvement tools will help teach teams how to provide and perfect Race to the Top standards.

In December 2014, AMT became the first downstate EMS agency to report directly to the Cardiac Arrest Registry to Enhance Survival (CARES), a CDC-approved registry provided by Emory University. AMT is now able to compare Race to the Top results with peer cities in North America, another best practice helping to drive better results.

### **Community and Caregiver Recognition**

AMT introduced a new Community Resuscitation Award for any member of the public who takes the initiative in saving a cardiac arrest victim. Recognition will also be given to dispatchers, first responders and our teams when these efforts contribute to successful resuscitation and a life saved.

Finally, our most important objective is to achieve widespread cultural expectations and awareness that saving lives is a community responsibility. Race to the Top

redefines our paradigms and expected results in the battle against sudden cardiac arrest. “Saving lives is everyone’s responsibility,” says Rand. By working together we can achieve better results. **iBi**

*To learn how you can help, contact Josh Bradshaw or Kelly Walsh at (309) 494-6215.*

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