









#### Dear CFSI Member,

Last year, the Congressional Fire Services Institute and the MedicAlert Foundation established the Excellence in Fire Service-Based EMS Awards Program to recognize fire departments for their outstanding achievements in emergency medical services. Throughout the nation, fire departments continue to develop innovative programs and procedures for providing these services in their local communities. The awards program is intended not only to recognize best practices but to share these best practices with other fire departments that are seeking to enhance the care and the medical services they provide.

The Excellence in Fire Service-Based EMS Awards Program honors departments in three separate categories: volunteer, career and combination. While this is structured primarily as a recognition program, it has a strong educational component. Departments apply with the understanding and knowledge that all, or part, of the information they submit will be shared with fire departments across the country to encourage widespread consideration of these best practices.

The attached publication features a compendium of best practices taken from the applications we received for our 2011 Awards Program. We believe this information can benefit many departments across the country that are seeking ideas for improving their EMS systems. We encourage you to read this information and to share it with your colleagues. Perhaps it will serve as a catalyst for change or new ideas intended to enhance your department's EMS program.

Moreover, we encourage you to consider applying for the Excellence in Fire Service-Based EMS Award if your department has developed a unique and innovative program that has improved emergency medical services in your community. Information about the awards program is available at both our websites — www.cfsi.org and www.medicalert. org/award. If selected as a recipient, your department would be recognized at the annual National Fire and Emergency Services Dinner before 2,000 of our nation's leading fire service officials.

On behalf of our organizations, we thank you for your commitment and dedication to public safety.

Sincerely,

Bill Webb

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## BEST PRACTICES CAREER FIRE DEPARTMENTS

### Northwest Fire/Rescue District (AZ)

(2011 CFSI/MedicAlert Award Recipient)

With ten stations to serve explosive growth, the Northwest Fire/Rescue District (NWFD) serves a 140 square mile area surrounding Tucson and the adjacent metro region of Pima County, Arizona. Always striving to enhance the delivery of service for the community, NWFD undertook a needs-assessment survey in conjunction with the University of Arizona to establish benchmarks and institute continuous quality improvements. NWFD realizes that community-based medicine will be the future of the department and the community.

To address the need for consistent and uniform training for all urban, suburban and rural stations, NWFD has turned to high-fidelity technologies. Using an iStan manikin from Medical Educational Technologies, the department has provided innovative and qualitative training to all stations. The department has also realized the benefits of telemedicine for distance-learning. Based on the department's needs, an organic relationship developed with the Arizona Simulation Technology and Education Center at the University of Arizona's College of Medicine and the Arizona Telemedicine Network has bridged the challenges for distance learning for both pre-hospital and hospital personnel. The natural evolution of pre-hospital EMS training has taken steps to standardize patient care and provide regional training with multiple geographically-diverse locations in real time.

Utilizing the extensive capabilities of advanced technologies, like telemedicine and simulation, as tools for pre-hospital EMS training, EMS personnel are able to perform high-risk invasive medical procedures without actual patient contact or risk of exposure to communicable diseases. In December 2010, a mass-casualty trauma exercise coupled with the National Incident Management System (NIMS) refresher training for battalion chiefs was



Pictured from left to right: Northwest Fire/Rescue District Battalion Chief of EMS Sean Culliney, Northwest Fire/Rescue District Fire Chief Jeff Piechura, MedicAlert Foundation Board Chair Mary L. Dean, Senator John McCain, Northwest Fire/Rescue District Battalion Chief Brad Bradley

conducted to produce stressors over and above "the norm" and allow multiple units on scene to problem-solve and work through any complications.

Less than a month later, on January 8, 2011, during a public meeting with Representative Gabrielle Giffords, several lives were lost in a massive shooting. The Northwest Fire/Rescue District responded and later credited the mass casualty simulation drill as the exact training that prepared NWFD for the real incident.

NWFD will continue to embrace high fidelity medical training both locally and regionally in order to maintain a standard that continues to meet the growing needs of the community.

### Henrico County (VA) Division of Fire

The Henrico County Division of Fire is a 575-member all-hazards career department operating out of 20 fire stations serving a diverse urban, suburban and rural population of more than 300,000. The Division of Fire (DOF) is the primary EMS agency providing first response on all suppression apparatus and advanced life support transport, utilizing 14 paramedic-level ambulances. Mental illness is involved in about 20 percent of all EMS calls. Although most of these incidents are resolved with relative ease, a number of them test all components of the public safety team including fire, law enforcement, mental health and the local health care community.

In 2006, several key stakeholders from police, fire and mental health departments began to investigate best practices in response to citizens in crisis due to mental health. In 2008, the Henrico County Crisis Intervention Team (CIT) was established to ensure the best possible outcomes for these citizens. The Henrico County CIT incorporates local fire-based EMS resources as part of the service model.

Recognizing the valuable expertise in medical issues offered by the Henrico County Division of Fire, the county's public safety agencies turned to the DOF to play a critical role in shaping the Crisis Intervention Team. The Division of Fire members offer expertise in medical issues that frequently precipitate, contribute to or exacerbate a crisis attributed to mental health. Fire service-based EMS providers offer law enforcement officers additional options for restraint, including medical monitoring and chemical restraint. This well-practiced multi-disciplinary response has already proven effective in improving safety for the public and responders. Effective crisis intervention leads to fewer unnecessary incarcerations and hospitalization stays, supports community-based solutions for consumers leading to an improved quality of life, and reduced liability for the involved agencies.

The basis for all CIT training is creating a mindset of treating people with mental illness with respect. To date, Henrico CIT has trained over 296 personnel. All Division of Fire lieutenants and captains who hold medic certifications, including all on-duty EMS Field Supervisors, have received 40 hours of training as CIT responders to give Henrico County 24-hour coverage for crisis calls.

### Memphis (TN) Fire Department

The Memphis Fire Department is a progressive fire-based EMS system with over 400 firefighter/paramedics and 1,100 EMT/firefighters. On any given shift, 40-46 of the engine or ladder companies are advanced life support (ALS)-capable. Moreover, every paramedic or EMT in the department is a firefighter.

Patient care is the primary focus of the Memphis Fire Department. One statistic that underscores this fact is a Return of Spontaneous Circulation of 16.7% for all cardiac arrest patients (the national average is 5%). The department also has an aggressive STEMI program. The average time from door-to-balloon is 46 minutes for every call, and the average time from a 9-1-1 call to balloon is 87 minutes. The department also has an induced hypothermia program for resuscitated cardiac arrest victims that has proven invaluable towards patients' full and complete recovery.

EMS training is both innovative and extensive. Since 1992, all firefighters have to become EMTs and as of 2007 they have to become paramedics. The department conducts out-of-the-box training, including a first-in-the-country procedural anatomy lab with complete non-embalmed cadavers utilizing high risk/low frequency lifesaving procedures; gross anatomy lessons combined with standard and new technology treatment modalities, methodologies and equipment. The department's EMS Quality Management Office offers an innovative Field Training Officer (FTO) program for new employees. The department is also the first fire department in the U.S. to conduct Six Sigma Quality Management Training for key personnel to enhance clinical and system challenges, and it continues to improve response and care for pediatric patients through joint programs with area hospitals.

The Memphis Fire Department's fire-based EMS System is leading the way in educating and exercising the region in disaster readiness initiatives.

### New York City Fire Department's Emergency Medical Service

The New York City Fire Department's Emergency Medical Service (FDNY-EMS), the largest EMS system in the nation with approximately 3,300 uniformed EMS personnel, is the first fire service-based EMS system in the country to implement a hypothermia treatment protocol for cardiac patients. In January 2009, FDNY-EMS launched Phase I of Project Hypothermia which involved FDNY-EMS transporting cardiac arrest patients experiencing a return of spontaneous circulation (ROSC) only to hospitals where medical personnel could administer hypothermia treatment. In 2005, only 10 hospitals in New York City administered hypothermia treatment; now 46 of the city's 48 hospitals administer the treatment. The results of this change have been dramatic. Twenty percent more post-ROSC patients survive to hospital admission, while discharge rates for such patients have increased by 30%, and nearly 70% of surviving patients now leave hospitals neurologically intact.

In late summer of 2010, Phase II was initiated with all ALS paramedics receiving specialized training to administer hypothermia treatment immediately to all cardiac arrest patients on the scene or en route to the hospital. Since this procedure is now protocol, all patients receiving this treatment must be transferred to a participating hospital so that hypothermia treatment can be continued.

New York City hospitals participating in this effort are required to report data regarding the results of hypothermia treatment to FDNY-EMS. As a result, FDNY has developed a comprehensive data registry that will allow it to further refine the use of this treatment in New York and around the world. All ALS ambulances were outfitted with portable refrigerators to store six one-liter bags of normal saline that is cooled to just above freezing. Implementation of this procedure has proven to be safe, cost-effective and successful as a pre-hospital treatment. To record the results of hypothermia treatments as a basis for making enhancements, the FDNY-EMS developed a comprehensive data registry that participating hospitals are required to report data.

### Sandy Springs (GA) Fire Rescue Department

The Sandy Springs Fire Rescue Department serves a community of 98,000. The city's government leaders consider public safety a top priority and strongly advocate for the latest advances to enable delivery of the highest quality care to the citizens of Sandy Springs. To gauge the progress of the Sandy Springs Fire Rescue programs, the city leaders compared local statistics against national averages for out-of-hospital cardiac arrests and found better than average results across the board. The initiatives that earned Sandy Springs Fire Rescue high marks include training and awareness in CPR and AED use.

Sandy Springs Fire Rescue has focused its efforts on the care of cardiac arrest patients, emphasizing approaches that enable patients to resume pre-arrest quality of life neurologically intact. Among these approaches is inducing hypothermia on cardiac arrest patients as a "neuro-protective treatment strategy." The Sandy Springs Fire Rescue personnel are trained to provide hypothermia treatment to patients in the field to minimize the chances of neurological injury and improve the outcomes for the patients. Implementation of a state-of-the-art regional 9-1-1 center has helped reduce call processing and response times, further reinforcing the city's commitment to excellent emergency care for area residents. Sandy Springs has also emphasized CPR training for bystanders. Since 2007, the department has trained more than 4,500 residents in CPR and AED uses, and placed more than 154 AEDs in the city. The Sandy Springs Fire Rescue Department recognizes the benefits of community involvement in keeping their residents safe.

### Broward County (FL) Sheriff's Office Department of Fire Rescue

The Broward County Sheriff's Office Department of Fire Rescue is the largest accredited fire-based EMS provider in the country. The accrediting agency is the Commission on Accreditation of Ambulance Services or CAAS. Concerned with the existing treatment procedures for sudden cardiac arrest victims, the EMS Division was determined to find alternative approaches for improving the cardiac arrest treatment strategy. The EMS Division's goal was to increase staff effectiveness, improve cardiac arrest survivability, deliver more victims to the emergency department with Return of Spontaneous Circulation (ROSC) and keep pace with changing science while reducing the risk of injury to the responders. Turning to evidence-based science, the EMS Division created, and continually updates, EMS web-based protocol systems to keep current on the latest changes in pre-hospital care and effective treatments for cardiac arrest patients.

To reinforce this commitment, the EMS Training Division developed and implemented a training and mentoring program emphasizing a team approach with each member delegated individual care responsibilities in each cardiac arrest case. The Regional AED program was a key factor in the development of this treatment model. An investment was made in the latest equipment for cardiac arrest patients designed to increase the number of resuscitations and, ultimately, survival rates, including the ResQPod® and the Zoll AutoPulse Non-Invasive Cardiac Support Pump. The team studied protocols across the country, closely examining the emerging process of induced hypothermia that has been shown to increase survivability and to protect the brain for better neurological outcomes in cardiac arrest survivors. The new processes adopted by the Broward County Sheriff's Office Department of Fire Rescue have resulted in a 29% to 51% ROSC success rate in cardiac arrest patients and decreased risk of injury to firefighters and paramedics.

### Sun City West (AZ) Fire District

The Sun City West Fire District demonstrated its commitment to providing excellent patient care by establishing an innovative 100% Quality Assurance (QA) by Peer Review and Administrative Oversight process. The focus of this initiative was to ensure that Emergency Medical Services was employing the best and most current practices and identifying existing training gaps and filling those voids with adequate training programs. Dissatisfied with procedures used by many departments, the Sun City West Fire Department developed a framework based on a designed QA process of peer review using electronic charting and pre-established QA teams.

With the goal of meeting 100 percent chart audit, the Sun City West Fire District process is comprised of five simple components: (1) utilize an electronic charting (ePCR) vendor that allows ad-hoc reports and "scrubs" protected health information from viewed charts; (2) establish a written QA process detailing procedures; (3) ensure team members are listed in a file and HIPPA/PHI education is documented; (4) be consistent on the process approach; and (5) identify the mechanism for mitigating future occurrences through training or protocol changes.

The process of spreading the review across three peer-review teams — utilizing alternate shift members to review charts that are kept anonymous to avoid identification of individuals — has resulted in a culture of excellence with participating individuals motivated to advance their own care modalities by pursuing additional training. These individuals were identified by department leaders as candidates for promotion which encouraged greater participation. The result of implementing the QA100 practice was a demonstrated change in performance among the EMS professionals.

# BEST PRACTICES VOLUNTEER DEPARTMENT

## Odessa (DE) Fire Company (2011 CFSI/MedicAlert Award Recipient)

The Odessa Fire Company is a volunteer fire, rescue and EMS agency located in southern New Castle County, Delaware. Odessa did not have an ambulance service until 1998, when an increase in population warranted the need for the service. The department currently operates two units that run 24/7 in conjunction with the local Advanced Life Support service.

Odessa stresses training and certification for all its members. Each member must maintain both state and national credentials in order to ride in an ambulance. In addition, all new members of the department must participate in First Responder training while existing members are encouraged to obtain the training.

Safety of both the patient and the responder is a primary concern for the department, and this is clearly evident in the design of both ambulance units. Purchased in 2004, each unit is equipped with a Holmatro battery-operated vehicle extrication/cutting tool. This allows ambulance personnel to gain access to trapped victims if rescue apparatus is late to arrive on the scene. Both units are also equipped with Stryker Power Pro automated stretchers for ease of lifting patients into the units. In 2009, the department purchased two Zoll Auto Pulse units using Impact Fee money (funds allocated to the department from the building of new homes). These devices enable continuous chest compressions on heart attack victims while the responder remains seated in a moving ambulance.

In 2010, Odessa purchased a new ambulance, this one featuring many new safety designs. The unit has seats facing forward. The department installed a three-point harness rather than a five-point to encourage usage. Safety items including indicator lights in the patient compartment to signal turns and



Pictured from left to right: Congressman John Carney, Odessa Fire Company Chief David Aber, Odessa Fire Company President Frank Gant, Governor Jack Markell

braking were also installed, as were video cameras to monitor traffic on the sides of the vehicle as well as on the back.

Odessa also has led an effort to place carbon monoxide patient monitors throughout the state. This effort resulted in being awarded a \$420,000 regional Assistance to Firefighters Grant that enabled the department to purchase 150 Masimo RAD-57 units to be placed across the state. This gave the state of Delaware the ability to detect toxic carbon monoxide levels in firefighters.

While Odessa is a small company when compared to others in the state, it is a giant in providing the highest level of both patient and responder safety.

# BEST PRACTICES COMBINATION DEPARTMENTS

## Friendswood (TX) Volunteer Fire Department (2011 CFSI/MedicAlert Award Recipient)

The Friendswood Volunteer Fire Department serves a 21 square mile area with an estimated population of 29,000. Staffing four stations, the department has more than 90 volunteers and a paid day crew on duty during the week. The Friendswood Volunteer Fire Department is committed to delivering high quality pre-hospital patient care and community-wide emergency response. To help improve the recovery rate of patients after an emergency, Friendswood uses cutting edge technologies such as the Induced Cooling by EMS (I.C.E) protocol to reduce the effects of Post Resuscitation Encephalopathy. After a thorough study found limited side effects from the use of induced hypothermia on Post Resuscitation of Spontaneous Circulation (ROSC) patients, the Friendswood Volunteer Fire Department developed a

comprehensive protocol using induced hypothermia as part of a multifaceted

approach to optimize neurologic resuscitation on ROSC patients.

Another proactive enhancement initiated by the Friendswood Volunteer Fire Department that has significantly reduced the amount of time required for patient preparation is training medics to perform at least three critical first steps in cardiac patient care. Having medics start double-lumen IV catheters, administer Heparin and send 12-Lead ECGs via telemetry all while in the field, the catheterization team is able to begin definitive, life-saving treatment sooner. The Friendswood Volunteer Fire Department is also taking a leadership role in emergency disaster planning by participating in and sponsoring conferences and drills in disaster management. The department is actively engaged in community activities that promote public safety and injury prevention including free immunization clinics and community CPR training.



Pictured from left to right: Friendswood Volunteer Fire Department Captain Roy Hunter; Friendswood Volunteer Fire Department Chief Lisa Camp; Friendswood Volunteer Fire Department Captain Andrew Chalk

### **Brooklyn Park (MN) Fire Department**

The Brooklyn Park Fire Department is the busiest non-career fire department in the state of Minnesota, protecting a community of 75,000 in a 27 square mile area. Recognizing the growing and changing complexion of the region, the Brooklyn Park Fire Department undertook an aggressive reorganization beginning in July 2007 aimed at providing residents and visitors with excellent medical response services. Achieving and maintaining a successful transformation required a comprehensive, ongoing strategy and implementation of numerous initiatives.

Investing in a 24x7 staffing model, Brooklyn Park employs six paid-on-call (POC) firefighters each day and three at night to provide immediate response capabilities. These part-time POC firefighters, who are paid an hourly wage while on shift, consistently meet or exceed the NFPA standard for response time on medical calls. The redesign of staffing and apparatus deployment, using small vehicles and two-person rescue crews, has significantly reduced both fuel costs and capital expenses, and allows the department to deliver patient care in areas previously not reachable. The entire department staff is certified to the EMT-B level, including four EMT-Ps and 61 EMT-Bs. Moreover, EMT-B certification is a requirement for employment.

The department has forged a strong working relationship with a primary advanced life support provider. This relationship has proven very beneficial on a number of levels, including exchange programs for any used medical supplies, EMT assistance during transport of critical patients, training partnerships between the two entities and a station modification creating an ambulance bay and separate quarters for the medics.

Realizing that this is an ongoing process, the department initiated executivelevel meetings to assess progress and ensure current goals are meeting changing demands. Additionally, practices have been instituted to achieve better oversight and consistent performance and an awards program was launched to recognize achievements.

### **Cherokee County (GA) Fire-Emergency Services**

The Cherokee County Fire-Emergency Services underwent many changes this past year to improve the level of emergency care for the citizens of Cherokee County. First, the department changed how the dispatch center processes medical calls, significantly reducing the average time for dispatching emergency medical crews by one minute and twenty seconds.

To improve the quality of care for cardiac arrest victims, the Cherokee County Fire-Emergency Services implemented the Therapeutic Hypothermia Protocol. Each ambulance is now equipped with an Engle cooler that keeps IV fluid at 39 degrees centigrade and a freezer cooler filled with ice packs for further cooling. The post-resuscitated patients are transported to facilities that have heart catheterization programs that can continue cooling the patients upon arrival.

These are just two of the significant changes implemented by the Cherokee County Fire-Emergency Services to enhance the delivery of emergency medical services for its residents.

### Goodyear (AZ) Fire Department

In 2008, the Goodyear Fire Department and West Valley Hospital developed the "Door to Balloon" Time Reduction Project to increase patient survivability and improve health and wellness of acute heart attack patients. The transmission of 12-Lead ECGs in the field and reduction of "door-to-balloon" times below the national stated average of 90 minutes are the core elements of the program.

When a patient experiences chest pains, a 12-Lead ECG is initiated on the scene by the Goodyear Fire EMTs and Paramedics. The 12-Lead ECG is immediately transmitted by a Philips MRx heart monitor and a cell phone, which is part of the paramedic's equipment, to West Valley Hospital. This pairing sends the 12-Lead information directly to the emergency department via Bluetooth technology. An emergency department nurse receives the 12-Lead ECG from the paramedics to start a "chest pain rapid response" and the cardiac response team at the hospital is mobilized – all done before the patient arrives at the ED.

By working collaboratively, the Goodyear Fire Department and West Valley Hospital are able to impact positively patients' lives by reducing the amount of time it takes to open their occluded cardiac vessel. While the national standard is 90 minutes, the Goodyear Fire Department and West Valley Hospital have consistently lowered that number to an average of 74 minutes.



William F. Jenaway, CFSI President and Mary L. Dean, MedicAlert Foundation Board Chair pictured with the 2011 Excellence in Fire Service-Based EMS Awards Program award recipients.



Established in 1989, the
Congressional Fire Services
Institute (CFSI) is a
nonprofit, nonpartisan
policy institute that works
with Members of Congress
in promoting fire and life

safety issues. Working with other national fire service organizations, the CFSI focuses its attention on issues that benefit all first responders. Members of the Congressional Fire Services Caucus, the largest caucus in Congress, look to CFSI for guidance and information to enhance their level of understanding about the challenges and needs of our nation's fire and EMS communities.

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More than 50 years ago, MedicAlert Foundation pioneered the use of medical IDs and systems to relay vital medical information on behalf of its members to emergency responders to ensure faster and safer treatment. Today, MedicAlert provides the functionality of an e-health information exchange through an innovative combination of a unique patient identifier linked to a PHR and a live 24/7 emergency response service. MedicAlert medical IDs alert emergency personnel to a member's primary health conditions, medications or implanted devices. In addition to its 24-hour emergency response service, MedicAlert also provides family and caregiver notification so that members can be reunited with their loved ones. MedicAlert services are available around the world through a network of international nonprofit affiliated organizations licensed by the Foundation.

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