DEMSOC
Delaware Emergency Medical Services Oversight Council

2008 Annual Report

Dedicated to the everyday heroes who have given the ultimate sacrifice …

Paramedic
Stephanie Callaway

EMT-B
Michelle (Newton) Smith

The Honorable Jack Markell, Governor
April 15, 2009

To the Citizens of Delaware:

On Behalf of Governor Jack Markell and the Delaware Emergency Medical Services Oversight Council (DEMSOC), I am pleased to present the 2008 DEMSOC Annual Report. DEMSOC was created in 1999 to promote the continuous development and improvement of our Emergency Medical Services (EMS) System.

There can be no greater reminder of the sacrifice that the men and women of Delaware’s Emergency Medical Community make than the line-of-duty deaths of Stephanie Calloway and Michelle Smith. This year’s DEMSOC report is dedicated to the memory of Stephanie and Michelle and all who have given the ultimate sacrifice while providing care to someone else.

The membership of DEMSOC includes professionals from several EMS provider agencies, representatives from agencies that frequently work with and support EMS, and private citizens knowledgeable in the delivery of EMS care. The Council meets several times throughout the year to address current issues and provide support for developing workable solutions to those issues.

The purpose of this report is to inform others about Delaware’s EMS system and increase awareness of the issues that most directly affect the delivery of EMS service and the quality of EMS patient care. Throughout the year we have witnessed great achievements in the EMS community and this report attempts to capture those successes as well as to build the framework for addressing the challenges that lie ahead.

As you review this year’s report, I encourage you to use the information provided to become more aware of the important role of our EMS system in Delaware, and I ask for your continued support for the dedicated professionals and volunteers that work hard to ensure that our EMS system remains a leader among its peers.

Respectfully yours,

[Signature]

Lewis Schillir, Secretary
Department of Safety and Homeland Security

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In the early morning hours of Tuesday, June 17, 2008, Sussex County Paramedic Stephanie Callaway was tragically killed when the ambulance in which she was caring for a patient swerved to avoid a deer and struck a tree. Hers was the first line-of-duty death of a paramedic in Delaware. Her patient, 82-year-old Betty Jane Hall of Lewes, Delaware, was also killed in the crash.

Paramedic Callaway began her career in EMS in 1994 at the Georgetown American Legion Ambulance Squad. In her application, when asked why she wanted to join, she answered “When my neighbor’s house caught fire, I had helped everyone to remain calm until the firefighters arrived on scene”. Her dedication to helping others in crisis led to a career in public safety and EMS. Stephanie worked as a State Police dispatcher prior to enrolling in the Paramedic Training Program at Delaware Technical and Community College. She graduated with honors in 2001, and joined Kent County EMS, where she served as a Paramedic until joining Sussex County EMS on July 14, 2003.

During her 5-year career at SCEMS, Stephanie rose to the rank of Paramedic II, and served as a Field Training Officer, Public Information Officer, and member of the Honor Guard. She was also President of the Sussex County Paramedic Association, and a member of the Lewes Fire Department. Stephanie is survived by her husband Steve, and sons Matthew, 6, and Ryan, 2.
Stephanie was known for her love of learning, whether it was the latest clinical information in her profession or her passion for photography. Her drive to excel in her studies at The George Washington University led her to graduate Magna Cum Laude with a Bachelor of Science Degree in Health Sciences, even while being a full-time paramedic, a full-time mom, and giving birth to her second child.

Stephanie’s dedication to excellence as a paramedic, her devotion to her family, and her talent for bringing out the best in everyone with whom she worked set an example for all who knew her. Her quiet voice and ever-present smile, and her talent for picking up the spirits of those around her are how her friends will remember her. One of Stephanie’s favorite things to say when faced with difficult times was “don’t worry; it’s all good”. She earned the nickname “Giggle Medic” for her bright, bubbly attitude that could brighten the darkest day. Even now as her EMS family tries to heal from the pain of her loss, the thought of her brings smiles to our faces. To have had the privilege of knowing Stephanie, and to carry her memory in our hearts, is indeed “all good”.
On Monday morning, Dec. 22nd, the Delaware City Fire Company was informed of the tragic loss of Firefighter Michelle Smith, 29, who succumbed to the traumatic injuries she sustained on Dec. 20th. Michelle was assisting with the care of a critically injured patient at the scene of a motorcycle accident on DuPont Highway. This is the first line of duty death for the Delaware City Fire Company in its 121 year history.

Michelle L. Smith has served the Delaware City Fire Company and the Delaware City Ladies Auxiliary for over five years, holding the Secretary position with the Ladies Auxiliary. She also serves with the Volunteer Hose Company of Middletown, DE. Michelle is survived by her 12-year-old daughter. A graduate of Middletown High School, Michelle worked for Coventry Healthcare.
Michelle was a truly positive person that specifically became a member to provide assistance to the community, through fire prevention and emergency medical services. Michelle was the Co-Chair of the department's fire prevention committee and recently assisted with the fire company open house. She cherished the department's recent receipt of the Edward McCormack Award, presented by the Delaware State Fire Prevention Commission.

Michelle typified Delaware City Fire Company as a firefighter and as a member of the Ladies Auxiliary. She took great pride in her numerous contributions, including emergency response, fire prevention and community awareness.

Photograph submitted by Brian P. Slattery of "Fire in the Hole" Photography
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Executive Summary

The 2008 edition of the Delaware Emergency Medical Services Oversight Council (DEMSOC) annual report represents the policies, performance, prevention, resources and cost of the State of Delaware’s Emergency Medical Service (EMS) System. The primary goal of this report is to be a source of information for those interested in the progress of the state’s EMS system. The inaugural report in 2000 allowed DEMSOC to begin the process of establishing a baseline from which to measure the impact of future changes and growth in Delaware’s EMS system. DEMSOC presents this annual report in accordance with Title 16, Chapter 97, Section 9703 of the Delaware Code.

Two EMS providers were fatally injured in the line of duty during 2008 and this report is dedicated to the loving memory of Paramedic Stephanie Calloway and EMT-B Michelle (Newton) Smith.

To increase awareness of the risk that EMS providers take on a daily basis, this report will highlight EMS safety issues. Throughout these pages you will find numerous examples of how EMS personnel jeopardize their lives everyday. We all share the responsibility of making a meaningful difference in people’s lives, and through funding and policy initiatives the system can be made safer for our EMS personnel who touch the lives of others.

It is DEMSOC’s vision that Delaware’s EMS system represents true excellence in out-of-hospital health care. Integrated within Delaware’s EMS system is emergency dispatch, emergency response, community health interventions, and prevention. DEMSOC is proud of these courageous public servants and is committed to help them provide the best possible service to the citizens and visitors of Delaware.

The ongoing challenges seen by the Delaware EMS system are consistent with those seen nationwide. These challenges include:

- EMS safety
- System finance and sustainability
- Increases in call volume due to population aging and growth
- Recruitment and retention

Many agencies receive funding through state and federal sources; however current federal funding cuts may adversely impact the system. The system must take a proactive approach to these issues to maintain the quality and efficiency of the State of Delaware’s EMS services.

According to the Delaware Population Consortium, there are 875,953 people living in the State of Delaware. Included in this number is a large population of elderly people and each year that number increases. Approximately 20.5% of Sussex County’s population is over the age of 65 according to the 2006 Delaware Vital Statistics Report. Sussex County’s elderly population has increased 58% over the past ten years. This increase in the elderly population has created a substantial increase in call volume.

While population is increasing, the volunteer EMS system is decreasing. EMS systems nationwide are facing issues with personnel recruitment and retention. There is a national shortage of EMS providers and a need to solidify EMS as a recognized medical profession. The national trend is toward the creation of a National Scope of Practice, which would standardize the provider levels recognized in each state and enhance interoperability, mutual aid and licensure reciprocity.

As you read this Annual Report, we are confident that you will also be proud of the State of Delaware’s Emergency Medical Services and the progress that has been made. DEMSOC members are encouraged by the system’s successes, optimistic about what the future may bring and look forward to enhancing the services provided to the State.
DEMSOC consists of 19 members appointed by the Governor. The Secretary of The Department of Safety and Homeland Security, Lewis Schiliro, serves as the Chairman. Also serving on the Council is the Secretary of Delaware Health and Social Services, Rita Landgraf. DEMSOC also includes representatives from the following agencies: the Governor’s Office, each County government, the Delaware State Fire Prevention Commission, the Delaware Volunteer Firemen’s Association and its Ambulance Committee, the Delaware Healthcare Association, the Delaware Police Chief’s Council, the Delaware Chapter of the American College of Emergency Physicians, the State Trauma System Committee, the Medical Society of Delaware, the Delaware State Police Aviation Section, and the State EMS Medical Director. There is a representative for practicing field paramedics and there are three at-large appointments for interested citizens, one from each county. The Delaware Office of Emergency Medical Services provides staff support for DEMSOC. The Office of Emergency Medical Services is assigned to Delaware Health and Social Services’ Division of Public Health and is the regulatory authority for the paramedic system and provides medical oversight to the state’s EMS system.

Delaware is a frontline leader in prehospital emergency care through comprehensive coordination, development and evaluation of the statewide emergency medical services system. The Delaware EMS system is a two tiered EMS delivery system with shared oversight of Basic Life Support services and
personnel by the State Fire Prevention Commission and Advanced Life Support services and personnel by the Office of EMS within the Division of Public Health within the Department of Health and Social Services. Coordination of the activities of these two entities is under the Delaware Emergency Medical Services Oversight Council established by law and appointed by the Governor.

**Delaware EMS Oversight Triangle**

There are two separate oversight agencies within Delaware for EMS providers. The Office of Emergency Medical Services regulates ALS agencies in regards to certification, education/training and medical control. The EMS medical directors, employed by the OEMS, provide medical direction to both ALS and BLS services.

The Delaware State Fire Prevention Commission oversees BLS services through the Ambulance service regulations. These regulations address administrative, operational and provider requirements. This includes emergency as well as non emergency ambulance services.
Delaware EMS System Oversight

Office of Emergency Medical Services
OEMS

The Office of Emergency Medical Services is a section within the Division of Public Health, Department of Health and Social Services. It plays a vital role in the integration of emergency medical services into the state’s public health system.

MISSION:

The mission of the Office of Emergency Medical Services is to assure a comprehensive, effective and efficient statewide emergency medical care delivery system in order to reduce morbidity and mortality rates for the citizens of Delaware. The OEMS ensures quality of emergency care services, including trauma and prehospital advanced life support capabilities, through the coordination and evaluation of the emergency medical services system, within available resources.

PHILOSOPHY:

The OEMS is committed to ensuring high quality prehospital care to the citizens of Delaware. This agency supports the concepts of continuous quality management for all services it provides. The OEMS believes that the personnel working in the prehospital system take pride in their work and are motivated by a desire to achieve individual and system-wide excellence in the provision of prehospital care. Quality management will be seamlessly integrated into the work of Delaware pre-hospital services to the extent that the concepts of quality management are indistinguishable from the daily work of the prehospital
provider. The Office of Emergency Medical Services administers and enforces emergency medical services statutes, regulations, programs and policies.

**Responsibilities of this agency include:**

**Advanced Life Support Services (ALS):** The OEMS ensures highly trained paramedics are providing quality emergency care to the citizens and visitors of Delaware. The OEMS is responsible for coordination of training, certification, financing and oversight of the state’s paramedic system.

**Statewide Trauma System & Injury Prevention:** This program is responsible for coordination of hospitals and provider agencies to ensure optimal care for trauma patients and serves as a leader in statewide injury prevention efforts.

**Emergency Medical Services Data Information Network (EDIN):** The EMS Data Information Network (EDIN) system collects EMS report data electronically on a real-time basis and provides administrators with a powerful resource management and research tool. The EDIN system collects, at minimum, over 130 data points covering demographic, assessment and treatment phases of an EMS incident.

**EMS Medical Direction:** This program is responsible for providing medical oversight of the statewide EMS system (Advanced and Basic Life Support), review and modification of the statewide standard treatment protocols, oversight of medical command facilities, conducting research and oversight of the statewide EMS quality assurance program.

**Emergency Medical Services for Children (EMSC):** The goal of this program is to improve emergency care for children in the State Of Delaware through specialized activities. The Special Needs Alert Program (SNAP) and Safe Kids are part of the programs within EMSC.

**First State, First Shock Early Defibrillation Program:** This program is responsible for providing data collection, training and prevention activities in support of initiatives to reduce cardiac arrest deaths in Delaware.

**Crash Outcome Data Evaluation System (CODES):** This program analyzes data to gain a more comprehensive understanding of the causes and impacts, both medical and financial, of motor vehicle crashes, and is better equipped to develop injury prevention programs with demonstrated potential for improved outcomes.

**Poison Control Center Programs:** The OEMS administers Delaware’s contract with the Poison Control Center (PCC) at The Children’s Hospital of Philadelphia to provide a 24-hour-a-day emergency hotline for poisoning incidents and poison information for Delaware residents.

**EMS Infectious Disease Exposure Monitoring:** The need for an effective infection control program has always been an essential and integral part of the pre-hospital practice in Delaware, because there is both the risk of healthcare providers acquiring infections themselves, and of them passing infections on to patients. Preventive and Proactive measures offer the best protection for individual and organizations who may be at an elevated exposure to these infectious diseases.
State Regulations promulgated through OEMS:

Delaware Trauma System Regulation: The State Trauma System regulations were first promulgated in 1997 to add detail to the Trauma System enabling legislation of 1996. Subsequent revisions were enacted in 1999 and 2001. The regulations include sections on the Trauma Center Designation Process, Trauma Center Standards, Triage, Transport, and Transfer of Patients, and the Trauma System Quality Management Plan.

Air Medical Ambulance Service Regulation: The purpose of this regulation is to provide minimum standards for the operation of Air Medical Ambulance Services in the State Of Delaware. It is the intent of these regulations to ensure that patients are quickly and safely served with a high standard of care and in a cost-effective manner.

Early Defibrillation Provider Regulation: The purpose of this regulation is to establish the criteria for training and the right for emergency responders to administer automatic external cardiac defibrillation in an out-of-hospital environment.

Advanced Life Support Interfacility Transfer Regulation: The purpose of this regulation is to permit the use of paramedics, under the oversight of the Division of Public Health, to manage patients while in transit between medical facilities or within a healthcare system. It includes approval of an organization to provide service using paramedics, as well as define their scope of practice and medical oversight. Data reporting to the Division of Public Health is included for the purposes of evaluating the performance of the State EMS system, of which Interfacility Transport is a component, regardless of the level of medical care provided.

Prehospital Advanced Care Directive Regulation: On July 10, 2003, legislation was signed into Delaware law to adopt a Pre-Hospital Advanced Care Directive (PACD). A Delaware Pre-hospital Advanced Care Directive is a specific order initiated by the individual and signed by a physician stipulating a specific authority to follow and adhere to a terminally ill patient’s medical care and treatment wishes. The PACD form is a standardized document that can be immediately verified by pre-hospital personnel. In any situation where pre-hospital personnel have a good faith basis to doubt the validity of a signed PACD form, the provider is directed to resuscitate and contact on-line medical control. Should the PACD form be located and presented to pre-hospital personnel once life saving efforts have commenced, pre-hospital personnel will alter their course of action immediately based on information contained in the signed PACD form. The regulation also details the legislated immunity for certified providers honoring this order.

OEMS Board and Committee Memberships:

Organ and Tissue Donor Awareness Board: The Office of EMS provides staff support to the Delaware Organ and Tissue Donor Awareness Board. Created by Delaware Code, Title 16, Chapter 27, Anatomical Gifts and Studies, Section 2730, this Governor-appointed Board has the responsibility of promoting and developing organ donor awareness programs in Delaware. These programs include, but are not limited to, various types of public education initiatives aimed at educating residents about the need for organ donation and encouraging them to become designated organ donors through the State driver’s license program. An average of 400 Delawares are waiting for organ transplants at any given time. In 2006, sixty-one Delawares were organ transplant recipients and 30 patients’ families gave the gift of life by
donating their loved ones’ organs or tissues at death. Approximately 279,700 (39%) of Delaware drivers have designated themselves as organ donors on their driver’s licenses to date.

The Office of EMS is assigned within the Division of Health and Social Services and is committed to the overall mission of that agency: “To improve the quality of life for Delaware's citizens by promoting health and well-being, fostering self-sufficiency, and protecting vulnerable populations.”

To support this mission the OEMS has representation on the following committees:

- DEMSOC
- Domestic Preparedness
- National Association of State EMS Officials
- Maternal Child Health Steering Committee
- Organ and Tissue Donor Awareness Board
- National Trauma-EMS Stakeholders Committee
- Coordinating Council for Children with Disabilities
- Accreditation of Educational Programs for the EMS Professions (CoAEMSP)
- Child Death, Near Death and Stillbirth Commission
- American College of Surgeons’ Trauma System Consultation-site visit review
- Statewide Interpretative and Emergency Communication
- New Castle County EMS Advisory Committee
- Sussex County EMS Advisory Council
- ALS Standard Subcommittee of the Board of Medical Practice
- Delaware Chapter of the American College of Emergency Physicians
- Delaware Chapter of the Committee on Trauma
- Delaware Chapter of the American Trauma Society
- American Heart Association’s Delaware Mission Lifeline
- Medical Information System Committee
- Traffic Records Coordinating Council "Core Team"
- DPH Section Chiefs
- CODES
- EMS Dispatch Committee
- Governor's Stroke Task Force
- DTCC Paramedic Education Advisory Board
- DEMSOC Mass Casualty Transport Committee
- Atlantic EMS Council
- Priority Medical Dispatch
- School Health Commission
- Risk Watch
- Drowning Prevention Coalition
- NAEMSP Annual Meeting
  - NAEMSP Public Health Committee
  - NAEMSP Standards and Clinical Practice Committee
  - NAESMP Quality Improvement Committee
  - NAEMSP Air Medical Services Ad Hoc Committee
- Christiana Care Emergency Department Research Committee
- Christiana Care Critical Care Committee

The Office of EMS brings life-saving medical care to the residents and visitors of Delaware by overseeing and ensuring that responders are fully trained and emergency systems are functioning efficiently and effectively. This ensures a safer and healthier place to live for all Delawareans.
The State Fire Prevention Commission is charged with the protection of life and property from fire for the people of Delaware and to oversee the operation of the Delaware State Fire Marshal’s Office and the Delaware State Fire School.

The Statutory responsibilities of the Delaware Fire Prevention Commission are to promulgate, amend and repeal regulations for the safeguarding of life and property from hazards of fire and explosion. The Statutory responsibilities of the State Fire Prevention Commission may be found in Title 16, Chapter 66 & 67 of the Code and are summarized as follows but not limited to:

- The Commission shall consist of seven persons appointed by the Governor.
- They shall also have the power to promulgate, amend and repeal regulations for the safeguarding of life and property from hazards of fire and explosion.
- Prior to promulgation, they shall hold at least one public hearing on each regulation, amendment or repealer and shall have the power to summon witnesses, documents and administer oaths for the purpose of giving testimony.
- They shall appoint the State Fire Marshal and State Fire School Director.
- The Commission shall have power to authorize new fire companies or substations; resolve boundary and other disputes; prohibit cessation of necessary fire protection services.
- The Commission is empowered to enforce its orders in the Court of Chancery.
Delaware State Fire School
(Submitted by the DSFS)

Delaware Code, Title 16, Chapter 66, §6613 – 6618, mandates the Delaware State Fire School to: (1) provide firefighters with needful professional instruction and training at a minimum cost to them and their employers; (2) develop new methods and practices of firefighting; (3) provide facilities for testing firefighting equipment; (4) disseminate the information relative to fires, techniques of firefighting, and other related subjects to all interested agencies and individuals throughout the state; and (5) undertake any project and engage in any activity which, in the opinion of the State Fire Prevention Commission, will serve to improve public safety.

In order to comply with the statutory mandate, the State Fire School established a goal “to provide fire, rescue, emergency care, and related training to members of the fire community, industry, agencies, institutions, and the general public requiring specific programs and any program which will serve to benefit the safety of the public”. The primary activities center around operations at the State Fire Training Center west of Dover. Other activities are consolidated into in-service fire department training courses, training programs for state agencies, institutions and industrial facilities, public education programs, and emergency care and first aid courses.

The agency objectives established to achieve that goal are:
- To provide firefighters with needful professional instruction and training.
- To provide basic life support personnel with needful professional instruction and training.
- To provide rescue personnel with needful professional instruction and training.
- To certify basic life support personnel as State of Delaware Emergency Medical Technicians.
- To inspect and license ambulances that operate within the State of Delaware. To provide agency, institutional and industrial personnel and the general public with needful professional instruction and training.
- To disseminate information relative to fires, techniques of firefighting, and other related subjects to all agencies and individuals throughout the state.
- To develop new methods and practices of firefighting.
- To provide facilities for testing of firefighting equipment.

On July 1, 1972, the State Fire Prevention Commission was also given the mandate under Delaware Code, Title 16, and Chapter 67, §6708 – 6714, to regulate the ambulance service in Delaware. The Commission assigned to the State Fire School the added duties of inspecting and licensing ambulances and the training and certifying of ambulance personnel.

Ambulance Service Regulations – This regulation is to ensure a consistent and coordinated high quality level of ambulance service throughout the state focusing on timeliness, quality of care and coordination of efforts. This regulation addresses BLS Ambulance Service as well as Non-Emergency Ambulance Service. It clearly defines the administrative and operational requirements for such entities.
The State Fire Prevention Commission has adopted as a regulation a Statewide Quality Assurance and Improvement Committee. This committee, under the direction of the State Medical Director, is responsible for assuring and improving the quality of Basic Life Support within the EMS systems that serve the State of Delaware. By conducting medical incident reviews and evaluating patient care statistics, the committee is able to provide constructive feedback on quality improvement to all EMS professionals within the State of Delaware.

The State Fire Prevention Commission also adopted a BLS regulation that detailed EMS Educational Program Administrative Standards and Guidelines. This regulation describes the standards and guidelines for emergency medical services (EMS) educational agencies that present programs for the First Responders in the State of Delaware. The regulation was developed to insure that all students receive the highest quality of training approved by the State Fire Prevention Commission and the Office of Emergency Medical Services.

Office of the Fire Marshal
(Submitted by the OFM)

In 1953, at the urging of the Volunteer Fire Service, the State Legislature created the Office of the State Fire Marshal and directed that regulations, reflecting nationally recognized standards, be promulgated to enhance life safety and property conservation for the citizens of Delaware.

The State Fire Marshal's Office functions as an independent state agency under the State Fire Prevention Commission, which promulgates the State Fire Prevention Regulations, as enforced by the State Fire Marshal's Office. As the law enforcement agency charged by state statute with the suppression and investigation of arson, the State Fire Marshal's Office provides the lead role in fire and arson investigations, statewide. The agency is charged with assisting the Chief of any fire department on request, inspections and code enforcement in health care facilities, educational occupancies, public assembly, public accommodations, flammable and combustible liquids, flammable gases, explosives and fire works.

The State Fire Marshal's Office is responsible for the comprehensive compliance with the state statute for the installation of smoke detection devices in all residential occupancies, which will greatly reduce the likelihood of injuries and deaths from fire.

The objective of the State Fire Marshal's Office is to provide a fire safe environment for the citizens of Delaware and all who visit and carries out its mandate for Public Service, through the work of three divisions, Administration, Field Operations & Technical Services.

<table>
<thead>
<tr>
<th>Number of Fire Fatalities</th>
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<tr>
<td>Number of Burn Injuries Investigated by SFMO</td>
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2008 Delaware State Fire Marshal’s Office Data
Delaware EMS System Oversight

Medical Direction

Medical direction involves granting authority and accepting responsibility for the care provided by EMS, and includes participation in all aspects of EMS to ensure maintenance of accepted standards of medical practice. Quality medical direction is an essential process to provide optimal care for EMS patients. It helps to ensure the appropriate delivery of population-based medical care to those with perceived urgent needs. (NHTSA)

Delaware’s Emergency Medical Services (EMS) provides medical care to victims of illness and trauma through a coordinated medical system of EMS responders. EMS responders include 911 dispatchers, first responders, basic life support (BLS) providers, paramedics or advanced life support (ALS) providers and on-line emergency physicians who oversee individual patient care. All of these EMS responders are medically coordinated through protocols and training directed and overseen by Board Certified Emergency Physicians who practice in Delaware.

Legally, medical care is rendered by BLS and ALS providers under the medical license of the State EMS Medical Director. Delaware has a part-time EMS medical director and a part-time associate EMS medical director for each County as well as a BLS medical director, who are responsible for medical oversight, medical protocol coordination and quality assurance at the County level. The medical directors meet regularly to review statewide treatment protocols, quality issues, new medical techniques and equipment in a continuing effort to provide the citizens of Delaware with the most up-to-date and appropriate EMS care possible.

Delaware’s EMS Medical Directors insure quality care to our patients through interactions with other physicians, hospitals, citizen groups and organizations such as the American Heart Association and the Medical Society of Delaware. They review aggregate patient care data from the providers to determine the effectiveness of the treatment protocols. The EMS Medical Directors often bring diagnostic and
therapeutic modalities that they have used successfully in the emergency departments and move them into the prehospital environment. They also monitor the medical literature for new developments that may help Delaware patients.

**TREATMENT PROTOCOLS:**
Delaware’s EMS system provides care through a series of treatment protocols that allow certain level providers to initiate life saving care en route to the appropriate emergency department. Delaware has several unique protocols that have significantly improved patient care.

The new protocols for our paramedics and basic life support providers were published in 2008. Over the last eleven years, Delaware emergency responders have improved prehospital cardiac arrest resuscitation rates from twenty percent (20%) to thirty-eight percent (38%). In an attempt to improve alive, neurologically intact rates for our resuscitated patients, a post resuscitation "hypothermia protocol" was added. This allows paramedics to begin cooling a patient's brain which has been shown to improve neurological outcomes. The new protocols also include the addition of a device to improve the delivery of CPR and improve resuscitation rates of our cardiac arrest patients while enhancing provider safety in moving ambulances.

Carbon monoxide detection capabilities for providers were added to the protocols along with the ability for our providers to determine if a patient has carbon monoxide poisoning. These devices will increase both patient and provider safety by alerting providers of the possibility of intentional or accidental carbon monoxide poisoning exposure.

Over the last several years we have had great success in treating prehospital respiratory distress with continuous positive airway pressure (CPAP) use by our paramedics. To further improve our treatment of these patients, we have initiated a CPAP pilot program for our basic life support (BLS) providers. CPAP has been extremely successful among our paramedics in reducing severity of illness, time spent in intensive care units and hospital length of stay, leading to improved patient comfort and lower healthcare cost.

Delaware’s Paramedics have been performing 12-lead EKGs on patients with chest pain and other signs and symptoms of heart attacks for over ten years. This program has allowed paramedics and emergency physicians to provide high quality care for Delaware patients having heart attacks. Emergency physicians use the paramedic’s report of a patient having a heart attack to prepare the emergency department for their arrival. Delaware is fortunate to have four hospitals providing emergent angioplasty, in which cardiologists may be able to “reverse or negate” a heart attack. Christiana Hospital, St Francis Hospital, Kent General Hospital and Beebe Hospital all provide emergent angioplasty service. Now emergency physicians can direct EMS personnel to transport a heart attack patient to the most appropriate hospital that is able to perform emergent angioplasty, hopefully reversing a heart attack, allowing the patient to return to their previous lifestyle.

Endotracheal intubation consists of the passage of an artificial airway through the mouth or nose, into the trachea in order to assist a patient to breathe. While this may sound like a relatively simple concept, in practice, this procedure is actually a very complex task requiring advanced patient assessment and management skills. It has been found over the years that there is a group of critical ill and injured patients that would benefit from intubation, but are difficult to intubate. These difficult to intubate patients are alive (as opposed to in cardiac arrest), but resist intubation efforts. Generally, these patients have suffered head trauma or an intracranial hemorrhage and present in coma with clenched teeth. To further improve
intubation success rates, EMS has instituted a “Drug Facilitated Protocol (DFI) which utilizes medications and techniques proven effective in emergency departments across the country. Over the last several years Sussex, New Castle and Kent County emergency medical systems (EMS) have implemented prehospital DFI programs with great success. Given the high level of training of Delaware paramedics, current quality assurance programs within the Delaware’s EMS system, our strong physician involvement and advanced equipment, prehospital critical care for Delaware patients with prolonged prehospital transport times are benefiting from statewide implementation of the “Drug Facilitated Intubation Program” in Delaware.

RESEARCH:
Delaware remains among the leaders in EMS research. Research allows EMS managers to make decisions based on solid evidence derived through scientific methods. Science based decision making has been difficult to do with the worldwide lack of EMS research in general. Research from international and national literature is sought to answer EMS system questions and problems, but when not available has been developed in state. Delaware’s EMS physicians, along with many of our emergency and trauma physicians and nurses have been involved in research that has had a national impact. Some of the research and publications are listed below:

Comparison of Emergency Department Patient Admission Rates by Mode of Arrival: Were Emergency Department Transports Indicated or is the Public "Crying Wolf?" Patrick Matthews, Craig Durie, Sandra Hypes, Diane McGinnis-Hainsworth, James Reed III, Ross Megargel. ACEP Poster Abstract 10/2008.

Walk-In Patients Presenting to an Urban Emergency Department are Admitted to the Hospital Less Frequently than Walk-In Patients at a Suburban Emergency Department. Patrick Matthews, Craig Durie, Sandra Hypes, Diane McGinnis-Hainsworth, James Reed, Ross Megargel. NAEMS Poster Abstract 1/2009.

Does the simple triage and rapid treatment method appropriately triage patients based on trauma injury severity score? Am J Disaster Med.;3 (5):265-71; Rick Hong, Paul R Sierzenski, Melissa Bollinger, Craig C Durie, Robert E O'Connor


EMS System and Evaluation

- Introduction
- EMS System Evaluation
- EMS Data Information Network (EDIN)
- Clinical Performance
- Response Time Performance

Photo Submitted by New Castle County EMS
EMS System and Evaluation

Introduction

EMS was originally conceived to respond to accidental death, injury and cardiac conditions outside the hospital. However EMS has become much more complex over time due to the rapid growth of health care technology. Several influential areas such as, trauma care, cardiology, resuscitation science and military medicine allow EMS to continue to cross the boundaries of numerous medical disciplines, including health care, medical transportation, public health and domestic preparedness.

Delaware has a long history in EMS including some of the nation’s earliest volunteer ambulance services.

- 1924, The American Legion Ambulance Service in Smyrna was created as a way to serve the community with a volunteer ambulance. The ambulance service was the first American Legion Ambulance in the nation and the first volunteer ambulance service in the world.

- 1974, New Castle County Ambulance Division, the Wilmington Medical Center, the Delaware Heart Association, and the Doctors for Emergency Service initiated a joint effort to establish advanced life support (ALS) “paramedic” services as a pilot program. The first paramedic unit was based in the City of Wilmington, and was dedicated in January 1976.

- 1988, Delaware led the nation by completing implementation of the first total statewide 911 system.

Today a strong and proud commitment to prehospital care remains within the volunteer and paid Emergency Medical Services system as seen throughout these pages.

CONTINUUM OF CARE:
The EMS Continuum of Care is the cyclical process used to describe the delivery and constant improvement of EMS care. An EMS event usually begins with the onset of illness or injury in a patient and a call to the dispatch center through 911. The call is then triaged and dispatched and the appropriate providers arrive on scene to provide care. The patient is then delivered to the hospital, where they receive specialty care (cardiac, trauma, pediatrics) as appropriate and ultimately may enter rehabilitation if needed. The event is then analyzed and lessons learned are shared with providers and the public in the form of awareness campaigns and educational programs in the hope of reducing the potential for further events. Events are analyzed by looking at the 12 main attributes of an EMS system (Public Access, communications, clinical care, etc) so that all aspects of the EMS system benefit from the lessons learned during a given event. Each modification or improvement to one aspect of the EMS system has an impact on the rest of the system.
Integration of health care services helps to ensure that the care provided by EMS does not occur in isolation and that positive effect are enhanced by linkage with other community health resources and integration within the health care system (NHTSA). Just as there is a continuum of EMS care, there is a larger continuum of general medical care. One of the great philosophical issues faced by EMS leadership today is "where exactly does EMS fit in the overall continuum of medical care?" EMS is indeed a part of medical care, but is it a true medical field? Are EMS providers true medical professionals? This question takes us back to the very beginning of EMS care in the 1960s. EMS care began primarily as a response, or public safety entity, and was almost entirely supported through the efforts of dedicated volunteers. Over time, the role of EMS has clearly evolved into a medical role, and with that comes training and skill demands making it clear that EMS providers are indeed healthcare providers. The technical expertise and knowledge required to meet the demands of the job have caused EMS provider roles to evolve in many cases from volunteer positions into full-time professional positions. The evolution of EMS over the past four decades has indeed led to better patient care, longer life spans, and better overall health for our citizens. This evolution has not been without its share of issues, however. Rapid growth and expansion of the industry, and the move from "local" EMS, where practices were suited to the needs of the community, to "regional" EMS or "national" EMS, where continuity and standards for interoperability are suited to the needs of many jurisdictions has caused much debate, and EMS leadership today struggle with how to best meet professional standards set at a national level, while providing care specifically suited to their local community.
EMS System and Evaluation

WHAT WE DO:
Emergency Medical Services is a system of services organized to provide rapid response to serious medical emergencies, including immediate medical care and patient transport to definitive care in an appropriate medical setting. An effective EMS system involves a variety of agencies and organizations working together to accomplish the goal of providing rapid emergency medical response and treatment. EMS in Delaware includes:

- Public safety dispatch centers
- Fire services
- Ground and air ambulance services
- Law enforcement agencies
- County paramedic services
- Training institutions and organizations
- Citizen, professional, and technical advisory groups
- Local and State EMS Agencies
- Other governmental and voluntary organizations
- Hospitals and specialty care centers

WHO WE ARE:

| 778 | Certified First Responders |
| 1163 | EMT-Basics |
| 284 | Paramedics |
| 165 | Dispatchers |
| 7 | Medical Directors |
| 67 | Regulatory, Managerial & Support Personnel (DEMSOC, OEMS, SFPC, DE State Fire School)

SERVICES PROVIDED TO THE STATE OF DELAWARE AND VISITORS:
In Delaware, the three counties are covered by 53 BLS volunteer ambulance agencies, three paramedic programs operated by the county governments, a state police aviation division, private ambulance companies, and specialty hospital transport services. Each agency that responds in the EMS system receives direction from a county dispatch center.

| 116 | BLS ambulances providing 911 services |
| 100 | BLS ambulances providing non-emergency services |
| 19 Full Time 3 Part Time | ALS units providing 911 services |
| 7 | ALS Supervisor units |
| 6 | Air Medical helicopters |
| 0 | ALS units providing non-emergency services |

Transportation of patients is provided predominantly by volunteer BLS fire based ambulance services, and the Delaware State Police Aviation Section. Integrated into the ambulance transport system are chase vehicles operated by three countywide paramedic systems that provide advanced medical treatment to patients. In 2008, EMS responded to the following incidents:

| 165,761 | Statewide Total EDIN Reports |
| 101,552 | Basic Life Support Incidents |
| 64,209 | Paramedic Incidents |
| 509 | Air Medical Transports |
| 127,134 | Medical Incidents |
| 29,231 | Trauma Incidents |
| 9,464 | Pediatric Incidents (0-17yrs) |
| 8,870 | Cardiovascular Incidents |
EMS System and Evaluation

Safety

EMS safety issues are a major concern on both the national and local level. With the rise in EMS provider deaths and injuries, special interest groups are reviewing ambulance design and standards to improve safety. Some of the areas being examined are:

- Emergency Vehicle operations course/training
- Engineering controls
  - Speed regulators
  - Black box measuring braking, speed and handling
  - Drivecam video
  - Automated signal changers
  - Advisory message boards
  - Radio advisory warnings
- Ambulance design
  - Comparing General Service Administration’s Federal KKK ambulance standards to ASTM standards
  - Securing equipment
  - Cabinets design
- Driver/EMS worker
  - Fatigue
  - Experience/qualifications
  - Distractions
  - Physical/mental evaluations
- Enforcement of organization polices when it comes to the operation of the vehicle
- Medical Protocol changes
- Develop screening tools designed to eliminate potentially aggressive or risky drivers
- Occupant protection systems designed to increase survivability of EMS workers and patients in the back of ambulances
  - Systems should allow EMS workers mobility to access patients and equipment
- Traffic control
  - Operating near moving traffic
  - Ambulance positioning
  - Personal protective clothing
  - The appropriate use of lights and sirens
  - Scene Safety
- Legislation changes

The State of Delaware started an Ambulance Safety Committee in 2008. This committee has been charged with evaluating our current system’s safety initiatives and recommending additional safety measures. Each area mentioned above will be reviewed to determine if needed in Delaware.
Nationally, EMS provider deaths are increasing. The rate for EMS provider deaths is now 12.7 deaths per 100,000 workers according to an article titled, “Enforce Ambulance Safety Inside & Out” published in the July 2007 issue of The Chief Magazine. According to the same article, EMS fatalities include electrocution and needle sticks (4%), homicide (9%), cardiac event (11%), and overwhelming transportation accidents (74%). Of these transportation accidents, 90% of front seat passengers were restrained, however in the back of the ambulance less than 5% were restrained in crashes that resulted in injuries. EMS personnel are five times more likely to be injured in the rear compartment of the ambulance and 2.6 times more likely to be injured running with lights and sirens.

The Center for Disease Control (CDC) reported that when comparing emergency versus non-emergency use incidents, the majority of ambulance crashes occurred during emergency use, and rear compartment occupants were more likely to be injured than those in the front. The CDC table below represents the number of persons injured in ambulance crashes, by injury severity and seating position. Based on the table, EMS providers in the back of the ambulance were more likely to be severely injured (38.2%) or killed (58.5%).

TABLE. Number of persons injured in ambulance crashes, by injury severity and seating position — United States, 1991–2000

<table>
<thead>
<tr>
<th>Injury severity/seating position</th>
<th>No.</th>
<th>% within injury severity group</th>
<th>% of all ambulance occupants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front left</td>
<td>70</td>
<td>41.7%</td>
<td></td>
</tr>
<tr>
<td>Front right</td>
<td>50</td>
<td>29.8%</td>
<td></td>
</tr>
<tr>
<td>Other enclosed*</td>
<td>34</td>
<td>20.2%</td>
<td></td>
</tr>
<tr>
<td>Other/unknown</td>
<td>14</td>
<td>8.3%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td></td>
<td>20.6%</td>
</tr>
<tr>
<td>Nonincapacitating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front left</td>
<td>81</td>
<td>36.5%</td>
<td></td>
</tr>
<tr>
<td>Front right</td>
<td>54</td>
<td>24.3%</td>
<td></td>
</tr>
<tr>
<td>Other enclosed*</td>
<td>63</td>
<td>28.4%</td>
<td></td>
</tr>
<tr>
<td>Other/unknown</td>
<td>24</td>
<td>10.8%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>222</td>
<td></td>
<td>27.2%</td>
</tr>
<tr>
<td>Incapacitating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front left</td>
<td>43</td>
<td>32.8%</td>
<td></td>
</tr>
<tr>
<td>Front right</td>
<td>20</td>
<td>15.3%</td>
<td></td>
</tr>
<tr>
<td>Other enclosed*</td>
<td>50</td>
<td>38.2%</td>
<td></td>
</tr>
<tr>
<td>Other/unknown</td>
<td>18</td>
<td>13.7%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
<td></td>
<td>16.0%</td>
</tr>
<tr>
<td>Fatal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front left</td>
<td>14</td>
<td>17.1%</td>
<td></td>
</tr>
<tr>
<td>Front right</td>
<td>10</td>
<td>12.2%</td>
<td></td>
</tr>
<tr>
<td>Other enclosed*</td>
<td>48</td>
<td>58.5%</td>
<td></td>
</tr>
<tr>
<td>Other/unknown</td>
<td>10</td>
<td>12.2%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td></td>
<td>10.0%</td>
</tr>
<tr>
<td>None†</td>
<td>201</td>
<td>24.6%</td>
<td></td>
</tr>
<tr>
<td>Unknown†</td>
<td>12</td>
<td>1.5%</td>
<td></td>
</tr>
</tbody>
</table>

* Inside the patient compartment.
† Seating positions irrelevant or unavailable.
PROTOCOL CHANGES:
Medical Protocol changes for both ALS and BLS in 2008 emphasized safety. The changes incorporated were specifically targeted to increase awareness about safety and provide additional tools for EMS to use during patient contacts to remain safe. Some of the changes to the protocols were:

- A red lights and siren policy based on medical condition of the patient to help determine a safe and medically necessary mode of transportation.

- Increased infectious control recommendations to remind EMS providers to use universal precaution during patient contact.

- The use of a CPR assist devices to allow EMS providers to remain seat belted in the back of the ambulance during transport of a patient in cardiac arrest.

- The use of Carbon Monoxide (CO) monitoring equipment to detect exposure of CO to the patient or the presence of CO in the home.

- A new patient restraint protocol to protect EMS providers from patients who are or become combative during transport.

INFECTION DISEASE CONTROL:
Infection control refers to policies and procedures used to minimize the risk of spreading infections. The purpose of infection control is to reduce the occurrence of infectious diseases. These diseases are usually caused by bacteria or viruses and can be spread by human to human contact, animal to human contact, human contact with an infected surface, airborne transmission through tiny droplets of infectious agents suspended in the air, and, finally, by such common vehicles as food or water. Hospitals and pre-hospital medical settings demonstrate higher levels of precaution around infectious disease management predominantly due to the higher risk of spreading infectious diseases in these environments.

The infectious control program for Delaware includes law enforcement and, emergency medical care providers may request notification concerning an exposure to an infectious disease. Every emergency medical care agency (volunteer or paid) shall designate an Infectious Control Officer who will handle the infectious control process. Delaware is one of the few states that conduct mandatory source testing.

The need for an effective infection control program has always been an essential and integral part of the pre-hospital practice in Delaware, because there is both the risk of healthcare providers acquiring infections themselves, and of them passing infections on to patients. Preventive and Proactive measures offer the best protection for individual and organizations who may be at an elevated exposure to these infectious diseases. Since 1993, Delaware has reviewed 66 potential exposures forms reported by the pre-hospital setting and in 2008 reviewed 13. The Table on the next page represents the type of exposures reported in 2008.
<table>
<thead>
<tr>
<th>Type of Exposure for 2008</th>
<th>Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle Sticks or puncture wound from contaminated object</td>
<td>1</td>
</tr>
<tr>
<td>Direct Mouth to Mouth</td>
<td>0</td>
</tr>
<tr>
<td>Patient blood or body fluid came in contact with Providers skin</td>
<td>4</td>
</tr>
<tr>
<td>Extensive Contact with Pt. blood or body fluid</td>
<td>4</td>
</tr>
<tr>
<td>Splash of Pt. blood or Body Fluid into eyes, nose, or mouth of the provider</td>
<td>0</td>
</tr>
<tr>
<td>Airborne Pathogen discovered by the Receiving Medical Facility</td>
<td>4</td>
</tr>
</tbody>
</table>

Education and training is required by all agencies yearly to update pre-hospital personnel on infectious disease policies and universal precautions. Increased emphasis is being placed on the educational process to reinforce these issues with pre-hospital medical providers as well as industrial and police agencies. During this training, agencies are given an overview of common diseases that have a potential for transmission.

Due to constant changes in our lifestyles and environments, new diseases are constantly appearing that people are susceptible to, making protection from the threat of infectious disease urgent. The required equipment lists for ambulances in Delaware now have increased mandatory personnel protective equipment such as HEPA masks. Alternative products are also being reviewed to help pre-hospital personnel deal with the increased demand of infectious disease protection, such as ways to safely sanitize equipment and ambulances. Delaware also offers assistance to pre-hospital providers to get immunizations against Hepatitis, flu, tetanus and tuberculin skin testing to detect exposure to tuberculosis.

The need for an effective infection control program has always been an essential and integral part of the pre-hospital practice in Delaware, because there is both the risk of health care providers acquiring infections themselves, and of them passing infections on to patients. Preventive and Proactive measures offer the best protection for individual and organizations who may be at an elevated exposure to these infectious diseases.
EMS System and Evaluation

System Evaluation

*Evaluation is the essential process of assessing the quality and effects of EMS, so that strategies for continuous improvement can be designed and implemented.* (NHTSA)

The National Association of Emergency Medical Services Physicians (NAEMSP) has identified three related variables for measuring EMS system performance; clinical performance, response time reliability and economic efficiency. These variables are interdependent for overall system success. Focusing the majority of resources on any one variable is done at the expense of performance potential in the other variables. For example, extreme cost cutting measures will have a detrimental impact on clinical performance and response time reliability. Also, if a system places all of its efforts on response time performance there will be a result in a significant increase in costs as well as a decrease in clinical performance.
EMS System and Evaluation

EMS Data Information Network  
EDIN

In Delaware, data from the electronic EMS Data Information Network (EDIN) is largely used to evaluate the EMS system. EDIN collects EMS report data electronically on a real-time basis and provides administrators with a resource management and research tool. The EDIN system collects, at minimum, over 130 data points covering the demographic assessment and treatment phases of an EMS incident. The EDIN system has been online since January 1, 2000. Since it's inception, over 700,000 records have been entered into the system. Currently, all of the Advanced Life Support agencies in Delaware are using the system on a full-time basis. Of the 58 volunteer Basic Life Support agencies, almost all are using the system on either a full time or partial basis. This allows DEMSOC a continued review of operational and clinical data for the ALS and BLS providers.

![Increase in Volunteer BLS Agency EDIN Participation 2004-2008](chart.png)

**UPDATE ON EDIN SYSTEM:**
The OEMS has been granted approval from the (DTI) to begin project development upgrade the statewide Emergency Data Information Network from PowerBuilder to .Net. This change is intended to provide increased functionality and scalability in a web-based platform that is supportable.

The new data reporting system will have an open scalable architecture and support standards, which are key to streamlined processing and data exchange. This new system will further provide a secure method of collecting pre-hospital data, extracting existing data, and exporting or sharing data for strategic planning and process improvement initiatives. By upgrading the technology used by utilizing a web based program will provide higher quality data collection.
Once a web-based version is developed, other useful applications can be created to work with EDIN, like a Palm® or Windows CE® version. Finally, Delaware is looking forward to integration into the national data systems, such as the NEMSIS system (National EMS Information System). The ability to share and benchmark data with other states will be vital for continued growth and improvement of EMS care in the years to come.

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Although improvements have been made to EDIN there are still some BLS agencies that continue to use paper reporting.
EMS System and Evaluation

Clinical Performance

EMS provides care to those with perceived emergency needs and, when indicated, provides transportation to, from, and between health care facilities. Mobility and immediate availability to the entire population distinguish EMS from other components of the health care system (NHTSA).

All data used for this section was extrapolated from the EMS Data Information Network (EDIN). Please note for this report, Advanced Life Support (ALS) and BLS data are separately reported. While reading this report please do not combine the ALS and BLS data. Doing so would lead to inaccurate totals.

Types of patients:

- Medical patients are those individuals who have a condition that requires the attention of a medically trained individual such as chest pain, heart attacks, respiratory problems, altered mental status, seizures, strokes and infectious disease.
- OB/GYN refers to pregnancy and female related medical conditions.
- Trauma patients are those who suffer an injury caused by a transfer of energy from some external source to the human body such as motor vehicle crashes, gunshot wounds, stabbings, industrial accidents and falls.
- Trauma/Medical patients often include patients who had a medical condition that caused them to suffer a trauma such as a faint related to a heart problem that caused the patient to fall, suffering a serious head injury.

NOTE: Addition clinical data is located throughout the entire report.
EMS usage by location type:
These graphs show the location of EMS calls which is helpful in designing dispatch protocols, developing operational systems to assist EMS providers in the rapid location of patients and to develop programs to reach critically ill and injured patients as quickly as possible with life saving treatments of which the Automatic Defibrillator program is an example.

Primary Impression is the EMS provider’s evaluation of the patient based on: signs, symptoms, patient’s chief complaint and other factors. These graphs do not take into account the type of patient (medical, trauma). The primary impression of other is defined in the patient narrative and not able to query.
ALS Receiving Hospital Comparisons 2006-2008

BLS Receiving Hospital Comparisons 2006-2008
ALS and BLS Patient Age Comparison 2008

**All Patients**

This graph depicts two age group spikes, 41 – 60 years of age and 71 - 80 years of age. There are many theories as to the etiology of these spikes; however more detailed analysis is required to determine which factors contribute greatest to these spikes. The most likely scenario for many in emergency medicine is that these spikes represent cardiovascular disease presentation groups, heart disease and stroke.

**Medical Patients**

The three age group spikes in this graph may be supported several theories, but more detailed sub-analysis is required to determine the actual causes. Delaware’s most common trauma types are motor vehicle and falls. One could conclude that the 21 – 30 year old spike is motor vehicle and the 81 – 90 year old spike is most likely related to falls.

**Trauma Patients**

*Age:* Note peaks at 41-50 and 71-80 years of age, etiology uncertain.
*Note surge in call volume upswing at 7:00 am and comes back down at 11:00 pm

Monthly data statewide is consistent; variations are seen however in Sussex County in the summer months and in the other counties during special events such as Race Week in Dover.
EMS System and Evaluation

Response Time Performance

The Delaware EMS system measures response time performance in fractiles. Fractile response refers to how the response time is measured against an established performance goal. For example, if a response goal is 8 minutes, the fractile response time is a percentage of the responses within that 8 minute goal. A 90% fractile response indicates that 90% of the time the response time was within 8 minutes or less. Numerous factors affect response time performance including; geography, baseline resource availability, call volume and deployment strategies.

The response time goals for the Delaware EMS system adopted by the EMS Improvement Committee are based on Cardiac Arrest survival research. These response goals are nationally recognized and cited by both NFPA (1710) and the American Ambulance Association guidelines. It is recognized that these are ideal goals. Using response time performance as the primary measure of EMS system performance has come under scrutiny.

The performance goals for Delaware’s EMS System recognize that not all emergencies are life threatening and do not require maximum resource response. The Emergency Medical Dispatch system is a systematic approach (protocol) that assists dispatchers in identifying which 911 calls require maximum response, and identifies calls as:

- **Alpha** – Requires a BLS response. Example is a minor burn.
- **Bravo**- Requires a BLS response. Example is with unknown patient status.
- **Charlie**- Requires ALS and BLS response. Example is burns with difficulty breathing.
- **Delta**- Requires ALS and BLS response. Example is an unconscious burn victim.
- **Echo**- Response type not addressed in the legislated response time goals, but it requires a maximum response to include available first responders. Example would be a cardiac arrest.
- **Omega**- Response type not addressed in the legislated response time goals. An example of an Omega response is a dispatcher assisting a caller to contact poison control.
**Goal:** Each Advanced Life Support (ALS) paramedic agency within the Delaware EMS system provide and ALS paramedic unit, as defined by recognized state standard, on the scene within 8 minutes of the receipt of Delta calls on at least 90% of the time. BLS ambulance unit on scene within 10 minutes of the receipt of Delta calls on at least 90% of the times in urban areas and 70% of the times in rural areas.
Goal: Each Advanced Life Support (ALS) paramedic agency within the Delaware EMS system provide an ALS paramedic unit, as defined by recognized state standard, on the scene within 8 minutes of the receipt of Charlie calls on at least 90% of the time. BLS ambulance unit on scene within 12 minutes of the receipt of Charlie calls on at least 90% of the times in urban areas and 70% of the times in rural areas.
Goal: BLS ambulance unit on scene within 12 minutes of the receipt of Bravo calls on at least 90% of the times in urban areas and 70% of the times in rural areas.

Goal: BLS ambulance unit on scene within 18 minutes of the receipt of Alpha calls on at least 90% of the times in urban areas and 70% of the times in rural areas.
EMS System and Evaluation

Estimate of EMS System Cost

One important factor in evaluating the efficiency of an EMS system is measured in terms of cost. Delaware continues to refine the process to accurately reflect total EMS system costs. The BLS Financial form was developed and distributed to all agencies starting in 2002. Additionally, all 911 centers involving EMS dispatch have submitted their costs to run their departments during 2008.

The population figures below for 2008 were obtained from the 2008 Delaware Population Projections Summary Table. The County Cost Per Capita was obtained by calculating the total population for 2008 by the expended budget for 2008 for each agency. The ALS Cost per Run was obtained by calculating the number of runs for 2008 by the expended budget for 2008 for each agency.

ALS Program Cost

<table>
<thead>
<tr>
<th>Area</th>
<th>Population (2008)</th>
<th>County Cost Per Capita*</th>
<th>ALS Cost Per Run</th>
<th>Geographic Size</th>
<th>Cost Per Square Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent County</td>
<td>155,299</td>
<td>$25.32</td>
<td>$362.88</td>
<td>594 square miles</td>
<td>$8,976</td>
</tr>
<tr>
<td>New Castle County</td>
<td>532,057</td>
<td>$23.92</td>
<td>$373.18</td>
<td>438 square miles</td>
<td>$29,058</td>
</tr>
<tr>
<td>Sussex County</td>
<td>188,597**</td>
<td>$69.51**</td>
<td>$738.84</td>
<td>950 square miles</td>
<td>$13,799</td>
</tr>
<tr>
<td>Delaware</td>
<td>875,953</td>
<td>$33.98</td>
<td>$474.90</td>
<td>1,982 square miles</td>
<td>$15,109</td>
</tr>
</tbody>
</table>

*Cost per Capita is unavailable for the BLS agencies.

**Please also note that the County Cost Per Capita calculation does not include the visiting population to the state, including: commuters in New Castle, racing fans in Kent, and beach visitors in Sussex.

County Paramedic Agency Cost FY08

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>60% County Contribution</th>
<th>40% State Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Castle County, EMS</td>
<td>$12,727,285</td>
<td>$7,636,372</td>
<td>$5,090,913</td>
</tr>
<tr>
<td>Kent County, EMS</td>
<td>$3,931,418</td>
<td>$2,358,851</td>
<td>$1,572,567</td>
</tr>
<tr>
<td>Sussex County, EMS</td>
<td>$13,109,176</td>
<td>$7,865,505</td>
<td>$5,243,671</td>
</tr>
</tbody>
</table>
EMS System and Evaluation

**BLS Program Cost**

BLS agencies are requested to send fiscal sheets to the Delaware Volunteer Fireman’s Association (DVFA), Delaware State Fire Prevention Commission, and the Delaware Office of EMS. The BLS agencies have up to 60 days after the end of their fiscal year to send their report. Fire/Ambulance Companies throughout the state report using different fiscal calendars.

![2008 BLS Expenses Chart]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>New Castle County</td>
<td>14</td>
<td>8</td>
<td>8,523,017</td>
<td>4,870,296</td>
<td>13,393,313</td>
</tr>
<tr>
<td>Kent County</td>
<td>9</td>
<td>5</td>
<td>3,464,179</td>
<td>2,309,454</td>
<td>5,773,633</td>
</tr>
<tr>
<td>Sussex County</td>
<td>15</td>
<td>4</td>
<td>6,466,364</td>
<td>3,233,181</td>
<td>9,699,545</td>
</tr>
<tr>
<td>Total for Agencies</td>
<td>38</td>
<td>17</td>
<td>18,453,560</td>
<td>10,412,931</td>
<td>28,866,491</td>
</tr>
</tbody>
</table>

Total Estimated Expenses for BLS agencies was derived by taking the average Expenses for agencies that reported in a given year. Estimated Expenses were added to actual reported Expenses to get Total Estimated Expenses for a given year. The BLS expenses are estimates cost because the fiscal sheets provided are based on the ambulance companies fiscal years which do not have a common timeframe to compare data.
EMS System and Evaluation

**Aviation and Dispatch Center Cost**

**DELAWARE STATE POLICE AVIATION PROGRAM COSTS**

<table>
<thead>
<tr>
<th></th>
<th>Total Costs:</th>
<th>Personnel:</th>
<th>Helicopter Maintenance:</th>
<th>Fuel Costs:</th>
<th>Medical Supplies:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ 1,731,796.00</td>
<td>$ 1,060,800.00</td>
<td>$ 570,150.00</td>
<td>$ 95,846.00</td>
<td>$ 5,000.00</td>
</tr>
</tbody>
</table>

**DISPATCH CENTER COSTS**

The costs listed below include the total cost and selected budget lines only.

<table>
<thead>
<tr>
<th>Center</th>
<th>Total Costs:</th>
<th>Personnel:</th>
<th>Equipment:</th>
<th>Training:</th>
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Photo Submitted by Kent County 911
Specialty Care

- Trauma
- EMS-C
- Cardiovascular Care
- Domestic Preparedness
- Education and Training

Photo by Bayheath Medical Center
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Delaware Statewide Trauma System
DELAWARE’S TRAUMA SYSTEM SAVES LIVES!

Recent Trauma System Registry data analysis (graph above) has revealed an impressive decrease in death rates since 1998 in the most severely injured patients transported to our Trauma Centers. This data demonstrates that the work done by all of the agencies of Delaware’s Statewide Trauma System over the past 10 years has had excellent results! **Together, we are saving lives. Today, seriously injured people in Delaware have a much better chance of surviving their injuries than they did 10 years ago.**

June 30, 2008 marked the 12th anniversary of the passage of legislation creating Delaware’s Statewide Trauma System. That legislation was the culmination of years of work by the state’s hospitals, the Division of Public Health, the Delaware Healthcare Association, and prehospital, fire and police agencies statewide. The passage of this enabling legislation was the first step in systematically improving the care provided to the injured throughout the state. Since this bill was passed, nearly 50,000 people have been cared for by Delaware’s Trauma System.
Delaware’s Trauma System Committee continued working to develop one of the nation’s few truly inclusive statewide Trauma Systems, which was fully implemented in January 2000. An inclusive Trauma System is one in which every acute care hospital participates in the Trauma System and has met the standards for state designation as a Trauma Center or Trauma System Participating Hospital. More importantly, it means that no matter where in the state people are injured, they enter a system of care that follows the same guidelines, regulations, and standards and makes sure they are cared for in the facility best able to manage their injuries.

Unintentional injury is the #1 killer and disabler of Delawareans ages 1 to 44 years, and the #5 killer for all age groups combined (Delaware Vital Statistics Annual Report 2006). It includes injuries such as those caused by highway crashes involving motor vehicles, bicycles or pedestrians, falls, and farm and industrial mishaps. Intentional injury adds assaults, shootings, and stabbings to the above statistic. Trauma System Registry records show that 5,644 citizens and visitors to Delaware were injured seriously enough to require hospitalization in 2007 and of these, 267 sustained fatal injuries (Delaware Trauma System Registry, 2007). Because trauma so often involves children and young people, it is responsible for the loss of more years of life than any other cause of death, both nationally and in Delaware. It robs our nation of its most precious resource—its youth.

Trauma can occur at any time. It can happen to anyone. Those with critical injuries need to receive definitive care within a short period of time in order to minimize the risk of death and disability. The role of a Trauma System is to organize resources and assure their immediate availability to the injured at all times and in all geographic areas of the system. These resources include 911 emergency communications centers, basic and advanced prehospital providers, multidisciplinary trauma teams in hospital emergency departments, and in-hospital resources such as operating rooms and intensive care units. Research has shown that the coordination of these resources which takes place as a Trauma System can result in dramatic reductions, up to 50%, in preventable deaths due to injury.
Delaware’s Trauma System regulations are based largely on the guidelines of the American College of Surgeons’ Committee on Trauma (ACS COT). ACS review teams visit each Level 1, 2, and 3 Trauma Center and report to the Division of Public Health on the facility’s compliance with the Trauma Center Standards before a hospital can be designated as a Delaware Trauma Center. Reviews must be successfully completed every three years in order for a hospital to retain its state Trauma Center designation status. Trauma System Participating Hospitals are reviewed every three years by an out-of-state physician consultant and Division of Public Health staff.

Current Trauma Center and Trauma System Participating Hospital designations are:

REGIONAL LEVEL 1 TRAUMA CENTER:

- **Christiana Hospital, Christiana Care Health Services**
  
A Regional Resource Trauma Center has the capability of providing leadership and comprehensive, definitive care for every aspect of injury from prevention through rehabilitation.

PEDIATRIC REGIONAL LEVEL 2 TRAUMA CENTER:

- **Alfred I. duPont Hospital for Children**
  
A Pediatric Regional Level 2 Trauma Center has the capability to provide comprehensive pediatric trauma care for the most severely injured children within its geographic area and is expected to assume a leadership role in the care for injured children within its local, regional, and statewide trauma systems.

COMMUNITY LEVEL 3 TRAUMA CENTER(S):

- **Beebe Medical Center**
- **Kent General Hospital, Bayhealth Medical Center**
- **Milford Memorial Hospital, Bayhealth Medical Center**
- **Peninsula Regional Medical Center (Maryland) via reciprocity**
  
A Community Trauma Center has the capability of providing assessment, resuscitation, stabilization, and triage for all trauma patients, arranging for timely transfer of those patients requiring the additional resources of a Regional Trauma or Specialty Center, and delivering definitive care to those whose needs match the resources of this facility. *Reciprocity* means that Delaware’s Division of Public Health has accepted the Trauma Center designation conferred by Maryland.

PARTICIPATING HOSPITAL(S):

- **Nanticoke Memorial Hospital**
- **St. Francis Hospital**
- **Wilmington Hospital, Christiana Care Health Services**
  
A Participating Hospital is an acute care facility that may receive, usually by private vehicle, moderately or even severely injured trauma patients. These hospitals quickly identify and transfer these patients to a Trauma Center after initial resuscitation. When necessary, this facility may provide care to trauma patients with minor injuries. Participating hospitals contribute data to the Delaware Trauma System Registry and Quality Improvement Program. They do not receive ambulance patients meeting the Prehospital Trauma Triage Scheme criteria.
Analysis of all patients in Delaware’s Trauma System Registry data for five-year periods preceding and following Trauma System implementation in 2000 has demonstrated positive steps in Trauma System maturation. Comparisons show a significant decrease in the injury mortality rate for the Level 3 Trauma Centers, with a significant increase in the percentage of patients they are transferring to higher levels of care. The injury mortality rate did not increase significantly for the New Castle County receiving hospitals during the same time. These changes demonstrate appropriate use of the Levels 1, 2, and 3 Trauma Centers in Delaware.

This graph illustrates the data discussed above.

![Delaware Trauma System Registry Mortality Rate* 1995-1999 and 2000-2004](image)

**CHALLENGES FOR TRAUMA SYSTEMS:**

Trauma Systems cost money. They often do not generate enough revenue to pay for the many resources and professionals who are ready to respond at a moment’s notice when they are needed, 24 hours a day, 7 days a week, 365 days a year. Nationally, some Trauma Centers have closed their doors, unable to continue maintaining the required level of availability of specialized staff. The increasing costs of malpractice insurance, along with the frequent disruptions to both office and home schedules, have caused some specialists to choose to decline to take trauma call and to stop participating in hospital trauma programs. But when Trauma Centers close, injured patients are the ones who suffer. The remaining Trauma Centers have to take on increased patient loads, and patients may not receive optimal care due to the higher numbers of patients needing care. Ambulances have to travel farther from their home districts to take injured patients to available Trauma Centers, meaning that their constituents may have to wait a little longer for a neighboring agency to respond should they need an ambulance during this time. Inpatient beds in Trauma Centers are full, and patients sometimes need to be held in Emergency Departments while beds are found or patients are discharged.

Years ago, the above issues were somebody else’s problem, not Delaware’s. They were cause for concern but not alarm. The problem has come to our state and our Trauma System. The spring and summer of 2007 saw two of our Level 3 Community Trauma Centers drop to Trauma System Participating Hospitals because they were no longer able to provide 24 hour a day/7 day a week orthopedic surgeon on-call coverage as required by the American College of Surgeons. Both hospitals worked hard to regain the service. To date, one hospital has regained its Level 3 Trauma Center status and the other is continuing to work to resolve the issue. The other components of Delaware’s Trauma System shifted and covered the gaps in care without issue or complaint. The strength of our Trauma System and the commitment and flexibility of all of its personnel did a phenomenal job of continuing to provide optimal care for the injured. All agencies and personnel deserve recognition for their efforts during this challenging time.
A 2004 Harris poll commissioned by the Coalition for American Trauma Care to learn what the public knows and thinks about Trauma Centers and Trauma Systems yielded the following highlights:

- Most Americans failed to identify injury as the leading cause of death for children less than 10 years of age, for youth ages 10-18 years, and for young adults ages 19-34 years.
- After hearing a description of a Trauma Center, Americans valued them highly and appreciated the importance of having one within easy reach.
- Nine in ten Americans indicated it is extremely or very important for their state to have a Trauma System, after hearing a description of a Trauma System.
- Nearly eight in ten Americans were willing to pay a dime or more a year to have Trauma Centers and Systems in their state. Over half were willing to pay $25 or more.2

Federal funding for state trauma system development has come and gone since the landmark whitepaper, Accidental Death and Disability: The Neglected Disease of Modern Society was published in 1966. The federal Health Resources and Services Administration’s most recent Trauma System program ended in 2006 following Congress’ failure to appropriate funding. While the loss of federal funds has caused trauma system development in many states to flounder, some states have chosen to assure that their trauma systems continue to develop, with or without federal support, by passing various types of special or usage fees to fund them.

Delaware too may find itself faced with this decision in the future, as care for the seriously injured becomes increasingly more expensive, the specialists needed to provide it more difficult to recruit and retain, and our population continues to grow. While the efforts of all stakeholders have yielded remarkable results in saving lives, as the data demonstrates, the unfunded efforts may not be sustainable in the long run without a source of funding for resource and infrastructure maintenance. We all - providers, citizens, private, public, and government agencies - must continue to keep the needs of injured patients at the forefront of our vision as we strive to successfully resolve the issues and challenges of the future.

Delaware’s Trauma System has reason to celebrate today! Not only did it regain a Community Level 3 Trauma Center, but it now has an American College of Surgeons (ACS) verified and state designated Pediatric Level 2 Trauma Center! The Alfred I. duPont Hospital for Children completed a year-long provisional state designation as a Pediatric Level 2 Trauma Center with a 100% successful American College of Surgeons site visit in November. We thank the leadership and staff of duPont Hospital for their commitment to excellent care for the injured children of Delaware and the surrounding states. Below, duPont Hospital leaders display their ACS verification certificate.

2. Harris Interactive telephone survey conducted on behalf of the Coalition for American Trauma Care in November 2004 among 1,000 U.S. adults aged 18 and over. Sampling error is +/- 3 percentage points.
Delaware’s Trauma System Registry

Data submitted by all eight Delaware acute care hospitals is compiled into the Trauma System Registry. The above graph reflects both hospitalized trauma patients and scene deaths. Trauma in the elderly is a dramatically significant health problem. Injuries are a leading cause of hospitalization, long-term care placement, and death in the elderly.

The graph below shows numbers of scene and hospital deaths from 2002 through 2007.
The breakdown below shows falls and motor vehicle crashes to be the most frequent causes of injury in Delaware.

Falls are the number one cause of injury in the elderly by far.

Falls are increasing as cause of significant injury in the pediatric age group as well as the elderly. The graph below shows fall and motor vehicle crash rates for children 14 years of age and younger over the past six years.
The Brain Injury Association of Delaware (BIAD) is a partner of the Delaware Trauma System. This organization helps people living with brain injury connect with needed resources; advocates for enhanced resources, stabilized long term care, and peer group programs for survivors of brain injury; develops community-based services for traumatic brain injury (TBI) survivors and their families; supports research leading to better outcomes that enhance the lives of those living with brain injury; and promotes prevention of brain injury through public awareness, education, and legislation. One project of the BIAD is their Brain Injury Resource Center, which operates an informational Help Line, provides educational information for consumers, and has developed an online Information and Resource Directory which can be found on their website at http://www.biausa.org/Delaware/bia.htm.

Injury prevention is always a priority of the Trauma System Committee. Over the past 10 years, the death toll of pedestrians on Delaware Route 1 between Five Points at Lewes and Route 24 at Midway in Sussex County increased. This somewhat corresponded to the increased population during the summer. In looking at the area, it became evident that not only were more people moving around, but it was not possible to see them at night because of lack of highway lighting in the area. It was very hard to even see Fire Police officers wearing reflective vests when they worked in this area. The problem seemed to be worsened by the bright lights in the businesses creating a background glare which was not combated by highway lights. The Trauma System Committee, in addition to many local legislators, was very active in requesting attention to this issue, but to no avail. There are still no lights between Five Points and Midway. Hopefully, this area will someday be lighted to protect our citizens and the visitors who contribute so much to our state.

The Delaware Trauma System estimates that in a 12-month period, over 91,000 people seek treatment at Delaware hospital Emergency Departments for injuries. Injury hospitalizations in our state accounted for 8.2% of all hospital discharges and $194 million in aggregate charges in 2005. The leading cause of injury hospitalization was falls (Delaware Health Statistics Center). Delaware hospital costs for injury-related care of children through age 19, from 2002 through 2005, were nearly $32 million. The leading causes of these injuries were falls and highway crashes (2008 Childhood Injury in Delaware). None of these numbers adequately reflect the other costs of injury – loss of productivity, independence, and self esteem or the grief and loss of family and friends. Supporting the statewide Trauma System and its injury prevention programs as part of the state’s economic responsibility will yield a substantial return through decreased death and injury and decreased permanent disabilities that cause loss of productivity, and will result in a healthier and safer Delaware.
When children are ill or injured EMS responds and children present a unique challenge to emergency care providers. The goal of EMSC is to integrate pediatrics into all aspects of EMS. Children are different and need to be treated differently. Their heart rates, respiratory rates and blood pressures all change as they grow. Their airways are shaped differently for intubation, and medications must be carefully calculated according to weight. One size does not fit all! Emotional reactions to illness and injury vary by age. Emergency care providers are the safety net providing care to children with complex medical needs. Although nationally children represent 27 percent of all emergency department visits, evidence suggests that hospitals may not be prepared to provide the best pediatric emergency care.

The state EMSC Advisory Committee is working towards improving emergency care provided to children by developing new pediatric standards for hospital emergency departments. The standards are developed and pediatric patients will be safer when the hospitals have demonstrated to the Division of Public Health that emergency department has doctors and nurses skilled in caring for children and the equipment necessary to provide the best possible pediatric emergency care.

In 1984, legislation was enacted to fund Emergency Medical Services for Children programs in the states. In 1997, Delaware was awarded its first federal grant through the Maternal Child Health Bureau to improve Emergency Medical Services for Children (EMSC). The annual $115,000 grant is awarded though Health Services and Resources Administration (HRSA) and the program in Delaware is administered through the state via a contract with the duPont Hospital for Children. In 2008 we are still dependent upon yearly federal grant funding for EMSC to meet children’s needs in our ever-changing EMS System.

Funding the program has been a challenge since 1997. Almost all federal grant funds are devoted to personnel. This leaves no funding for pediatric education programs for paramedics, EMTs and emergency department staff. Pediatric medication and equipment needs change as our healthcare system evolves.
There is little to no opportunity to provide pediatric training and equipment to our ambulances and emergency departments without secure funding.

Other states have developed creative ways to fund their EMSC Programs by adding fees to vehicle registration and/or by enlisting the support of local charitable organizations, hospitals and/or universities. Delaware must find funding alternatives to assure pediatric emergency care needs are always met when a 911 call involves a child.

**EMSC HIGHLIGHTS FOR THE YEAR:**
February 28, 2009 will mark the close of the second year of a three-year grant cycle for EMSC. Accomplishments in 2008 include:

- The EMSC Advisory Committee developed criteria for a statewide system to recognize emergency departments throughout the state prepared for pediatric emergencies. This includes a required pediatric equipment list and staff training to provide proper age appropriate care for children.

- The Special Needs Alert Program (SNAP) for children with special health care needs focused on providing education to local fire departments this past year and now there are 141 families who have enrolled children in the program statewide. This is a 70% increase over the number of families in 2007.

- In partnership with Easter Seals and Maternal Child Health, an agreement was signed to complete a formal evaluation of the effectiveness of the SNAP program. This includes surveys of the 141 families, 250 paramedics and 1,100 EMT-Bs throughout the state.

- State Performance Measure data collected in January 2008 showed that Delaware ambulances do not have all recommended pediatric equipment. Infant blood pressure cuffs are being provided to all ambulance services in Delaware to assure all recommended pediatric equipment is on all ambulances.

OEMS uses the EDIN system to monitor the number of pediatric calls, where the calls are occurring in Delaware, the most frequent primary impressions, and which procedures ALS and BLS providers most frequently perform on children.
EMSC ACCOMPLISHMENT FOR 2008:

In Delaware, and across the nation, injury is the leading cause of death for children ages 0-19. This past year the 2008 Childhood Injury in Delaware report was produced by the Office of EMS in partnership with the Division of Public Health's Offices of Health Risk Communications and the Delaware Health Statistics Center. It provided very important data regarding the incidence and hospital cost of childhood injury in Delaware. Hospitals charged nearly 32 million dollars for injuries in the four year period 2002-2005. This is up from 19 million dollars charged from 1996-1999, and is another reflection of the skyrocketing cost of health care today.

The impact on emergency medical services is that childhood injuries occur daily. In 2008, 15 percent (547/3,581) of paramedic calls were for pediatric trauma and 21 percent (1,878/3,581) of the basic life support ambulance calls for children were for trauma.

This is significant because scientific evidence supports that injuries are most often preventable. These are EMS calls and costs that are preventable. The 2008 Childhood Injury Report provided much needed current data and for injury prevention professionals and to guide prevention strategies for the public and policy-makers. Perhaps this information will open the eyes of others to assist in helping make Delaware safer and healthier for our children.

Below are two tables taken from the report showing how childhood injury prevention efforts have decreased the overall death rate from 26.4 per 100,000 to 21.15 per 100,000 for children due to injuries. Please note that for motor vehicle crashes the death rate went from 12.5 per 100,000 to 9.75 per 100,000.

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EMSC 2008 Data

Graph EMSC - 1

Total Number of Pediatric Reports (Ages 0-19) by Patient Age in 2008

*Please note that adding ALS and BLS numbers in each age group will lead to inaccurate totals. Adding the two numbers may count a single patient twice.

Key Points from EMSC-1

- The greatest number of incidents for BLS providers is in the 15-19 year old age group. Approximately 24 percent (up from 21 percent in 2007) of all the BLS runs for 0-19 age group are due to motor vehicle crashes, and 53 percent of all trauma calls for 15-19 year olds, are due to motor vehicle crashes.

- For ALS, calls in the 15-19 year old group 18 percent of all calls were due to motor vehicle crashes. This is down from last year when 27 percent were due to crashes.

- There was a significant decrease (21 percent ↓) in the number of BLS calls in the 0-1 year old age group. In 2007 there were 77 BLS calls and in 2008 there are 52 calls for the 0-1 group.

Ambulance services with the highest volumes of calls also see the highest number of children. For the BLS agencies - First State Quality Transport and St. Francis Hospital together saw the greatest number of children in the City of Wilmington (1,375 calls). The number of calls for ages 0-19 in the City of Wilmington increased 13.5 percent from 1,211 calls in 2007 to 1,375 calls in 2008. Aetna Fire
Company (813), and Christiana Fire Company (675) saw the highest volumes of children in the state respectively.

For the ALS agencies; New Castle County reported 1,928 (1,903 in 2007), Sussex reported 796 (down from 911 in 2007, a 12.6 percent decrease) and Kent reported 735 (down from 754 in 2007) pediatric patients during 2008.

**Graph EMSC – 2**

*Advanced Life Support vs. Basic Life Support Classification 2008*

![ALS/BLS Patient Classification 2008](chart.png)

**Total Incidents = 12,696**

*Please note this includes Dead on Paramedic Arrival (DOPA), Refusal, Transport and Transfers of Service calls.*

**Key Points from EMSC-2**

- The majority of pediatric ALS emergency calls are for medical reasons (71 percent).
- Over half of all pediatric BLS calls are medical in nature (58 percent).
- Trauma calls made up 26 percent of the ALS pediatric calls and 35 percent of the BLS calls in children.
Graph EMSC – 3

Top Ten Primary Impressions for Children 0-19 on EMS Patient Care Reports in 2008

**Primary Impression Documented by EMS Provider**

**Key Points from EMSC-3**

- Pain continues to be the top primary impression encountered by BLS for children age 0-19.
- Difficulty breathing continues to be the top Primary impression encountered by ALS for children age 0-19.
Graph EMSC – 4 Top Ten Procedures Performed on Children 0-19 in 2008

![Top 10 Procedures by Prehospital Providers](image)

**KEY POINTS FROM EMSC-4:**

Of the top ten procedures performed in the field two of the procedures are related to spinal stabilization. ALS and BLS both frequently administer oxygen to children. ALS providers also frequently start intravenous lines and monitor blood glucose in children.

**IMPROVEMENTS/INITIATIVES:**

**The goal of EMSC is reduce death and disability to children by improving pediatric emergency Care.**

*Highlighted EMSC objectives for this grant cycle from March of 2008 through February 2010 are to:*

1. Develop and implement a process to collect and report baseline data for the federal EMSC Performance Measures.

2. Ensure the operational capacity to provide pediatric emergency care in Delaware by:
   
   A. EMSC Emergency Department Standards Subcommittee will develop a pediatric emergency care hospital recognition system by March of 2008.
   
   B. Working with the eight acute care hospitals in Delaware assure that pediatric transfer guidelines and agreements are in place.

3. Develop a plan for pediatric emergency care quality improvement using the EMS data system by March of 2010. This objective will be part of the Emergency Department Standards Subcommittee work.

**SUMMARY:**

EMSC has many notable accomplishments since its inception in 1997. Despite eleven years of federal funding, the program remains unstable as long as it depends upon federal funding. Although OEMS and DEMSOC are taking steps towards permanence, there is still a great deal of work to be done to assure children’s needs are addressed in all aspects of the EMS system.
Specialty Care

Cardiovascular Care

Cardiovascular Disease refers to a variety of diseases and conditions effecting the heart and blood vessels. The two most common cardiovascular diseases in Delaware are heart disease and stroke. Since most cases of cardiovascular disease are preventable, we can decrease the number of patients with cardiovascular issues through public education and awareness. The cardiovascular care programs within Delaware emphasize this type of education and awareness to help decrease risk factors for cardiovascular disease, which helps to create a healthier life-style for the public.

In 2008, Delaware Paramedics treated over 8000 patients with cardiovascular related complaints. With the increasing elderly population combined with the diverse settings within our state, this number is on the rise. Many hospitals within the state are expanding their cardiovascular capabilities, and EMS resources must be integrated with the hospitals to ensure seamless care of patients as they are brought from the field to the hospital.

EMS STANDING ORDERS:
The Paramedic statewide standard treatment protocols address the appropriate transportation and treatment of patients who present with a cardiovascular complaint. Currently any patient who presents with signs and symptoms of Acute Myocardial Infarction (AMI)/heart attack are to have a 12-lead EKG performed. Any patient who has an EKG that is suspicious of an AMI is transported directly to an appropriate hospital with cardiovascular capabilities.
In 2008, the EMS Medical Directors revised both BLS and ALS standing orders. Included in this revision were two major protocols that affected how EMS treats a patient in cardiac arrest. The first protocol was to allow BLS and ALS to use a CPR assist device which is an external medical device that provides hands-free chest compressions during CPR. The 2005 American Heart Association guidelines emphasize the importance of effective, uninterrupted chest compressions during resuscitation. And a CPR assist device can help emergency medical responders enhance delivery of CPR.

The second change, induced hypothermia, was only included in the ALS protocols. This protocol is designed to be used with someone who has return of spontaneous circulation (ROSC) in an intubated (advanced airway) cardiac arrest patient. This allows ALS to cool a patient by using cold saline and ice to lower a patient’s core temperature. Increased brain temperature contributes to brain damage in patients post cardiac arrest. Studies have shown that lowering brain temperature can stop brain damage and can contribute to improved neurological outcomes.

**CARDIAC ALERT/CODE:**
Cardiac Alert/Cardiac Code is a strategy to identify the potential AMI/heart attack victim in the field, notify the hospital immediately and then transport the patient to a specialized care hospital that utilizes cardiac catheterization for the treatment of AMI. This systematic response is a goal for our system. Studies have shown that this strategy may reduce the diagnostic time to about 30 minutes. A recent study conducted by Christiana Care Health System, the largest hospital system in Delaware, evaluated the effect of a systematic response to AMI and found that the patients reviewed had a lower mortality rate as well as a shorter hospital stay when identification and treatment followed a systematic response model. This rapid treatment has a tremendously beneficial effect on the patient because during a heart attack “time is muscle”.

**STROKE:**
Similar to a heart attack, a stroke also requires rapid appropriate care and transportation. Studies on acute stroke management have shown that there is a narrow therapeutic window that mandates rapid identification, transport, diagnosis, and treatment; any delay undermines the system and the quality of care available to the acute stroke patient.

EMS plays an important role in the management of a stroke patient. EMTs and paramedics are responsible for transport decisions regarding level of transport, speed of transport, and destination of transport. There is strong evidence to support improved outcomes of stroke patients who are managed in established stroke centers.
TOXMEDIC PROTOCOLS:
These protocols were developed to delineate the requirements and responsibilities of various agencies when providers or patients are exposed to hazardous substances. Patients who have been exposed to chemicals and weapons of mass destruction often require procedures, medication and treatments that are above the scope of a traditional "street medic." Participation in the Toxmedic program by Delaware paramedic agencies is elective. Each of the state’s ALS agencies continues to participate.

Each paramedic identified as a “Toxmedic” has successfully completed the Advanced Hazmat Life Support Course (AHLS). AHLS program is a 2-day, 16 hour course sponsored by the Division of Public Health. The AHLS program focuses on medical management of people exposed to hazardous materials, including nuclear, biological and chemical terrorism.

This year the system medical directors evaluated and made revisions to the state Toxmedic standing orders. Cyanokit® (hydroxocobalamin) was added as an alternative medication used for the treatment of cyanide poisoning. Cyanokit® improves the safety of our treatment protocol as it eliminates many of the potential side effects involved in the use of the traditional cyanide antidote kits.

Recently there has been much literature published on the potential for cyanide exposure in victims suffering from smoke inhalation. The signs and symptoms of cyanide poisoning are very vague and can easily mimic other potential illnesses including Carbon Monoxide poisoning. The use of the Cyanokit® holds great promise in the treatment of potential cyanide exposures in victims rescued from structure fires or in fire fighters exposed to toxic fumes as part of their efforts. To enhance the Toxmedic program, OEMS is developing distant learning tools to serve as annual refresher education for the ALS providers who completed the AHLS program.
NERVE AGENT ANTIDOTE PROTOCOLS FOR BLS AND PUBLIC SAFETY:
The protocol was designed to outline the process by which BLS and Public Safety agencies train, acquire, maintain, use and discard nerve agent antidote kits. When responding to an act of chemical terrorism or a hazardous materials incident, emergency responders may be exposed to harmful, even fatal doses of nerve agents. In these situations, responders may need to administer life saving medications to themselves or fellow responders in a rapid time frame. The decision for an agency to participate in the nerve agent antidote program is voluntary; however, those agencies wishing to participate must comply with the Nerve Agent Antidote protocol outlining training and quality assurance requirements.

In 2007, Meridian Medical Technologies, the manufacturer of the Mark I Nerve Agent Antidote kit, ceased producing those units. They have replaced the Mark I kit with the DuoDote™. The DuoDote™ is a single autoinjector that administers both nerve agent antidotes through a single device. The Office of Emergency Medical Services is working with the Homeland Security Terrorism Preparedness Working Group and Public Health Preparedness and obtained DuoDote™ replacements for services whose kits have expired. Remaining kits will be distributed to services who wish to participate in the program.

The state standing order committee also made revisions to the Mark I Kit standing orders to reflect the addition of the DuoDote. Over the next few years, providers will have both Mark I kits and DuoDotes available. As the existing Mark I kits outdate, they will be removed from service and replaced with the DuoDote.

The Nerve Agent Antidote standing orders were also simplified and updated to reflect current recommendations from the manufacturers of the antidote kits. A distant learning program was developed to update responders on the revised standing order.

TRAUMA:
The majority of potential terrorist events involve some sort of blast or traumatic injury inflicted upon the victims. Emphasis on our statewide trauma system and the EMS care of patients injured by blast or trauma has become more important than ever. EMS agencies throughout the state continue working together to develop plans that ensure trauma patients in mass casualty situations get proper care as quickly as possible.

The system medical directors approved the use of some hemostatic agents by Delaware responders. These agents provide a mechanism for the control of bleeding caused by major traumatic injuries such as blast trauma. Tourniquets are a medical device used to tamponade blood flow in order to reduce bleeding in an injured extremity. Their use had almost disappeared from most prehospital training programs over the past few years. However, recent studies of war-time casualty care have pointed to their usefulness in combat traumatic injury. As a result of this, there has been resurgence in support for adding tourniquets to
the arsenal of equipment to control prehospital traumatic hemorrhage. The use of both hemostatic agents and tourniquets have been included in trauma care protocols for both the ALS and BLS standing orders.

**TECHNICAL ASSISTANCE:**
Since 2007, the Office of Emergency Medical Services has worked with the Office of Public Health Preparedness and the Delaware State Fire School to contract a senior paramedic to provide EMS agencies with technical assistance on domestic preparedness issues. This position continues a number of projects to assess current preparedness efforts and plan for future preparedness initiatives.

The goal of OEMS domestic preparedness efforts is to increase the readiness of all Delaware responders to prepare for an all-risk response. This includes incidents of terrorism, hazardous materials releases, specialized and technical rescue, severe weather events, mass illness outbreaks and mass casualty situations. Efforts will be made to increase the interagency operability between EMS and other state response and preparedness agencies.

As part of this technical assistance program, the Office of EMS presented an update on preparedness equipment to all state paramedics at their annual refresher training. This update provided information on many pieces of equipment purchased by the state and provided to each county agency. Information was provided on chemical detection equipment, poisoning antidotes, personal protection equipment and decontamination supplies.

In July, OEMS participated as evaluators at a mass casualty exercise conducted in New Castle County by Aetna Fire Department in conjunction with the University of Delaware. This exercise involved fire departments, EMS services, police and other emergency responders from throughout the region. It involved an incident at a dormitory affecting over 100 patients. Services came together to rescue, triage and transport patients in a very efficient manner. Area hospitals were also involved in receiving these patients and testing their own disaster plans.

**CARBON MONOXIDE POISONING:**
There have been many articles published in prehospital medical journals about the dangers of Carbon Monoxide poisoning. Carbon Monoxide (CO) is an odorless, colorless gas that affects the body by inhibiting the ability of the blood to transport oxygen to the cells. Patients who are exposed to CO often exhibit very vague symptoms making it easy to mistake CO poisoning for other problems such as the flu. In addition to affecting the patient, the presence of CO in a residence may also affect responders who are
sent there to aid the patient. Recognizing the importance of detecting the presence of CO in both the atmosphere around the responder and in the patient, the state standing order committee made additions to both ALS and BLS protocols.

First, it recommended services carry CO detectors with an audible alert on the gear bags they take with them into patients’ residences. These detectors will alarm when airborne concentrations of CO reach threshold limit values. The alarm will give responders a clue to the potential presence of CO at a level that could be harmful to the patient and themselves if exposures continue.

Second, pulse CO-oximetry has been permitted for use by both ALS and BLS services. For many years, pulse oximetry has been a helpful adjunct to prehospital providers in evaluating oxygenation of the patient. When used with good assessment technique, pulse oximeters can alert the practitioner to conditions that warrant intervention. It can also help gauge response to therapy such as to the extent of improvement achieved by the administration of nebulized or meter-dose bronchodilators.

Pulse CO-oximetry works in a similar manner to provide an assessment tool for gauging the extent of Carbon Monoxide presence in the bloodstream. Again, in conjunction with good assessment technique, it can help the provider by detecting the presence of a potentially harmful condition in a patient who may present with very vague symptoms. The pulse CO-oximeter has been added as an optional item for ALS and BLS services who wish to add them to their equipment lists.
Specialty Care

Education and Training

Emergency Medical Service (EMS) education in Delaware is provided at three nationally recognized levels. They are First Responder, Emergency Medical Technician-Basic (EMT-B), and Emergency Medical Technician-Paramedic (EMT-P). Registration through the National Registry of Emergency Medical Technicians (NREMT) is offered for each of these levels.

The First Responder, Basic and Paramedic programs provide for a gradual increase in the complexity and comprehensive knowledge level for the student. An individual may begin at any level of EMS education. Each higher-level program reinforces the basic skills and then adds additional advanced training.

In 2005 the National Highway Traffic and Safety Administration (NHTSA) developed *The National EMS Scope of Practice Model.* “The National EMS Scope of Practice Model is a continuation of NHTSA and the Health Resources and Services Administrations implementation of the EMS Agenda for the Future.” *The National EMS Scope of Practice Model* identifies and defines four levels of EMS licensure, with each level representing a specific knowledge and skills set that build upon each other.

According to NHTSA (2005); “the challenge facing the EMS community is to develop a system that establishes national standards for personnel licensure and their minimum competencies while remaining flexible enough to meet the unique needs of State and local jurisdictions.”

The Office of EMS in conjunction with DEMSOC will review *The National EMS Scope of Practice Model* to determine the feasibility of incorporating its concept/design into EMS practices in Delaware. Strong rationale for adopting *The National EMS Scope of Practice Model* is that it will increase public awareness and understanding of EMS personnel, and support the professional image of EMS providers. It will also better integrate EMS into the overall healthcare model practiced throughout the nation.

**FIRST RESPONDER:** First Responder training is a 40-hour program and is aimed primarily at police, firefighters and industrial first aid squads. The emphasis of this course prepares the responder to address immediate life threats and injuries until more highly trained personnel are available. The First Responder training follows a national standard curriculum established by the U.S. Department of Transportation (DOT). This program is offered through the Delaware State Fire School and a few private educational companies in the state. A 12-hour DOT refresher course must be completed every two years to re-certify.

**EMT-BASIC:** The Emergency Medical Technician-Basic course is designed to prepare an individual to function independently in a medical emergency. The EMT-B certification is the basic life support (BLS) standard of care for the State Of Delaware. In 1998, the State Fire Prevention Commission adopted EMT-B as the primary certification required for care providers on Delaware ambulances. The course requires a minimum of 120 hours of classroom and skills instruction and approximately 10 hours of clinical rotations. EMT-B follows a national standard curriculum established by the U.S. Department of Transportation (DOT). This course provides the students with in-depth knowledge and skill-based training to appropriately assess, stabilize, monitor, and transport the pre-hospital patient. In addition, the student will become familiar with medic assist functions and the use of an Automatic External Deliberator (AED). Delaware certification requires successful completion of a written (National Registry) and practical skills examination.
The lead agency for EMT-B education is the Delaware State Fire School. Medical oversight and curriculum review is through the Office of EMS. The cost of training is provided by the State for students affiliated with a volunteer provider agency.

In 2008, The Office of EMS and State Fire Prevention commission finalized the Educational Standards document which outlines procedure for training agencies to follow when conducting Basic Life Support Education.

To remain certified as an EMT-B in Delaware, providers must complete a state sanctioned 24-hour DOT refresher program every two years, as well as a healthcare provider level CPR/AED course. To maintain National Registry EMT-B certification, the provider must complete a 24-hour DOT refresher course, 48 hours of continuing education credits, and a healthcare provider level CPR/AED course.

**EMT-PARAMEDIC:** EMT-Paramedic (EMT-P) is the advanced life support (ALS) standard of care for the State Of Delaware. Paramedics respond to the most life-threatening calls for help and respond separately from the basic life support (BLS) ambulances. Paramedic education follows a national standard curriculum established by the U.S. Department of Transportation (DOT).

In order to obtain Delaware certification, paramedics must successfully complete a practical and written examination by the National Registry of EMTs and all requirements outlined by the Board of Medical Practice (BOMP). To remain certified as a Delaware Paramedic, a provider must maintain paramedic certification with the National Registry by completing a 48-hour DOT refresher course and 24 hours of continuing education credits every two years. Additionally, they must maintain current certifications in advanced cardiac life support (ACLS), pediatric advanced life support (PALS), and a specialized trauma certification course (PHTLS or ITLS).
Delaware Technical & Community College offers paramedic education through a fully accredited two-year associate’s degree program. It follows the national standard curriculum and consists of approximately 2000 hours of classroom, lab, clinical and field internship experiences. Throughout the program an emphasis is placed on helping the student develop leadership and decision making skills as part of their clinical practice. The program has been reviewed by the Committee on Accreditation of Education Programs for the EMS Professions (CoAEMSP) and has continuously maintained accreditation through the Commission on Accreditation of Allied Health Education Programs (CAAHEP) since 1999. It is the only accredited program within the State and one of only seven accredited paramedic programs within 100 miles of Delaware’s borders.

In 2008, the Delaware Tech Paramedic Program reached two milestones: producing the program’s 100th graduate and starting the 10th paramedic class.

EMS INSTRUCTOR COURSE: In Delaware, the instructor level or Methodology course trains individuals to teach the U.S. Department of Transportation (DOT) basic and advanced level courses. The course emphasis is on the development of teaching skills as opposed to emergency care skills. To enter into an instructor level course an individual must already have expertise in the subject matter and a strong EMS knowledge base.

The State of Delaware recognizes two instructor level courses. The National Fire Protection Agency (NFPA) instructor Level I and II which is taught at the Delaware State Fire School and the second a Methodology course based on the NHTSA National Guidelines for Educating EMS Instructors which is taught by many EMS agencies. These two courses prepare the EMS instructor for the specific and unique
subject matter that faces the emergency medical system. Delaware Technical and Community College requires an Associates Degree and 6 years experience or a Bachelor Degree and 4 years of Experience to instruct at the EMT-Paramedic level. All Paramedic Instructors must hold a Paramedic or RN, who practices in a related field, license.

FIELD TRAINING OFFICER (FTO) PROGRAM: Each Advanced Life Support agency in Delaware has developed a FTO process to meet their needs. The FTO programs for the ALS agencies are the joint responsibility of the medical director and the agency. The agency and the agency’s Medical Director have the flexibility to design their process to meet the needs of their organization, i.e., the requirements to be a flight medic, tactical medic, or an interfacility medic which may be different from a traditional "street medic." The agency’s Medical Director is responsible to certify to the State Medical Director, the Board of Medical Practice and the citizens of Delaware the relative competence of the paramedic.

CONTINUING EDUCATION AND DISTANCE LEARNING: The Office of EMS approves all prehospital training conducted in the State Of Delaware. The most popular of this training is distance learning. Prehospital providers are taking advantage of the benefits of receiving continuing education training online. The internet has given prehospital providers the foremost source for current in-depth education and research regarding EMS. National Registry of EMT also allows EMT-Basic to count 24 hours of distance learning toward recertification and 12 hours for Paramedics.

EMERGENCY MEDICAL DISPATCH: All public safety answering points (PSAP) that dispatch ambulance personnel are required to use the Priority Medical Dispatch System (PMDS). All dispatchers employed at those PSAPs must be certified Emergency Medical Dispatchers (EMDs). EMS training is provided on an as-needed basis by in-state EMD trainers. The initial course is 24 hours in length and requires 24 hours of continuing education every 2 years, to maintain national certification.
EMS System Resources

- Emergency Department and Hospital Diversion Data
- Human Resources and Workforce Development
- Material Resources

Photo Submitted by New Castle County EMS
EMS System Resources

Emergency Department and Hospital Diversion Data

Information provided by the Delaware Healthcare Association indicates there were 352,234 visits to the Delaware acute care hospital emergency departments in 2008. This is an increase of 77,703 hospital emergency department visits (28.30%) statewide from the same period in 2000.
In addition, there were 59,005 patient admissions from the emergency department for 2008, an increase of 10,993 (22.90%) from the same period in 2000.

There was an increase in the number of patients seen in emergency departments (by 16,922) patients from 2007 to 2008. However the number of patients admitted to the hospital from the Emergency Department decreased (by 1,411) during this same time period. This will be important to follow.
Although improvements have been made, there is still an average of 48 patients in Delaware acute care hospitals on any given day that no longer require hospital care, but remain in the hospital awaiting discharge to post-acute care settings. This inability to discharge inpatients results in a shortage of inpatient beds available for the admission of emergency patients. This also has a direct negative impact on the frequency of hospital diversions and the pre-hospital providers that must take patients to other hospitals outside of the provider’s immediate service area.

There were several long term care facilities along with a dedicated pediatric long term care facility which opened between 2000 and 2008. In addition, several hospitals are educating patients and their families about short-term alternatives to waiting for a long term care bed within the hospital. It has drastically reduced the number of patients waiting for long term care beds. The largest numbers of patients awaiting long term care beds are Medicaid and Medicare patients.

This graph shows EMS hours of diversions from hospital emergency departments. Delaware acute care hospitals continued to experience increases in emergency department patient visits during 2008, and in many cases overcrowding. This overcrowding has many times resulted in increased ambulance diversion to surrounding hospitals.
EMS System Resources

Human Resources and Workforce Development

The task of providing quality EMS care requires qualified, competent, and compassionate people. The human resource, comprised of a dedicated team of individuals with complimentary skills and expertise, is the most valuable asset to EMS patients. (NHTSA)

![EMS Providers in Delaware](chart)

Above is a graph that shows the number of prehospital providers. These are the individuals that are responsible for “taking the calls”. In addition to the prehospital providers, Medical Control Physicians are an integral part of the system. The medical control physician’s give “on-line” medical direction to the providers and are the receiving physicians within the emergency rooms of the state.

Work continued in 2008 on recruitment and retention of EMS providers. There is a national shortage of EMS providers. Although Delaware is also affected by a shortage of EMS providers, the agencies across the state have worked hard to improve recruitment and retention, compensation, work conditions, training and diversity. The demand for EMS services is also expected to increase, as the state’s population ages. The Delaware Population Consortium projects that from 2005-2015, Delaware’s population will increase by 15%, and the number of residents 60 years and older is expected to increase 27%.

While the aging population is increasing, the volunteer population is beginning to decrease. Information from the National Registry of Emergency Medical Technicians shows that the majority of EMS responders nationwide are between the ages of 20-45. Many people within this age range are finding it more difficult to volunteer their time with the increases in dual income and single parent families, and the fact that many people are working longer hours.

DEMSOC created a workforce diversity subcommittee in 2006 to address issues with the recruiting and retention of a more diverse EMS workforce. This subcommittee will work closely with the NAEMSE group to address this critical issue within our State. As part of this effort, the Office of Emergency Medical Services is working with technical high schools throughout the state to develop an EMS program that would increase the availability of training and allow students to transition to the Delaware Tech program upon graduation.
Increasing demand for services fueled by a rising population and aging baby boomers has placed many volunteer fire companies into a position of hiring staff to cover basic life support (BLS) ambulance runs. Below is a listing by company of part-time and full-time paid personnel for 2008. This information also contains the shifts covered by paid personnel and if paid personnel also responds on fire/rescue calls.

**New Castle County**

<table>
<thead>
<tr>
<th>AGENCY NAME</th>
<th>TOTAL PAID PERSONNEL</th>
<th>SHIFTS COVERED</th>
<th>RESPOND ON FIRE/RESCUE CALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aetna Hose Hook &amp; Ladder Co</td>
<td>8 FT - 40 PT</td>
<td>24/7</td>
<td>FT – YES ~PT NO</td>
</tr>
<tr>
<td>Belvedere Volunteer Fire Co. 30</td>
<td>N/A</td>
<td>N/A</td>
<td>YES</td>
</tr>
<tr>
<td>Brandywine Hundred Fire Co. 11</td>
<td>8 FT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Christiana Fire Co. 12</td>
<td>8 FT - 50 PT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Claymont Fire Company 13</td>
<td>9 FT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Cranston Heights Fire Co. 14</td>
<td>6 FT - 20 PT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Delaware City Fire Company 15</td>
<td>4 FT</td>
<td>24 On ~ 72 Off</td>
<td>YES</td>
</tr>
<tr>
<td>Elsmere Fire Co. 16</td>
<td>4 FT - 25 PT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Five Points Fire Company 17</td>
<td>2 FT – 25 PT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Goodwill Fire Company</td>
<td>6 FT – 18 PT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Hockessin Fire Co. 19</td>
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<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Holloway Terrace Fire Co.</td>
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<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Mill Creek Fire Company, Inc. 2 &amp; 21</td>
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<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Minquadale Fire Company 22</td>
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<td>24/7</td>
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</tr>
<tr>
<td>Minquas Fire Co. 23</td>
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<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Odessa Fire Co. 4 &amp; 24</td>
<td>20 PT</td>
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<td>YES</td>
</tr>
<tr>
<td>Port Penn Vol. Fire Co. 29</td>
<td>1 FT - 20 PT</td>
<td>7-3 PT ~ 9-5 FT</td>
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</tr>
<tr>
<td>Talleyville Fire Co.</td>
<td>11 FT -8 PT</td>
<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Townsend Fire Co. 26</td>
<td>2 FT</td>
<td>M-F 5 AM – 3 PM</td>
<td>YES</td>
</tr>
<tr>
<td>Volunteer Hose Company</td>
<td>6 FT</td>
<td>5 AM – 3 PM ~ 8 AM- 6 PM</td>
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</tr>
<tr>
<td>Univ of DE Emer. Care Unit</td>
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<tr>
<td>Wilmington Fire Department 100</td>
<td>172</td>
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</tr>
<tr>
<td>Wilmington Manor Fire Co.</td>
<td>9 FT - 11 PT</td>
<td>24/7</td>
<td>YES</td>
</tr>
</tbody>
</table>
### Kent County

<table>
<thead>
<tr>
<th>AGENCY NAME</th>
<th>TOTAL PAID PERSONNEL</th>
<th>SHIFTS COVERED</th>
<th>RESPOND ON FIRE/RESCUE CALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowers Fire Co. 40</td>
<td>2</td>
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</tr>
<tr>
<td>Camden-Wyoming Fire Co. 41</td>
<td>6 FT &amp; 19 PT</td>
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</tr>
<tr>
<td>Carlisle Fire Company 42</td>
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<td>24/7</td>
<td>YES</td>
</tr>
<tr>
<td>Cheswold Fire Co. 43</td>
<td>4 FT – 10 PT</td>
<td>24/7</td>
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<td>Clayton Fire Co. 6</td>
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<td>N/A</td>
<td>N/A</td>
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<td>Felton Community Fire Co. 48</td>
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<td>Frederica Vol. Fire Co. 49</td>
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<td>Harrington Fire Co. 50</td>
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<td>Hartly Fire Co. 51</td>
<td>1</td>
<td>M-F 8 AM – 5 PM</td>
<td>YES</td>
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<td>Leipsic Volunteer Fire Co. 53</td>
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<tr>
<td>Magnolia Vol. Fire Dept. 55</td>
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<td>Marydel Fire Co. 56</td>
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<tr>
<td>Smyrna American Legion 64</td>
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</tr>
<tr>
<td>South Bowers Fire Company</td>
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### Sussex County

<table>
<thead>
<tr>
<th>AGENCY NAME</th>
<th>TOTAL PAID PERSONNEL</th>
<th>SHIFTS COVERED</th>
<th>RESPOND ON FIRE/RESCUE CALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blades Fire Co.</td>
<td>1 FT 6 PT</td>
<td>6 AM – 6 PM ~ 7 DAYS</td>
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</tr>
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<td>Bridgeville Fire Company 72</td>
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<td>Dagsboro Fire Co. 73</td>
<td>3 FT – 15 PT</td>
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<td>Delmar Fire Co.</td>
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<td>24/7</td>
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<td>Ellendale Fire Co 75</td>
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<td>M-S 6 AM – 6 PM Sun 24 hrs</td>
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<td>Frankford Fire Co. 76</td>
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<td>Georgetown American Legion</td>
<td>15 + PT</td>
<td>6 am - 6 pm</td>
<td>YES W/ STATION 77</td>
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<td>Greenwood Fire Co. 78</td>
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<td>Laurel Fire Dept. 81</td>
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<td>Memorial Fire Co. 89</td>
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<td>Mid Sussex Rescue Squad Inc.</td>
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<td>Milton Fire Co. 85</td>
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<td>6 FT</td>
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<td>YES</td>
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<tr>
<td>Selbyville Fire Co. 88</td>
<td>2 FT – 8 PT</td>
<td>24/7</td>
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</tbody>
</table>
EMS System Resources

**Material and Specialized Equipment Resources**

The State of Delaware also provides specialized resources. These resources are located throughout the state and are specific to the needs of each county. The charts below list some of the specialized resources our state currently has in-service.

<table>
<thead>
<tr>
<th>Department</th>
<th>HazMat/WMD</th>
<th>Confined Space / Collapse / High Angle Rescue</th>
<th>Water Rescue</th>
<th>Other</th>
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<tbody>
<tr>
<td>New Castle County</td>
<td></td>
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<tr>
<td>Aetna</td>
<td></td>
<td></td>
<td></td>
<td>BLS Bike Team</td>
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<td>HazMat 30</td>
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<td>Claymont</td>
<td>SpecOps 13</td>
<td>13 Marine 2</td>
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<td>Cranston Heights</td>
<td>HazMat 14</td>
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<td></td>
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<td>Delaware City</td>
<td>SpecOps 15</td>
<td>15 Marine 1</td>
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<td>Elsmere</td>
<td>HazMat 16</td>
<td>Decon 1</td>
<td></td>
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<td></td>
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<tr>
<td>Goodwill</td>
<td></td>
<td></td>
<td>MRU 18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18 Marine 1</td>
<td></td>
</tr>
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<td>Holloway Terrace</td>
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<td></td>
<td>MRU 20</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>20 Marine 1</td>
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<td>SpecOps 20</td>
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<tr>
<td>Minquas</td>
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<td></td>
<td></td>
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<td>23 Marine 1</td>
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<td>29 Marine 2</td>
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<tr>
<td>New Castle County EMS</td>
<td>Spec Ops-Medical Support Trailer (MSU) for mass casualty</td>
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<td>ALS Bike Team</td>
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<td></td>
<td></td>
<td></td>
<td>Tactical EMS Team</td>
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<td></td>
<td></td>
<td></td>
<td>“MEDCOM” EMS Command and Mobile Aid Station</td>
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<tr>
<td></td>
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<td>EMS Gator</td>
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<tr>
<td>Department</td>
<td>HazMat/WMD</td>
<td>Confined Space / Collapse / High Angle Rescue</td>
<td>Water Rescue</td>
<td>Other</td>
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<td>---------------------</td>
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<tr>
<td>Kent County</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowers.</td>
<td></td>
<td></td>
<td>40 Marine 1</td>
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</tr>
<tr>
<td></td>
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<td>40 Marine 2</td>
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<td>Gator 42</td>
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<td></td>
<td>Decon Support</td>
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<td></td>
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<td>Blades</td>
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<td>Dagsboro</td>
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<td>Marine 73</td>
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<td>Greenwood</td>
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<td></td>
<td></td>
<td>Gator 78</td>
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<td>Gumboro</td>
<td>FDU 79</td>
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<td>Indian River</td>
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<td></td>
<td>80 Marine 1</td>
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<td></td>
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<td>80 Marine 2</td>
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<td>82 Marine 2</td>
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<td>Marine 85</td>
<td>Gator 85</td>
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<td>Marine 86</td>
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<td>Rehoboth Beach</td>
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<td>87-66</td>
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<td>Seaford.</td>
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<td>Dive Trailer 88-14</td>
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<td>Memorial</td>
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<td>Roxana</td>
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<td>MRU (mass casualty)</td>
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<td>Tox Medics</td>
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</tr>
</tbody>
</table>
EMS System Resources

**Public Health Preparedness**

**PHPS**

**EXECUTIVE SUMMARY**

Beginning in 2002, Delaware has received funding through the Health Resources and Services Administration (HRSA), Bioterrorism Hospital Preparedness Program, which is now managed by the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the US Department of Health and Human Services (HHS). In addition, Delaware has also received funding through the U.S Department of Homeland Security to enhance preparedness and response capabilities to a terrorist incident. Delaware continues to prepare the Division of Public Health (DPH), hospitals and supporting healthcare systems to deliver coordinated and effective care to victims of terrorism, disasters and other public health emergencies.

DPH has well-established Public Health and Emergency Medical response capabilities and continues to further enhance preparedness efforts as they pertain to Medical Surge Capacities and Capabilities (MSCC). Throughout our preparedness process, DPH has addressed supplies and equipment, education and preparedness training, exercises, evaluation and corrective actions, and the needs of at-risk populations. A summary of capabilities include:


- Capability to provide Delaware’s Emergency Medical Services (EMS) agencies with a list of emergency medical response equipment and supplies available and tracked through the PEPR Inventory Resource Management System on an annual or as needed basis.

- Medical Resource Units (MRUs) assigned to each county and City of Wilmington EMS Agency - Trailers that contain first responder equipment including medical supplies and equipment, PPE, food, and shelter for a staff of 16 for up to three days. MRUs are designed to be used as a casualty collection point at the scene of an incident or at the hospital or as a forward triage/treatment center to support public health and EMS response to a large-scale disaster.

- Increased interoperable redundant, statewide communications system to include the 800 MHz radio system, HAM Radio Systems, and satellite phones for healthcare facilities and alternate care sites.

- Implementation of the Facility Resource Emergency Database (FRED) system, a secure, web-based program for hospital medical-surge bed and resource tracking.

- Implementation of the Hospital Available Beds for Emergencies and Disasters (HAvBED) system, a secure, web-based program for reporting hospital medical-surge bed tracking to the U.S Department of Health and Human Services, Secretary’s Operation Center (SOC) within four (4) hours of a request.
• Development of the Delaware’s Emergency Systems for Advance Registration of Volunteer Health Professionals (ESAR-VHP).

• Updated the State’s Mass Fatality Plan to an all-hazards format in cooperation with the Office of the Chief Medical Examiner, funeral and cemetery directors, and hospitals.

• Established requirements to increase hospitals’ morgue capacity to be able to hold a minimum of 50 bodies using body bags and refrigerated storage.

• Established a Mobile Mortuary Response System capable of holding 144 bodies at an accident scene (i.e. plane crash), within a fixed facility, or in Delaware’s Mobile Medical Facility.

• Development of Hospital Emergency Management and Disaster Plans to address, incident command, emergency management, all hazard preparedness and evacuation.

• Development of evacuation plans for hospitals, nursing homes and our at-risk populations in collaboration with the Department of Defense’s, National Disaster Medical System, Emergency Management Agencies, Disability Council, Emergency Medical Services, social services and the Delaware Department of Transportation.

• Identification and development of Alternate Care Sites to include six (6) Acute Care Centers (ACC) capable of providing care for a total of 400 patients, five (5) Neighborhood Emergency Help Centers, and four (4) Medical Needs Shelters.

• The purchase of a Mobile Medical Facility (MMF) to accommodate up to 50 patients with an oxygen delivery system.

• The purchase of a Portable Oxygen Generating System (POGS) capable of manufacturing medical grade oxygen to support an incident or supply oxygen to the MMF oxygen delivery system.

• Established a state cache of 210 ventilators/supplies (including pediatric capability) to provide respiratory care to patients. The ventilators could be deployed to support hospitals and alternate care sites.

• Established pharmaceutical caches to include antibiotics, antiviral medications, liquid potassium iodide (KI), and nerve agent antidotes for the public and essential workers.

• Provided nerve agent antidotes to the Emergency Medical Services (EMS) responders to treat victims of a nerve agent Mass Casualty Event.

• Established caches of prophylaxis for 10 days for hospital personnel, hospital based emergency first responders and their families (both pediatric and adult doses).

• Stockpiled Personal Protective Equipment (PPE) to include N95 masks, surgical masks, face shields, nitrile gloves, gowns, tyvek suits and Powered Air Purifying Respirators (PAPR).

• Established portable decontamination shelters at every hospital with the agreement to share equipment in the event of an emergency.

• Developed a State-level cache central storage location to provide for the rapid deployment of equipment, supplies, and pharmaceuticals during a public health event or medical emergency.
2009 GOALS

- To fully assess and enhance the state’s current medical surge capability.
- To develop operational plan to safely evacuate hospitals.
- To continue to support continuity of operations planning efforts with department and partner agencies.
- To enhance ability to rapidly dispense medications to the public during public health emergencies.
- To expand the use of DPH’s new automated volunteer credentialing and notification system to include public health employee notification and daily verification of credentials for state public health care workers.
- To enhance system efficiencies and reduce costs by such actions as improved medications management through rotation and shelf-life extension.
- To develop a Family Assistance Plan to provide services and information to victims families during major emergencies such as the Virginia Tech shooting.
- To enhance emergency delivery of health and medical services to homebound and isolated communities during emergencies.
- To develop comprehensive classroom and distance-learning training programs for all public health plans and emergency positions.
- PHPS and Office of Emergency Medical Services are working with area hospitals to establish a temporary burn unit and enhance statewide capacity for burn patient stabilization.
New Castle County

• Advanced Life Support
• Basic Life Support
• Communication Center

Photo Submitted by New Castle County EMS
New Castle County

New Castle County Emergency Medical Services Division
Submitted by New Castle County EMS

OVERVIEW

Introduction
The mission of the New Castle County Emergency Medical Service, as an essential component of the New Castle County Government, is to provide efficient, compassionate, and high quality emergency medical care to the visitors and residents within New Castle County. Our delivery of paramedic service directly impacts the quality of life for all who reside, visit, and work in New Castle County.

The New Castle County Emergency Medical Service is a county municipal “third service” paramedic agency located within the County Department of Public Safety. New Castle County EMS has the distinction of being the “First Paramedic Service in the First State.”

New Castle County EMS operates in a “tiered response” configuration, and responds with basic life support (BLS) ambulances from the volunteer fire service, career fire departments, private ambulance service providers, and specialized EMS providers, such as the University of Delaware’s student operated BLS ambulance.

In 2008, New Castle County EMS deployed nine (9) paramedic units during its high call volume periods, and eight (8) paramedic units during non-peak operating hours. The expansion of a 12-hour per day “power shift” unit to 24-hour operations during 2008 was another increase in paramedic coverage of the County. A Paramedic Sergeant is on duty as the field supervisor for each shift, with an EMS Lieutenant serving as the overall shift commander. Both the Paramedic Sergeant and EMS Lieutenant are equipped as advanced life support responders.

Our personnel strive to demonstrate our commitment to our motto each and every day: “Excellence in Service.”

Further information regarding the New Castle County Paramedics is available on their web site at: www.nccde.org/ems.
**Paramedic Unit Activity**

New Castle County EMS has a clearly defined call volume pattern that begins to increase at approximately 0600 hours each day, reaches a peak at approximately 1100 hours, then steadily declines until after midnight. Utilization of “power shift” units, such as Medic 9, provides an opportunity to increase paramedic staffing during high call volume times each day.

The EMS Division currently deploys eight (8) paramedic units on a 24-hour basis, seven days a week. One (1) paramedic unit is added during peak call volume periods on a “power shift” configuration (0700-1900 hours) seven days a week.
New Castle County EMS has seen a 19% increase in demand for service over the past five years. The response time reliability for all incidents (Charlie, Delta, Echo and stand-by events combined) was 67.4% reliability within 8:59 or less. Response time reliability based on dispatched priority level demonstrates a faster paramedic response time for potentially life-threatening, time sensitive (“Echo” level) incidents with 76.4% reliability within 8:59 or less.

<table>
<thead>
<tr>
<th>PARAMEDIC UNIT</th>
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<tbody>
<tr>
<td>Medic 1 (Wilmington)</td>
<td>4449</td>
</tr>
<tr>
<td>Medic 2 (New Castle)</td>
<td>4306</td>
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<tr>
<td>Medic 3 (Newark)</td>
<td>3502</td>
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<tr>
<td>Medic 4 (Brandywine 100)</td>
<td>3735</td>
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<td>Medic 5 (Middletown)</td>
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<tr>
<td>Medic 6 (Glasgow)</td>
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<tr>
<td>Medic 7 (Prices Corner)</td>
<td>4179</td>
</tr>
<tr>
<td>Medic 8 (Wilmington)</td>
<td>3092</td>
</tr>
<tr>
<td>Medic 9 (12 hour/day unit)</td>
<td>1967</td>
</tr>
<tr>
<td>Medic 10</td>
<td>296</td>
</tr>
<tr>
<td>Medic 11</td>
<td>24</td>
</tr>
<tr>
<td>Medic 12</td>
<td>3</td>
</tr>
<tr>
<td>Medic 20 (Special Ops)</td>
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<tr>
<td>Single paramedic ALS responses</td>
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<tr>
<td>TOTAL RESPONSES</td>
<td>32,790</td>
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</table>
Map illustrating the location of New Castle County paramedic service incidents during calendar year 2008.
Source: NCC GIS & CAD System
Media attention has been given to the rise in violent crime in New Castle County, which ultimately results in increased paramedic-level responses. The paramedic response to these incidents and integration of pre-hospital care with the statewide trauma system is the likely reason the homicide rate is not significantly higher. This map documents the location of New Castle County paramedic responses to shootings, stabbings and assaults during calendar year 2008.
EMS Supervisor and Staff Activity

<table>
<thead>
<tr>
<th>EMS SUPERVISOR/STAFF</th>
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</thead>
<tbody>
<tr>
<td>ALS-11 (S/Lt. Seador)*</td>
<td>84</td>
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<tr>
<td>ALS-12 (S/Lt. Dudley)</td>
<td>191</td>
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<tr>
<td>ALS-13 (Lt. Pieczrazak)*</td>
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<td>ALS-14 (Lt. May)</td>
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<td>ALS-15 (Lt. Rombach)</td>
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<td>ALS-16 (S/Lt. Hitchens)*</td>
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<td>ALS-17 (Lt. Mark Allston)</td>
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<td>ALS-18 (S/Lt. Neil)</td>
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<td>ALS-19 (Acting Lt.)</td>
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<td>ALS-21 (P/Sgt. Dunn)</td>
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<td>ALS-22 (P/Sgt. Kennard)</td>
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<td>ALS-23 (P/Sgt. Gulezian)</td>
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<td>ALS-24 (P/Sgt. Starr-Leach)</td>
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<td>EMS-1 (Chief Tan)*</td>
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<tr>
<td>EMS-2 (Asst. Chief ~ Vacant)</td>
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<td>EMS-3 (Asst. Chief Krett)*</td>
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<tr>
<td>EMS-4 (Captain ~ Vacant)</td>
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<td>TOTAL STAFF RESPONSES</td>
<td>2,648</td>
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*Assigned to Administrative/Special Operations

ACCOMPLISHMENTS

Conversion of Medic 8 to 24-hour Operations

New Castle County EMS announced the expansion of Medic 8 to 24-hour operations beginning September 22, 2008. Medic 8 was previously deployed as a “power shift” unit that operated 12-hours a day, during the peak call volume period. Medic 8 made 2,579 responses in calendar year 2007 while operating on a 12-hour per day “power shift” rotation.
New Castle County Executive Chris Coons announces the scheduled expansion of Medic 8 to 24-hour operations during an August 29th press conference. The event was held at EMS Station No. 8 at the Wilmington Trust Building in Wilmington.

**National EMS Memorial Service**

The New Castle County EMS Honor Guard participated in the National EMS Memorial Service on May 24, 2008 in Roanoke, VA. The service is a nondenominational ceremony held each year to honor those men and women of America’s EMS systems who have lost their lives in the line of duty. The 2008 service recognized 73 inductees from across the country.

**Domestic Preparedness**

New Castle County EMS continues to make operational enhancements to improve its preparedness for major medical incidents and homeland security contingencies. The New Castle County paramedics have utilized federal funding for a variety of initiatives, including personal protective equipment, enhanced medical surge capability, interoperable communications, and enhanced medical incident command.

New Castle County EMS developed and implemented its operational policy for deployment of the Medical Command and Mobile Aid Station (“MEDCOM”) during major events or emergency incidents. The MEDCOM is designed to support medical operations, and includes features to assist in the care of multiple patients at a casualty collection point.
National EMS Memorial Bike Ride

For the fourth year in a row, New Castle County EMS escorted and hosted the participants from the National EMS memorial Bike Ride. The National EMS Memorial Bike Ride raises awareness of the National EMS Memorial Service, which honors those who have lost their lives in the line of duty. The participants were cycling from New York City, NY to Roanoke, VA—an approximately 600 mile trip. The group entered Delaware on May 18th and was escorted by Delaware State Police, New Castle County Police and EMS vehicles during their travels through New Castle County. A dinner for the participants was hosted by New Castle County EMS, the Five Points Fire Company and Collingswood (PA) Fire Company.

Expansion of Tactical Medic Program

New Castle County EMS has had an active tactical emergency medical support (TEMS) program for over a decade. The tactical medics, sometimes referred to as “SWAT Medics” provide medical support to law enforcement special weapons and tactics teams during high risk warrant services, hostage situations, barricaded subjects or dignitary protection assignments. New Castle County EMS selected two additional paramedics for participation in the special operations assignment. The paramedics will be required to complete SWAT training and obtain tactical medic certification.

Implementation of Traffic Safety Measures

New Castle County EMS implemented measures to improve the safety of its personnel when working around traffic. All New Castle County Paramedics have been issued high visibility vests that are worn when they are providing care or working around a roadway. The high visibility vests, combined with other existing personal protective equipment is intended to increase the margin of safety for our most valuable asset—our personnel.
Public Education/Injury Prevention Programs

New Castle County EMS has continued to provide public education activities that support its delivery of emergency medical care. Unfortunately, our agency has had to reduce its outreach activity as a result of fiscal restrictions throughout state and local government. A robust public education program supports the delivery and performance of an EMS system. For instance, areas with higher rates of bystander CPR and bystander and/or law enforcement AED utilization generally have higher cardiac arrest survival rates.

Public Education Activities

- **CPR/AED Classes**: 36 courses conducted with certification of 1,432 persons
- **First Aid Classes**: 7 courses conducted with certification of 331 persons
- **Vial of Life Program**: 18 presentations to an audience of 2,916 people
- **EMS Division Displays**: Staffed 14 paramedic service displays or presentations reaching approximately 856 attendees

The Emergency Medical Services Division provided presentations to 24 volunteer fire companies, 8 churches, 6 senior citizen centers, 8 schools and 15 clubs and/or civic associations. An additional 16 training programs were conducted for the New Castle County Police and the County Office of Emergency Management.

Employee Recognition

On October 23, 2008 New Castle County Executive Christopher A. Coons presented an Executive Tribute to Paramedic Corporal David L. Lawrence in recognition of his initiative in coordinating a weekend food drive to provide emergency assistance to the Sunday Breakfast Mission. Paramedic Corporal Lawrence was joined by his family for the County Executive’s visit to EMS Station No. 4 in Brandywine Hundred. The food drive resulted in delivery of 3,600 pounds of food and over $800 in cash donations to the Sunday Breakfast Mission.
New Castle County Paramedics joined the 911 dispatcher, fire company ambulance crew and County police officer that responded to assist in the home delivery of an infant on April 17, 2008. The Dartmouth Woods couple placed a 911 call when their second child decided to arrive before they could get to the hospital. The County Paramedics coordinated a reunion of all components of the emergency medical services system that contributed to the response.

Paramedic 1/C Robert Sullivan participated in a news conference coordinated by Wilmington Mayor James Baker to celebrate a cardiac arrest save that occurred on July 1, 2008 in Rockford Park. Mr. Simon Cranny, his wife Lisa, and their two children attended the event to express their appreciation for the State Parks employees that started CPR and notified 9-1-1 when Mr. Cranny collapsed. The field EMS personnel were able to restore Mr. Cranny’s heartbeat at the park before he was transported to the hospital. The news event was used to draw attention to the need for CPR training to improve survival from cardiac arrest.

On May 19, 2008 New Castle County EMS hosted their annual Graduation and Appointment Ceremony at the County Public Safety Headquarters in New Castle. The 2008 ceremony recognized the eight members of the New Castle County Paramedic Class of 2006-2007, in addition to four personnel that were previously practicing paramedics in other states before being appointed to the County Paramedic service. The Paramedic Class of 2006-2007 was also cited for achieving the difficult task of obtaining a 100% graduation and field certification success rate.

A Department of Public Safety Awards Ceremony was held on May 29, 2008 at the County Public Safety Headquarters. The Emergency Medical Services Division recognized the following individuals for notable performance:

ALS and BLS Patient Age Comparison 2008

New Castle County

ALS and BLS Patient Age Comparison 2008

ALS/BLS Incidents by Month-2008

New Castle County

New Castle County Delaware 911 Calls

Total 911 Calls for New Castle County includes calls to New Castle County 911, Wilmington PD, Newark PD and University of Delaware
### New Castle County

**BLS Scratch Report**
From 01/01/08 to 12/31/08

<table>
<thead>
<tr>
<th>Company</th>
<th>In District</th>
<th>Out Of District</th>
<th>totals</th>
<th>scratches</th>
<th>company percentages</th>
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<td>Aetna Hose, Hook &amp; Ladder</td>
<td>6940</td>
<td>646</td>
<td>7563</td>
<td>107</td>
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<tr>
<td>Belvedere Fire Company</td>
<td>42</td>
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<td>71</td>
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<td>53.52%</td>
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<tr>
<td>Brandywine Hundred</td>
<td>1439</td>
<td>730</td>
<td>2169</td>
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<td><strong>0.65%</strong></td>
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</table>
New Castle County

Basic Life Support
BLS

New Castle County is comprised of 21 Volunteer Fire Companies and one paid fire department, The City of Wilmington. Every fire company in New Castle County operates at least one basic life support unit and many fire companies operate multiple BLS units. There are two additional BLS units, owned by the county, that are used as “loaner” ambulances; these ambulances are placed into service when a fire company’s ambulance is placed out-of-service for any period of time.

Many volunteer fire companies in New Castle County are transiting from a predominantly volunteer system to a combination system, which accommodates both volunteer and paid personnel. During a time when volunteerism is on a decline, fire companies must find alternative ways to provide a safe, quick, and professional service, while struggling with these personnel issues. BLS units need to be on-scene within an average of 8 minutes of most calls. This type of time demand as well as increased call volume has lead many volunteer companies to transition to paid personnel that work various shifts. The combination departments have shown to be a great improvement for many New Castle County Companies.

ACCOMPLISHMENTS AND NOTABLE EVENTS

Delaware City’s EMS earns national honors:
The Delaware City Fire Company has been named the national volunteer EMS service of the Year by the National Association of Emergency Medical Technicians. Delaware City’s EMS responses have increased from 300 annually in the mid-1990’s to about 1,500 today however they have managed to respond to all calls without any scratches. The fire company hired added its first career EMS staffer in 1999 and currently the company employees four. Along with the paid staff Delaware City relies on about three dozen volunteers who also handle EMS calls.

Delaware City Applies for Grant:
Delaware City applied for the 2008 AFG grant so that all 61 ambulance companies would have a power stretcher to reduce injuries from lifting patients. The cost for this project would be over $900,000; however this fee would hopefully reduce the cost of workman compensation claims and loss of employee work hours. Unfortunately, the grant was not funded this Fiscal year.

Odessa Fire Company Receives AFG Grant From FEMA:
$20 million in Assistance to Firefighter Grants (AFG) was awarded to 195 fire/EMS departments within the United States. This was the fifteenth round of FY ’08 grants awarded by the Federal Emergency Management Agency. The goal of the AFG program is to meet the firefighting and emergency response needs of the fire departments and non-affiliated emergency medical services organizations. The Odessa Fire Company was awarded $73,308.00 for operations and safety.
Odessa Fire Company gets visit from CPR save patient:
On November 18th, 2008 the Odessa Fire Company got a visit from the Pifer family who were on hand 2 years ago to present the Odessa Fire Company a thank you at the annual banquet for saving the life of 16 month old PJ after a near drowning cardiac arrest. PJ is now almost 5 and was awarded an Honorary Junior EMT certificate and company shirt by EMS Supervisor Aber when he stopped in. He toured the station and was told to stop in whenever he wanted. The officers and members wish the family well.

Jake’s Hamburgers provide Benefit:
Jake's Hamburgers franchise provided a benefit to help support the family of Michelle Smith of the Delaware City Fire Company who was killed in the LODD in December. Jake's offered to give twenty percent of all proceeds to the family from all sales from 11 am to 8 pm at all Delaware Jake's locations. Crews from numerous companies throughout the state went to Jake's across Delaware to support this cause along with many people from law enforcement and the general public. This event rose over $22,000 for Michelle’s family.

Wilmington Fire Department’s Explorer Program:
The Explorer Program provides young men and women from the City of Wilmington, ages 14 through 20, with an up close, hands on experience of the fire service. Explorers are responsible for the operation of the post and are advised by the officers and firefighters of the Wilmington Fire Department. Training is accomplished through live training evolutions and through classroom lectures.
**St. Francis Hospital start BLS Transport Company:**
In July, St. Francis/Vanguard acquired the City of Wilmington 911 BLS contract. The new service will provide 7 total units, 4 will be dedicated to 911. The units will be dispatched for routine transports from a communication center located at St. Francis hospital and dispatched for 911 runs from New Castle County Communication Center. Ambulances will be stationed out of the hospital and will serve the entire City of Wilmington.

![Photo Submitted by St. Francis Hospital](image)

New Castle County is facing increased challenges and mandates that affect all aspects of the Basic Life Support service. With these challenges come new problems that need to be addressed and New Castle County is handling these issues with a willingness to improve the overall system. This willingness to create a better system is demonstrated every time an ambulance company in New Castle County is dispatched to an EMS call and that company provides a safe, quick, and professional service to the public.
New Castle County

New Castle County Communication Center
Submitted by Dave Roberts

The New Castle County 9-1-1 Emergency Center receives 9-1-1 calls through a variety of phone exchanges and numerous cell towers throughout New Castle County. The total number of 9-1-1 calls processed in year 2008 was 404,000. Another 95,027 non-emergency calls were also processed by our Emergency Call Operators. The Center dispatched or processed a total of 113,966 fire/medical incidents and 304,567 police incidents in year 2007.

The New Castle County Emergency Communications Center was recognized as an Accredited Center of Excellence in Emergency Medical Dispatch by the National Academy of Emergency Medical Dispatch in October, 2002 as the 87th agency in the world accredited; and then, re-accredited in October, 2005 and November 5, 2008 until 2011. Additionally, we utilize the National Academy of Emergency Fire Dispatch protocols and currently working toward our national accreditation.

The Emergency Communications Center recently completed a computer-aided dispatch system interface that connects the City of Wilmington’s New World System with New Castle County’s Northrop Grumman System providing a single complaint to be input into both systems simultaneously. This enhancement saves valuable time for dispatchers entering complaints.

The New Castle County Emergency Communications Center operates 24-hours a day on a year-round basis. We provide Fire/EMS Communications to the City of Wilmington, twenty-one New Castle County Volunteer Fire Companies, six fire brigades, and the New Castle County Paramedics. Additionally, we provide Police Communications service to seven police agencies within New Castle County. The Center is staffed by twenty-seven full and part-time Emergency Call Operators, twenty-three New Castle County Police Communications personnel, twenty Delaware State Police Communications personnel, twenty-six full-time Fire/Medical Communications personnel, and an administrative staff of four personnel. Minimum staffing is as follows:

<table>
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<th>Personnel Type</th>
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<tbody>
<tr>
<td>New Castle County Police Personnel</td>
<td>- 4</td>
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<tr>
<td>Delaware State Police Personnel</td>
<td>- 4</td>
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<tr>
<td>Emergency Call Operators</td>
<td>- 4</td>
</tr>
<tr>
<td>Fire/Medical Personnel</td>
<td>- 5</td>
</tr>
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</table>

This agency also operates a state-of-the-art mobile communications van that is capable of taking over all operations, with the exception of phones, within the 9-1-1 Center at a moments notice. The New Castle County Emergency Communications Center operates within the New Castle County Public Safety Building.
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Kent County Dept of Public Safety
Advanced Life Support
Submitted by: Kent County EMS

OVERVIEW:

In keeping with the National trends, Special Operations activity within the Department continues to gain a more “global” or “all-hazards” capability in that equipment, materials, and personnel are utilized for multiple response strategies with key personnel with more highly focused training serving as response leaders.
This section of the report will update the current status of each of these response categories as a result of equipment procurement, training of personnel, and activity over the past year. Further, an outline of future needs and initiatives will be presented.

MASS CASUALTY INCIDENT (MCI):

**Response:** The Department MCI Plan identifies staged levels of response based upon assessed patient populations. The key operational point identified is early activation of the MCI response and to that end the plan allows for any component of the system to “make the call”. Within this Department Dispatchers, Medics, Supervisors, or Administration can all initiate the MCI Response Plan. The MCI Response Plan has been presented to and endorsed by the Kent County Fire Chiefs as to the automatic response levels. The Kent County MCI Plan is consistent with other County and State MCI Plans.

**Equipment:** Each Medic Unit carries Triage Kits and limited additional supplies to be used for patient care. The Supervisor’s unit (KM5) is equipped with an MCI Command Kit to facilitate orderly control of the medical sectors of the incident. All units have updated contact lists for local and regional medical facilities. Critical data is kept both in hard copy and electronically in the unit MDT. The Special Operations trailer is equipped to support triage and treatment of up to 50 patients, has its own electrical power supply, and has additional components of the Treatment Area Command Kit, TVI Shelter with air heater unit, Chemical Personal Protection Kits (PPE), Nerve Agent Antidotes Kits (NAAKs), and Cyanide Antidote Kits. The Decon Support trailer may also be deployed for further sheltering and electrical supply. The Mobile Command Post may be deployed for extended operations.

**Training:** All Medics are trained in START Triage and this skill is supported by monthly “Triage Days” during which all patients are identified with appropriate triage tags. Medics continue to train on the MCI Plan which gives Medics guidelines for determining the level of response necessary and emphasizes the need for the first-on-scene Medic crew to initiate the MCI response. “Trailer Day” drills continue in which all Medics were familiarized with the response support units and completed hands-on practical evolutions with the equipment.

**Activity:** Units were pre-deployed as required in support of Mass Gathering events. Components of the plan were exercised at two separate carbon monoxide incidents.

**Needs and Initiatives:**
1. Continued refresher training through Triage Days and con-eds will maintain current training levels. *These have been added to the 2009 Training Schedule*

2. Further training needs to be accomplished such that all Medics are competent in establishing a Medical Sector at an MCI (Triage, Treatment, Transport). *During training sessions Medics who are less experienced with MCI Command roles are tasked with accomplishing such an assignment. Supervisors are being included in functional and full-scale exercises as part of the Management Team.*

3. Dedicated towing vehicles should be established such that no on-duty Medic Unit is diverted from direct response to the scene in order to transport a support unit. *Two additional Suburbans (KM10; KM11) are in-service this year to accomplish this goal.*

4. Extended Operation and Re-call of personnel capability needs to be demonstrated through practical exercise. *Medics are issued personal pagers for Call-back and OT notification.*
MASS GATHERINGS:

Response: The Department prepares for several Mass Gathering activities each year. Notably, the NASCAR races at Dover Downs, the Delaware State Fair, the Bike-to-the-Bay, and the Amish Country Bike Tour present the venues for the largest populations. There are occasionally other events (VIP appearances, DAFB Air Show, Chicken Festival, etc.) which also require Mass Gathering preparations. Operations center on pre-positioning assets and adding staff to cover the particular event. Response may be limited to assigning a Bike Team to the venue or expanded to establishing an entire communications center with dozens of support units on site.

Equipment: The All-Terrain Medical Response trailer now houses the Bikes and the Medic-Gator. This trailer facilitates the transport of, and provides an operational base for these units. All trailer units can be pre-deployed in support of larger events. These units include the Spec Ops, Decon Support, and Medical Resource Unit (MRU) trailers. Additional ALS gear sets have been established to support each of these units. The Mobile Command Post is a self-contained communications center which can be deployed to any site as needed.

Training: A number of Medics are trained to operate the Bikes and a lesser number trained to operate the Gator (the primary means of covering large venues). All Medics are introduced to towing a support trailer.

Activity: The Gator and/or Bikes were used to cover Spring and Fall NASCAR races, Safe Summer Day, and the Governor’s Fall Festival.

Needs & Initiatives:
Due to the expanding Bike fleet and additional equipment, a new and larger trailer has been placed in service.

Additional medics have completed IPMBA training.

MARITIME RESPONSE:

Response: Kent County’s primary response jurisdiction extends well into the Delaware Bay and includes a busy anchorage. Currently the Medics are taken to vessels via VFD Rescue Boats. Occasionally the Coast Guard assists with aviation support. DSP has acquired a new helicopter which will increase the availability of aviation support over marine environments.

Equipment: There is no specialized equipment currently in service to support maritime response.

Training: The Little Creek FD has a Company specific training available to Medics.

Activity: There has been no maritime response activity.

Needs & Initiatives:
As soon as the DSP helicopter is available for training, Medics should be involved with rescue hoist operations.

A training program will be established and a schedule determined.

HAZARDOUS MATERIALS RESPONSE (Hazmat):

Response: The Department’s response continues to be one component of a multi-agency response plan. Supported primarily and in depth by the Little Creek VFD, the group response for hazmat incidents is currently initiated by a responding fire line officer. The mission of the Hazmat Group remains primarily
the provision of decontamination services. Following a request by DNREC and the support from the Department Chief, an expansion of the mission has been to develop a limited number of personnel capable of assisting DNREC in entry operations as a medical component of the entry team.

**Equipment:** The State of Delaware Hazardous Materials Decontamination trailer and the Decon Support trailer remain housed at Little Creek VFD.

**Training:** Regular training sessions are held on the third Tuesday night each month (with few exceptions). As new equipment arrives it is introduced through these regular training sessions. Joint exercises have been conducted with DNREC, the 31st CST, and DAFB. These joint sessions have met with great approval from all concerned and more are planned for the future. Currently there are ten Medics trained or awaiting training to the Hazmat Technician level which qualifies them to assist the entry team.

**Activity:** There were four incidents in 2008 which required the full response of our resources. The unit(s) participated in displays 2 times. The units were pre-deployed in support of the NASCAR races. The units were deployed at the State Return Day event.

**Needs & Initiatives:**
1. Regular training nights will continue. Joint training evolutions with other response agencies should be enhanced.

   *The 3rd Tuesday each month has been established as a regular training day for Medics, as well as the evening session at Little Creek.*

2. As more medics attain certification the potential increases that an on-duty crew will make a quick response and possibly be back-filled by a re-call of off-duty personnel.

**TECHNICAL RESCUE:**

**Response:** The Kent County Technical Rescue Team is spearheaded by the Dover FD with support from several Kent County FDs. Currently there are 2 Medics training with the team and another eight medics awaiting initial training. Technical Rescue encompasses trench, collapse, confined space, high angle, and swift water rescue operations along with urban search & rescue (USAR). The primary response area is Kent County with assisting teams in New Castle and Sussex counties. The “Second Due” area for the Kent team extends to the Chesapeake Bay including Caroline, Talbot, and Queen Anne counties in Maryland (dual response with Anne Arundel).

**Equipment:** The team equipment is based at Dover Station 2 and is comprised of a custom heavy rescue unit with additional equipment contained in a support trailer. Dover runs an engine and a squad with these units. All rescue operations equipment is compatible with the other two county’s equipment. Each team member has a “go bag” with some personalized gear. Some specialized medical equipment has been placed in service.

**Training:** The majority of active team members are trained to the Technician level for Trench and Collapse rescue; all are Operations level for all disciplines. Several team members completed large animal rescue training.

**Activity:** There was one trench call in Kent County during 2008, with the response cancelled as the victim was extricated prior to the team arrival. There were two calls for shoring of damaged structures. A
special call of team leaders went out for consultation for a large animal rescue. Several media events were conducted.

**Needs & Initiatives:** As the team increases in number and equipment inventory, continuing training will have to occur. Exercises testing extended operations and the establishment of a “base camp” will begin in 2009. The team is working towards USAR qualification.

**EOD/SORT RESPONSE:**
**Response:** Medic Units are routinely dispatched to support EOD/SORT operations. Bomb Technicians are medically monitored before and after entry evolutions. Medics stand by in safe zones for certain law enforcement operations. Tactical Medics operate as integral members of a Tactical Team.

**Equipment:** Specialized equipment has been obtained for direct support of SWAT Medics. Tactical Body Armor, rescue litters, radio microphone equipment have been added to the inventory. Regular duty body armor and ballistic helmets are standard uniform for all medics.

**Training:** Two medics completed Basic and Advanced Tactical EMS training and are embedded with the STAR Team in Smyrna. Three additional medics will attend training in the Spring of 2009. All current Kent County Paramedics received refresher briefings regarding EOD operations as part of the 2-year refresher cycle. Medics routinely receive refresher training regarding the assessment and treatment of blast and burn injuries.

**Activity:** Monthly training with the STAR Team continues. There were three call-outs; one barricaded subject, two high-risk warrants.

**Needs & Initiatives:**
1. SWAT Medics are alerted by alpha pager and/or the STAR phone tree process.
2. Additional equipment is being obtained to coincide with the expansion of this program.

**FIRE GROUND SUPPORT:**
**Response:** Medics are routinely dispatched to multiple alarm working fires and many “occupied high density residential” locations. Many times this response is merely a stand-by, however it is not uncommon for the Medics to assist in rehab services or conduct medical assessment and monitoring of firefighters.
**Equipment:** Primary Medic units have no specific equipment for fire ground support operations. All of the support trailers have sheltering, heat, and lighting capability. An additional unit has been placed in-service which offers a “bridge” in support equipment between the Medic Unit and the support trailers. The Spec Ops trailer has additional IV supplies, cots, sheltering, and heating capability.

**Training:** No specific training is indicated. Medics should be capable of deploying shelters.

**Activity:** Call volume varies from year to year. Some Fire Departments have added Medics to the initial dispatch for known working building fires or for residential complexes. Weather continues to be a factor during the extremes of heat and cold.

**Needs & Initiatives:**
1. The establishment of the “Power Unit” has served to cover this issue during the daytime hours.

**All-TERRAIN MEDICAL RESPONSE:**

**Response:** The Bikes and Medic-Gator have thus far been pre-deployed to special events. While the units are capable of emergency response, the application of these assets remains as support to in-progress incidents. The units are housed in the ATMR trailer which requires transport to the scene.

**Equipment:** The ATMR trailer has been a tremendous improvement in storage and ease of transport of the units. All response vehicles (Crown Vics excluded) are equipped to tow the trailer. A solar battery charging system was installed for the Gator.

**Training:** The Bike Team continues as before with several Medics trained to ride the units. Gator training has been completed and all medics are familiar with Gator unit operation.

**Activity:** The Bikes and Gator covered both the Spring and Fall NASCAR races. The Bikes appeared in at least 2 parades. The Gator was used at Safe Summer Day, the Governor’s Fall Festival, and the Amish Country Bike Tour.
Needs & Initiatives:
1. Additional training on Gator operation should be conducted to increase the number of qualified drivers.
   Gator driving should be extended to all Department employees and an MOU should be established to allow VFD personnel to operate the unit under extreme circumstances. 
   Training is scheduled periodically. VFD personnel can be utilized as needed, much in the way they assist in transferring Medic Units from the scene when all Medics are committed to patient care.

2. Further training on trailer operations should be conducted and extended to all Department employees to increase the number of qualified drivers.
   Training is scheduled periodically.

WMD / TERRORISM PREPAREDNESS:
Response: General ideology suggests that response units will most likely not know ahead of time that an incident is an act of terrorism or involves WMD. Therefore, all responders must be capable of adapting operational modalities in response to information as it is acquired. Specialized equipment will be utilized as the situation warrants.

Equipment: Personal “Escape Ensemble Kits” are available on each unit which include chemical protective suits and air purifying respirators. Ballistic helmets, goggles, and concealed body armor are now part of the standard uniform. Tox-Boxes are in-service which provide NAAKs (nerve agent antidote kits) for medics and patients and additional pharmaceuticals for those medics who can function under the ToxMedic Protocols. Four of the five support trailers in the department carry additional WMD response equipment and supplies. The First-On-Scene response guidelines include a “Bomb Response” checklist and related reference materials. Each Medic Unit is equipped with a radiological response kit and a GammaRAE detector for early warning of a radiological event. Carbon Monoxide detectors have been added to the Medic standard equipment. The RAD 57 carboxyhemoglobin detector has been put in service and proves a valuable tool in triage of multiple carbon monoxide exposure patients.

Training: “Trailer Days” are included in the annual con-ed schedule in which all Medics practice with the response support units and complete hands-on practical evolutions with the equipment. A hands-on training for radiological response has been added. AHLS courses are conducted twice each year and are available to all Medics.

Activity: There was no identified activity in response to WMD / Terrorism. There were several CO responses in which the arrival of the Medics (and the CO detectors) was the first indication of potential poisoning.

Needs & Initiatives:
1. Refresher training in the use of PPE and “escape kits” needs to be conducted. Each Medic should demonstrate proper use of this equipment.
   Incorporated into “Trailer Day” con-ed sessions.

2. Awareness and Operational level concepts and procedures for WMD response should be revisited through in-service review and printed distributions.
   This is accomplished through periodical publications.
CONCLUSION:

Situational Assessment: Incidents involving some form of Special Operations response continue to occur at a manageable frequency, however primary Medic Units are being committed to these incidents for longer periods. Several annual event venues present significant challenges to the department’s operations. The department has continued response roles both locally and regionally. The possibility of a disaster, natural or man-made, is as present as ever.

The establishment of TANGO-1, a multi-purpose response unit has enhanced the response capacity of the Department. This unit is not currently staffed around the clock.

Vulnerability: Training and exercise has increased awareness and response capability as compared to previous years, thus reducing the vulnerability of the individual responder. Geographically Kent County remains central to several major metropolitan areas of national significance. Complacency as a result of low utility presents the greatest controllable risk factor. A comprehensive Kent County threat/vulnerability assessment needs to be conducted.

Capability: The establishment of a “Special Operations” designation as part of an employee incentive program has swelled the number of medics intent on participating in some level of Special Operations. Providing training opportunities to support this interest is challenging. Resources continue to expand and develop to provide flexible response modalities and increased capability.
ALS and BLS Patient Age Comparison 2008

Kent County

ALS and BLS Incidents by Month-2008

Kent County

Kent County Delaware 911 Calls

Total 911 Calls for Kent County includes calls to Kent County 911 and Dover PD
Percentage When Kent County ALS/BLS Arrived On-Scene in 8 Minutes or Less on Delta/Echo/Charlie Level Incidents-200

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Kent Castle County
BLS Scratch Report
From 01/01/08 to 12/31/08

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Kent County

**Basic Life Support (BLS)**

Kent County is comprised of 18 Volunteer Fire Companies and one volunteer ambulance company, the Smyrna American Legion. The Smyrna American Legion’s ambulance responds on BLS runs within the Citizen’s Hose fire district. Other Fire Districts, which do not operate BLS services in Kent County, are: Farmington, Houston, Little Creek, South Bowers, and Robbins Hose. Mutual Aid agreements exist with boarding fire companies to supply ambulance service to these districts or contracts with paid ambulance companies.

**ACCOMPLISHMENTS AND NOTABLE EVENTS**

**DVFA Annual Conference:**
The 14th annual Delaware Volunteer Firemen’s Association conference was held at the Sheraton Dover hotel and conference center in September. During the first three days of the conference, Emergency Medical Services classes were held. Classes surpassed anticipated attendance levels as more than 300 persons engaged in the EMS continuing education phases of the conference.

*Smyrna American Legion donates AED:*
When Susan Capal of Smyrna, Delaware contacted American Legion Ambulance Station 64 the week before Christmas, she was hoping for help with obtaining an AED for her 9 year old son, Kevin. What developed was a wonderful example of community caring. After speaking to Mrs. Capal, Allan Post, Health and Safety Administrator for Station 64, learned that Kevin had been diagnosed with Long QT Syndrome, an electrical problem of the heart. Mr. Post also learned that Ambulance Station 64 had saved the life of Mrs. Capal’s sister two years earlier when she suffered a sudden cardiac arrest. Several
members of Mrs. Capal's family have since been diagnosed with Long QT Syndrome. In efforts to help the family, Mr. Post made several contacts (including the Matthew Krug Foundation). He learned that the family's insurance might provide an AED but would take significant time, which Mr. Post found unacceptable. He then contacted the Station 64 Board of Directors and it was unanimously voted to purchase an AED for the Capal family. On December 23, 2008, American Legion Ambulance Station 64 presented Mrs. Capal with a Philips HeartStart AED. Mrs. Capal was extremely appreciative. "I'm shocked and glad and excited, and I thank them so much," said Mrs. Capal.

**Carlisle held first EVOC training:**
On Saturday November 15th, 2008 the Carlisle Fire Company held its first ever EVOC Training course instructed by Firehouse Magazine's Michael Dellasandro from Grand Island, NY. The presentation was recommended by Engineer Ryan Knowles after attending a seminar at the Firehouse Expo in Baltimore, MD. The intent behind the Carlisle Fire Company having Mike Dallessandro conduct a Defensive Driving Safety Course was to make its drivers and potential drivers of Fire and EMS apparatus aware of the potential dangers that can occur when operating such apparatus, improve the driver safety within the department, and to overall strengthen the driver operator program on an annual basis. The Carlisle Fire Company not only conducted the course for its own membership but opened the course up to its surrounding companies such as North Bowers, and Houston. Based on the feedback from the membership that participated in the course, the Carlisle Fire Company strongly determined that this instructor and course would be returning to the company in the near future. The Carlisle Fire Company personally would like to thank Mike Dallessandro for his excellence in instruction and professionalism during the Defensive Driver course. This course truly was a benefit to the organization and citizens of the City of Milford whom we serve and protect. Additionally, we recommend Mike Dallessandro and this course to others that may inquire.

**Victims from Auto Collision return to give thanks:**
Elections were not the only highlight on Thursday December 4, 2008, as two victims from a serious MVC returned to the Carlisle Fire Company to give special thanks. The original incident took place on June 2, 2008 on Bay Road just north of the city. Due to the serious injuries the couple received, they were both flown to different hospitals, both received several surgeries, and a very painfully recovery. The couple presented themselves to the members on the meeting night to meet personally with each of the members that were present that day on what they called the "worst day of their lives". They also thanked the rest of the Carlisle Fire Company for their dedication and service to the citizens and community of the Milford area. The Officers and Members would like to wish both of them well in the rest of their recovery, and are welcome back for a visit at anytime.

**Delaware State Fair:**
Every year in July the Harrington fairgrounds is home to the annual Delaware State Fair. During this ten-day event, Harrington Fire Company and other local Fire/EMS departments spend their days caring for the large number of tourist who may get sick or injured while visiting the attractions. Dispersed throughout the fairgrounds are EMTs and Paramedics that will respond and treat visitors on a daily basis. The Harrington Fire Company also does stand-bys during some of the larger, more populated, main events, such as the monster truck show and the demolition derby.

**DVFA Participates in the 2009 Inaugural Parade:**
On January 20, 2009 the Officers and Members of the Delaware Volunteer Firemen's Association including the Citizens' Hose Company Band, had the privilege to participate in the 2009 Presidential
Inaugural parade honoring President Barack Obama and Vice President Joe Biden, a DVFA Past President Emeritus. 400 members from Delaware fire companies and Ladies Auxiliaries braved the extreme cold and wind to participate in the once in this once in a lifetime event. President Warren Jones led our members who proudly showed their colors, parading in their dress uniforms and displaying company flags along the nearly 4-mile route through the Nation’s Capital.

Photo by Jim Cubbage, DVFA

**Delaware State Fire School Again Participates in “What in the World” Program:**
The Business Industry Alliance heads a program to teach middle school children about possible career choices and how their school experience relates to what their future career may be. Schools set aside time for the “What in the World” program lead by Robin Agar and Andrea Majewski. Presenters come to the school and speak about their careers and how school prepares students for those careers. From October until the end of May approximately 50 courses were offered across Delaware. Topics included firefighting, EMS, rescue, and additional public safety careers.

**Dover International Speedway:**
Twice a year the Dover International Speedway is home to stock car racing. This event draws in over 150,000 spectators to Kent County. With this large number of NASCAR fans brings an increase in EMS and Fire responses. Along with the increased responses, EMS and Fire Personnel from around the state take additional training to provide emergency services during the race. Temporary treatment and triage areas, set-up to treat NASCAR fans and ambulances, are on a stand-by basis if anyone needs to be transported directly to the hospital. On an average, 250-300 people are treated during these four day events.

There have been many accomplishments in Kent County, as well as some setbacks. Several companies have ordered new ambulances, hired paid personnel, and financially been able to cover all BLS expenses. There are still a large number of companies struggling to meet the financial burdens of running a BLS service. Most BLS agencies find it difficult to fund training for personnel, purchase supplies and in general keep up with the changes in society. Retention and new acquisition of personnel is also a huge problem both with volunteer and paid personnel. Kent County BLS is moving forward to meet the needs of the community with all the advancements that were made in 2007 and will continue to improve in 2008 and beyond.
Kent County

Communication Center
Submitted by Kevin Sipple

The Kent County Emergency Communications Center receives 9-1-1 calls through variety of phone exchanges through Kent County, Northern Sussex County and Southern New Castle County. The total number of 9-1-1 calls processed in year 2008 was 107,228. Another 87,059 non-emergency calls were also processed by our dispatchers. The Center dispatched or processed 20,346 medical incidents and 6120 fire incidents in year 2008.

The Kent County Emergency Communications Center is a recognized as an Accredited Center of Excellence in Emergency Medical and Fire Dispatch by the National Academy of Emergency Dispatch.

The Kent County Emergency Communications Center operates 24 hours a day on a year round basis. We provide Fire/EMS Communications to 18 Volunteer Fire Companies, 2 EMS Companies and the Kent County Paramedics. The Center is staffed with 20 Fire/EMS dispatchers.

One of the biggest challenges Kent County has twice a year is the NASCAR Race. This event brings over 150,000 people to our county. The race creates a city within a city. Starting on Wednesday of the race week we provide trained dispatchers to answer and dispatch EMS/Fire calls to the emergency responders that are working the event.

Our agency also operated a state of art mobile communications vehicle that is capable of taking over all operations, with exception of phones, within the 9-1-1 Center at a moments notice.
Sussex County

• Advanced Life Support
• Basic Life Support
• Communication Center

Photo Submitted by Sussex County EMS
Sussex County

Sussex County Emergency Medical Services
Caring People, Quality Service
Submitted by: Sussex County EMS

OVERVIEW:
In 2008, Sussex County EMS (SCEMS) celebrated seventeen years of providing Advanced Life Support (ALS) Service to the residents of and visitors to our community. We provide paramedic service to an area of nearly 1,000 square miles, including all of Sussex County and a portion of Kent County (primarily Milford), using eight specially designed ALS rapid response vehicles, each staffed by two paramedics, and two District Supervisors. During the summer tourist season, an additional paramedic unit is placed into service to assist with the high volume of calls, particularly in the beach areas. Our paramedic staff is supported by administrative, clerical, support, and information systems personnel to ensure a constant state of readiness throughout the year. We work closely with fire department-based Basic Life Support (BLS) services, volunteer ambulance services, local hospitals, state and local police and private aeromedical services and are a part of the Delaware State-wide Paramedic Program.

“Caring People, Quality Service” is not only our slogan, but our commitment to the people of Delaware and to each of our patients.
MISSION STATEMENT
Sussex County EMS is:

A nationally recognized leader in mobile health care services committed to improving your quality of life.

We will accomplish this through:

- Quality, compassionate patient care
- Continuous quality improvement
- Proactive planning
- Innovative technologies and procedures
- The full spectrum of emergency medical services
- Comprehensive education and training for our personnel and the public

We Value:

- Kindness
- Professionalism in action and in attitude
- Respect, dignity & politeness
- A supportive, productive work environment
- Continuing education for personal and professional growth
- Honesty, trust, integrity in all our actions
- Individual creativity, initiative, and responsibility
- Fiscal responsibility
- Public trust and support
SUSSEX COUNTY EMS ACCOMPLISHMENTS AND INITIATIVES – 2008

Recruiting and Retention: We reduced the number of paramedic vacancies to five (as of December 31, 2008). This effort included actively recruiting Nationally Registered Paramedics from out-of-state, and participation in the Delaware Technical and Community College paramedic training program. Five students graduated from the program in 2008, and three are enrolled in the 2008-2009 class.

Medic 108/Technical Services Division: The Sussex County Council purchased a building and garage in Georgetown, and modifications were made to permit its use as a combination Paramedic Station and Logistics Center. The main structure includes two separate spaces, providing a fully equipped and modern station facility, and an office/storage facility that houses the Technical Services staff. The latter provides space for storage and servicing of electronic and communications equipment and houses the department’s uniform inventory, in addition to providing office and meeting space for the Technical Services Division. The garage was also divided into two parts, one to house a paramedic unit, and the other providing storage for medications, medical supplies, and other department property.

Training Center Modification and IStan: The education facility at the department’s headquarters was remodeled, providing more classroom space in response to the department’s expansion. Incorporated into the design was a “Simulation Center”, including “I-Stan”. The computer-controlled device allows for realistic patient assessment and application of advanced skills in a controlled setting that reflects “real-world” situations and allows for accurate, timely feedback to both student and instructor.

Equipment Upgrades: At the recommendation of the Medical Directors and the Equipment Committee, we have placed a combination Transport Ventilator/CPAP device on each of our paramedic units. The addition of transport ventilator capability allows for improved respiratory support for patients, while reducing the need for extra personnel during patient transport.

Emergency Power: Working with the County engineering department, and with the financial support of the Delaware Emergency Management Agency and the U.S. Department of Homeland Security, we completed installation of emergency generators at our headquarters building, and at the new Paramedic Station/Logistics Center in Georgetown. This equipment will allow us to remain fully functional during power outages, maintaining operations as well as command and control functions, during severe weather events such as snow storms and heavy thunderstorms. Plans are being developed to provide emergency generator power at additional paramedic stations in coming years.

School Bus Accident Plan Revision & Training: The department’s School Bus Accident Plan was revised, and training in the plan was provided to the fire service, emergency communications personnel, BLS provider agencies, and to school administrators and transportation officers. The plan is designed to address the evaluation, care and disposition of school bus passengers, particularly in cases where some are injured and others are not. The plan provides a methodology for ensuring accountability for all passengers, so that those students requiring treatment are rapidly transferred to an appropriate facility, other students are assessed to ensure that no injury has occurred, and parents are kept apprised of the location and condition of their children, and are reunited with them at the earliest possible time. The plan has served as a model for several other agencies.
Mechanical CPR Device Evaluations: The department received eight Lucas CPR Devices for evaluation. These devices deliver constant, effective CPR compressions, improving the quality of CPR delivered, particularly during transport, and according to at least two studies, improving the patient’s chances for return of spontaneous circulation (ROSC). Following the Lucas evaluation, we received four AutoPulse devices, which perform the same function using a different methodology. At the conclusion of the evaluation of the AutoPulse, we will review the results and make recommendations for future actions regarding implementation of this technology.

Support for Special Events: The department provided EMS support for more than 50 special events, ranging from the Little League Senior World Series, Apple Scrapple Festival, Punkin’ Chunkin’ and Festivo Hispano to July 4th fireworks displays in Laurel, Bethany Beach, and Rehoboth Beach, and several 5K races and bicycle events. This year also included support from Special Events Medical Teams, Bicycle Medics, and the Hazardous Materials Medical Team for Return Day in Georgetown, which hosted, among others, Vice President-Elect Joseph Biden.

Enhanced Surge Capacity: We received six complete sets of paramedic response gear, including cardiac monitors, equipment and medications, through a grant from the Department of Homeland Security and DEMA. These will be used for EMS support of special events, as well as for mass casualty situations and disaster response.

Public Education: The Public Education, Information and Relations (PIER) Team participated in 30 events throughout the year, including the African American Festival, Senior Expo, EMS Day at the Delmarva Shorebirds baseball stadium, and several health fairs throughout the County. Among the events involving area schools, the team participated in the “Prom Promise” program, which is held immediately prior to high school prom season, and is designed to help students realize the special dangers posed to young drivers on prom night, particularly those related to alcohol. Another popular favorite is called “What In The World”, and is designed to demonstrate the value of science, and how it is used in professions such as paramedicine.
Ambulance Safety Initiative: Following an ambulance crash in January that resulted in life-threatening injuries to Paramedic John Schmitt, and a second crash in June that killed Paramedic Stephanie Callaway and the patient she was treating, the department, in cooperation with other public safety organizations, embarked on several initiatives to improve the safety of our personnel, our patients, and the BLS providers of our County. These efforts are ongoing, and include liaison with the DVFA, State Fire Commission, Sussex County Chiefs and Firemen’s Associations, and the National Fire Protection Agency. An early result of these efforts was the requirement that seat belt extenders be made available on all ambulances in Delaware. Future goals include better, more realistic driver training for ambulance drivers, development of safer ambulance vehicles through design research and development, and improved regulations governing the construction of ambulances.

Wellness Program: Following purchase of exercise equipment last year, we initiated a fitness assessment program with Pro Physical Therapy and CardioKinetics. This year, in conjunction with those organizations, we performed an initial physical evaluation of department personnel. We are now in the process of jointly developing a functional job analysis, which will ensure that our assessments relate directly to the duties and activities performed by our personnel in the course of their work.

Paramedic Competition Team: The team was invited by Magen David Adom, the National EMS service of Israel, to compete in their International EMS Competition. 40 teams, representing 12 countries, competed in the three-day event, which was held in September in Israel’s Dead Sea region. The four-member team, which was the only team from the United States, and the only one composed entirely of paramedics, won Bronze in the competition, behind the first-place team from Poland and second-place Netherlands. Other countries participating included the Czech Republic, Turkey, Great Britain, Norway, France, Canada, Israel and Germany. Costs for the trip, except for air travel, were borne by the Israeli government.
ALS/BLS Incidents by Month-2008

Sussex County

ALS and BLS Patient Age Comparison 2008

Sussex County

Sussex County Delaware 911 Calls

Total 911 Calls for Sussex County includes calls to Sussex County 911, Rehoboth PD and Seaford PD
Percentage When Sussex County ALS/BLS Arrived On-Scene in 8 Minutes or Less on Delta/Echo/Charlie Level Incidents-2008

Sussex Castle County
BLS Scratch Report
From 01/01/08 to 12/31/08

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Sussex County

**Basic Life Support (BLS)**

Sussex County is comprised of 21 volunteer fire companies and two volunteer ambulance companies. The Georgetown American Legion responds on BLS calls within the Georgetown Fire District and the Mid-Sussex Rescue Squad responds on BLS runs within the Indian River Fire District. The only other fire district, which does not operate BLS services in Sussex County, is Bethany Beach. This company has mutual aid agreements with bordering fire companies to supply ambulance services.

**ACCOMPLISHMENTS AND NOTABLE EVENTS**

**Bethany Beach starts Ambulance Company:**
The first part of a long and arduous journey ended on Wednesday, December 31, when the Bethany Beach Volunteer Fire Company (BBVFC) began providing ambulance service in its fire district. The new operation is the product of an extraordinary collaboration between the fire company and the Towns of Bethany Beach, Fenwick Island and South Bethany and the Sea Colony Recreation Association, which will fund any operating deficits generated by the new initiative. The Homeowners’ Associations of Tower Shores, Sussex Shores, Gulls’ Nest, Breakwater Beach, King's Grant, Ocean Ridge West and Middlesex Beach also signed on early as voluntary supporters of the initiative. Seven new firefighter/EMTs reported for work on December 3rd and faced a challenging training and preparation schedule.

Over the four weeks, each individual, although already a trained and experienced firefighter and EMT, spent 120 hours reviewing critical subject matter and working side-by-side with the company’s volunteers. The program, run by company officers and EMS Supervisor John Fisher, covered BBVFC policies and procedures, communications, self-contained breathing apparatus maintenance and repair, vehicle familiarization and driving, medic assistance, reports, billing and other documentation and computer systems. Field work included four days of pump operator training run by the fire school, a day of live fire work at its Georgetown facility, a visit to Ocean City’s confined space trailer, trips to the three local hospitals and four surrounding mutual aid fire companies and riding time with the Sussex County paramedic units serving the district.
Beyond the formal training, the group also invested considerable time and energy in analyzing how to best organize equipment in the ambulances, installing mandated supplies and equipment and securing required state certification of the units. It was a demanding four weeks, but the consensus is that the desired integration of career staff with volunteers and the development of esprit d’corps within the expanded organization were achieved.

**Frankford Volunteer Fire Company:**
In the spring of 1933, a devastating fire struck the home of Dan and Mae Carey on Hickory Street in Frankford. When the fire was discovered, the Millsboro and Selbyville Fire companies responded to the alarm. Millsboro’s fire engine was positioned in front of the fully engulfed house where citizens from the town formed a bucket brigade, utilizing water from Joe Carey’s hand pump across the street from the fire, to keep Millsboro’s booster tank supplied with water. Despite their best efforts, the firefighters and citizens were unable to save the Carey home leaving them with only the clothing they were wearing as their sole possessions. From the ashes of this devastating fire came the birth of the fire company as we know it today, for on May 23, 1933 many of those citizens who formed the bucket brigade became Charter Members of the Frankford Volunteer Fire Company, Inc. On Saturday October 25, 2008 the Frankford Volunteer Fire Company and the Town of Frankford, Delaware celebrated this milestone together for it was not only the 75th Anniversary of the fire company but also the 125th Anniversary of the Town of Frankford. In recognition of these events, the fire company and the town came together to hold a parade through town and a Fall Festival and Open House at the newly renovated fire station. During these events, members of the community and surrounding fire companies joined the membership of Station 76 in dedicating our new fire station and dining hall.

**Lewes Fire Department participates in Polar Plunge:**
Lewes FD assisted with the Lewes Polar Bear Plunge held at the beach in Rehoboth on Sunday Feb. 1st. Marine 82 was on stand by as over 2700 "Bears" made the dip into the Atlantic Ocean. The Delaware Special Olympics raised over $500,000.00 from the event which is held annually.

![Photo by Chuck Snyder](image1.jpg)

![Photo by Terry Jester and John Worthers Jr.](image2.jpg)

**Memorial participates in an ice rescue class:**
Members of the Memorial Fire Company participated in an ice rescue class. Due to the snow showers during the day and the temperature, made the evening a perfect setting for the class. Local farmer Howard Wilkins allowed the company to use a small pond on his property. Crews had to use axes to make a hole into the pond so they could get into the water. Crews practiced with the ice rescue suits and different scenarios on rescues using the ice sled. Crews were taught by DSFS instructor Tucker Dempsey.
**Memorial Fire Company assists Delaware Nature Society with Summer Program:**

The Delaware Nature Society provides educational opportunities to middle school students across Delaware through its Summer Enrichment Programs. From July 7\textsuperscript{th} thru 11\textsuperscript{th} the Marine Biology Program took place through Abbott’s Mill Nature Center. On Tuesday July 12\textsuperscript{th}, as the group studied the marshes and Nature Center at Slaughter Beach, the Memorial Fire Company invited the group to take a tour of their new Marine Rescue Unit. Chief Terry Jester, Capt. Don Evans and EMT F/F Mike Lowe demonstrated equipment, spoke about water safety and gave the group a ride on Marine 89 through the Cedar Creek Marina to the Bay. Program Coordinator Elliot Workman was very pleased with the program and expressed his gratitude to the Fire Company for their interest in Delaware’s Youth.

![Pictured: Chief Jester and Program Coordinator Elliot Workman with the group of students aboard Marine 89. Photo submitted by Mike Lowe](image1)

Local Firefighters/EMT’s Assist with Children’s Event:

On May 21st the Nemours Foundation hosted a “Healthy Kids Day” at Trap Pond State Park. All Sussex County fourth grade students in Sussex County were invited. Nine Schools were represented, with an estimated 900 students being in attendance. Fifteen exhibitors participated including Fish & Wildlife, Equine Council, Girl Scouts, Delaware Bass Federation, Safe Kids Delaware, Delaware State Fire School, Laurel Fire Department, Trap Pond Partners, Sussex County 4H, Boys and Girls Club, Delaware Parks Water Safety and Delaware Parks Tracks and Traces. Students that visited the Fire Safety area participated in a lesson on Emergency Calling by the Delaware State Fire School. They were given a tour of an Ambulance and Fire Engine. They also greeted a special visitor as Sparky was on the job promoting Fire Safety.

![Laurel FF/EMT Tara Truitt greets Sparky. Photo submitted by Mike Lowe](image2)
Laurel Child Makes Donation to Emergency Medical Service:
Recenlty Laurel Fire Department Emergency Medical Services noticed its supply of stuffed animals that are given to pediatric patients when they are being transported was running low. About a year ago, seven year old Erin Wedding, of Laurel, began a project at her church, Christ United Methodist Church. She began collecting stuffed animals and donating those to worthy causes. She was contacted by the Fire Department and she wanted to help. On November 6th she came to the Station with her mother, Lisa Wedding, and presented the E.M.S. Service with 65 stuffed animals she had collected. The Fire Department and her church are certainly very proud of Erin for her unselfish donation and work for the community.

EMS is an ever changing discipline in Sussex County due to the increase in growth and development. These changes create difficult challenges for the companies that provide BLS services. Although these companies know that changes and mandates are forthcoming, they are willing to make the necessary changes to better meet the needs of their community. This positive attitude combined with a dedicated group of pre-hospital providers ensures that Sussex County EMS will continue to provide quality medical services long into the future.
Sussex County

**Communication Centers**
Submitted by Dawn Lynch, Gary Flood, and Debbie Jones

There are three (3) dispatch agencies serving Sussex County. All three dispatch centers operate 24 hours a day 7 days a week. The towns of Rehoboth Beach and Seaford each have a dispatch center.

**REHOBOTH BEACH:**
The Rehoboth Beach Police Department 9-1-1 Communications Center operates 24 hours a day on a year round basis. It provides police communications service to the City of Rehoboth Beach and Fire/EMS communications to the fire territory of the Rehoboth Beach Volunteer Fire Company. The Center is staffed by a Communications Supervisor and 8 (eight) Full Time Telecommunicators. The center has a minimum staffing of 1, but most shifts have 2 people on duty. While the center is much busier during the summer months due to our area being a resort, we are seeing our winter activity increasing each year.

The Rehoboth Beach Police Department 9-1-1 Communications Center was re-accredited by the National Academy of Emergency Medical Dispatch on August 1, 2007 which is good through August of 2010.

Our center receives all 9-1-1 calls from landlines in the 226/227 phone exchange and from several cellular towers in the area. In 2008, we processed 5,285 9-1-1 calls, although not all emergencies are reported on 9-1-1. The center dispatched or processed 3,697 police/city incidents; 4,035 traffic stops; 677 fire incidents; 2,310 EMS incidents.

In 2008, we achieved a full year at full staff with no resignations and all personnel out of training by April 1, 2009. This allowed us to achieve EMD Quality Assurance Score Levels for the year of 98.34% on Case Entry Processing; 98.76% for Key Question Processing; 97.67% for Pre-Arrival Instructions; 99.17% for Post Dispatch Instructions; 97.55% for Final Coding; and an overall average score of 98.44%.

**CITY OF SEAFORD POLICE DEPARTMENT:**
The Seaford 911 Center operates 24 hours a day on a year round basis. It provides communication service to the City of Seaford to include the police department of 27 full time officers along with the Seaford Fire Department handling fire and EMS calls for service. The Seaford 911 Center continues to be staffed with 9 full time communications specialists which include a Dispatch Administrator who oversees the daily operation.

The Seaford 911 Center was originally Nationally Accredited by the National Academy of Emergency Medical Dispatch in August of 2003 as the 83rd accredited 911 Center. We were again re-accredited in December of 2008. Early re-accreditation was accomplished due to a major renovation to the Seaford Police Department and 911 Center. This renovation of approximately one million dollars wills more than double the size of the Seaford 911 Center along with the addition of a new Motorola radio system and the latest Verizon Viper 911 system. With the new addition to the communications facility will be all new consoles for four positions. Completion date of late March 2009 is expected.

The Seaford 911 Center receives all 911 calls from landlines in the 629/628 exchange and call calls from several cellular towers in the area. In the year of 2008 the Seaford 911 Center received approximately 12,000 911 calls for service and approximately 6,500 cellular calls along with 63,000 administrative calls. The Seaford 911 Center dispatched approximately 9,000 police calls for service, 2,498 EMS calls and approximately 652 fire calls.
SUSSEX COUNTY EMERGENCY COMMUNICATIONS CENTER:
The Sussex County Fire and Ambulance Callboard employs 20 Full Time Fire/EMS Dispatchers, 1 Quality Assurance Supervisor, and 1 Assistant Chief Dispatcher.

Fire Service Mobile Project – Working with CAD vendor to deploy Mobile Data Terminals to the volunteer fire service in Sussex County that will interface with the CAD system to provide latest technology as well as providing the field units more information in the apparatus which include driving directions, automatic vehicle location, and touch screen status update.

Computer Aided Dispatch System – In 2008 upgraded our CAD system to the latest software and hardware technology to meet our growing needs in Sussex County.

EMS Mobile Project – Continue to support Sussex County EMS with their Mobile Data Terminals, which operate in the same fashion as the fire service mobiles.

Diversion Reports – The Sussex County Fire and Ambulance Callboard compiles a diversion report for the 3 hospitals in Sussex County as well as 2 hospitals in Maryland that border Sussex County.

Re-Accreditation – The Sussex County Fire and Ambulance Callboard continues to meet accreditation standards set by the International Academy of Emergency Medical Dispatch. The Fire and Ambulance Callboard has filed the necessary paperwork for re-accreditation by the International Academy of Emergency Medical Dispatch.

Regional Training Facility – Continue to maintain our status as a regional training facility for the National Academy of Emergency Dispatch, offering Emergency Medical Dispatch (EMD), Emergency Fire Dispatch (EFD), and Emergency Telecommunicator Course (ETC) training for the entire region.

Beta Test Site – In 2008, Sussex County was chosen by TriTech Software Systems to be a Beta Test Site for the latest version of their CAD software. The Center was also chosen to be a Beta Test Site for Priority Dispatch for Protocol changes and updates along with the testing of new protocols.

Continuing Education – Continue to provide various training programs including Weapons of Mass Destruction, Emergency Fire Dispatch Refresher, Delaware Emergency Notification System, etc.
Aviation

- Delaware Air Medical Services
- Delaware State Police
- LifeNet
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Aviation

Delaware Air Medical Services

Delaware’s Division of Public Health first promulgated Regulations for Air Medical Ambulance Services in 1993. The purpose of these regulations is to provide minimum standards for the operation of Air Medical Ambulance Services in the State of Delaware. It is the further intent of these regulations to ensure that patients are served quickly and safely with a high standard of care. Subsequent revisions in 2001 and 2002 described the application and state certification process and resulted in the emergence of a well-developed system of air medical transportation in the state.

Currently, private air medical services may apply for any of three levels of State of Delaware interfacility transport certification and/or prehospital certification:

LIMITED STATE CERTIFICATION: Approval granted, following satisfactory completion of the air medical program certification process, to an air medical service wishing to provide only one way transport to or from Delaware.

FULL STATE CERTIFICATION: Approval granted, following satisfactory completion of the application process, to an air medical service wishing to provide point to point transport service within the state of Delaware.

PREHOSPITAL 911 CERTIFICATION: Approval granted, following satisfactory completion of the application process, to an air medical service wishing to act as a supplemental resource to the Delaware State Police in carrying out prehospital scene missions in Delaware.

The initial certification period is three years, and reapplication for recertification is required every three years thereafter.

Scene response – The Delaware State Police (DSP) Aviation Section has responsibility for primary scene response throughout Delaware and is certified for interfacility transport as a secondary mission when needed. Additionally, the following private air medical service is state-certified to be dispatched by the Emergency Operations Centers when DSP is not available to respond to a scene or when more than one aircraft is needed:

- *Christiana Care LifeNet, Newark and Georgetown DE*

The Delaware 911 Air Medical Dispatch Process, which was developed based on proximity of the aircraft to the incident location, is utilized to determine the next due aircraft to be dispatched.

Interfacility transfer – State-certified private air medical services are utilized as the primary transport services for patients who need to be transferred to a higher or more specialized level of care, either within Delaware, or within the region, such as to a Burn Center.
The following private air medical services are certified to perform point-to-point within Delaware interfacility transports:

- **Christiana Care LifeNet, Newark and Georgetown DE**
- **MedSTAR, Easton MD**
- **STAT MedEvac, Baltimore MD, providing air transport for the A. I. duPont Hospital for Children transport team**
- **PHI for Maryland ExpressCare, Baltimore MD**

The following private air medical services are certified to perform flights bringing patients either into or out of Delaware:

- **Christiana Care LifeNet, Newark and Georgetown DE**
- **MedSTAR, Easton MD**
- **STAT MedEvac, Baltimore MD, providing air transport for the duPont Hospital for Children transport team**
- **PHI for Maryland ExpressCare, Baltimore MD**
- **PennSTAR, Philadelphia PA**
- **Sky FlightCare, Coatesville PA**
- **University MedEvac, Pottstown/Doylestown PA**
- **JeffSTAT LifeNet, Philadelphia PA**

The following air medical services are available to serve our state through Mutual Aid agreements:

- **Maryland State Police Aviation Section**
- **New Jersey State Police Aviation Section**

**Challenges:** The Trauma System Quality Committee will be continuing to work on analyses of data to determine optimal distribution of patients throughout the Trauma System. This includes methods of identifying the most seriously injured patients, with utilization of air medical transport to move them directly to the Level 1 or Level 2 Pediatric Trauma Center from the scene, while triaging less seriously injured patients to the Community Level 3 Trauma Centers. The goal is optimal utilization of the resources of all level facilities so as to avoid overcrowding of our tertiary care centers and underutilization of the resources available close to the patients’ homes in the community trauma centers.

Safety issues are a continuing priority of the air medical service providers and of the Office of EMS. All certified air medical services provide updated safety equipment and safety program and procedures information as part of their recertification process. Regular helicopter safety inservices for both scene providers and hospital staff are encouraged. Safety information such as the resolution from the National Association of State EMS Officials (NASEMSO) requesting all air medical stakeholders to work to assure full disclosure regarding weather and other relevant information when seeking air medical response are discussed in Trauma System Committee meetings and forwarded to dispatch centers, hospitals, and air medical services statewide.
In January of 2008, Captain Jeff Evans, Cpl. Keith Mark and Delaware State Police Aviation pilots flew the newly received Bell 412 helicopter to the Helicopter Association International Exposition held in Houston Texas where Bell Helicopter showcased the 412 as a high-tech workhorse for Emergency Medical Service (EMS), search and rescue (SAR) and Law Enforcement missions. As a result of this show, the Delaware State Police received worldwide attention.

In the spring of 2008, the 412 was placed in service with the radio designator of “heavy”. On April 9, 2008, there was an official unveiling of the aircraft, attended by the Governor, the Secretary, the Executive Staff, several legislators, and representatives from the medical community. Trauma survivor and Delaware resident, Mr. Francis Kline, also attended as an honored guess. Mr. Kline publicly credited DSP Aviation for saving his life. Other survivors and their families were also in attendance.

A majority of DSP pilots received their 412 initial training at Flight Safety International in Texas and an intensive in-house training by Bell Helicopter. During the late summer and early fall months of 2008, the
Aviation Section participated in outreach training as well. DSP Aviation conducted training with the Delaware Fire Service and several state agencies. In addition, the Section contracted with training company “Priority – 1 Air Rescue” who conducted rescue training for our members. All DSP Aviation members are now certified hoist rescue specialists.

The Section also undertook a new initiative to better our efforts and abilities with regard to rescue. In a cooperative effort with select members from the Wilmington Fire Department, the Delaware State Fire School and the Delaware Volunteer Fireman’s Association, DSP established the Helicopter Emergency Action Team (HEAT). These members train with DSP in basic helicopter operations as well as hoist rescue operations to become certified Hoist Rescue Specialists. This collaborative effort augments our manpower, increase DSP’s ability to handle complex rescue missions and builds synergistic momentum between our great state’s Police, Fire and EMS Services.

We also welcomed two new members to our Section this year; Trooper First Class Ted Stipa and Corporal Mike Branch. These Troopers are currently attending the intense 18 month training program at Delaware Technical Community College to become certified as nationally registered paramedics. We wish them good luck and look forward to them joining our active ranks fall 2009.

As always, in addition to the new and exciting programs that were going on in 2008, the Section continued to provide emergency helicopter service for law enforcement, EMS and search and rescue, as well as provide fixed wing services to many state and local agencies. DSP helicopters flew 2,572 missions in 1,331.2 flight hours. Emergency medical missions continue to be our largest mission category (60%), followed by criminal support flights.
In the State of Delaware, there has been a significant increase in specialized training and operations such as SWAT, Explosive Ordinance Disposal (EOD) and HAZMAT/WMD responses. An increase in medical support operations and training has become necessary to support these types of operations in order to limit the number of illness and injuries to all personnel involved. Operations of this nature can occur anywhere at any time and involve multiple jurisdictions and agencies. Properly and specially trained Paramedic level involvement is critical to recognize health, rehabilitation, environmental, and safety issues at incidents and training operations. Both the Delaware State Police (DSP) and the Wilmington Police Department (WPD) recognize the critical nature of specialized responses and put the highest value on human life whether it is a constituent, suspect or their own response personnel.

As a result, in January 2008 after 3-years of planning, the WPD and the DSP began a joint pilot program to provide tactical medical support for all special operations, and also agreed to share these specially trained paramedics on statewide responses originating at either agency. The goal was to provide a Tactical Paramedic to every incident, whether planned or emergent in nature.

This tremendous collaboration of resources and agencies produced the first “Police Officer Paramedic” in the history of the Wilmington Department of Police. In April 2008, Sgt. Adam Ringle received his license as a State of Delaware Paramedic. Subsequently, the DSP and WPD signed a formal Memorandum of Understanding allowing for the sharing of Paramedic resources. Sgt. Ringle then became certified as a Delaware Tactical Paramedic in July 2008 and joined the eight Tactical Trooper Paramedics within Aviation.

In this time of economic crisis where resources are thin and calls for service are on the rise, agencies working together can potentially save taxpayers a significant amount of money. Since April 2008, this agreement has resulted in 136 collaborative utilizations, averaging a response every 2.2 days. This program continues to evolve to date as the need for specialized medical resources increases. Sgt Ringle also serves as an Aviation Hoist Systems Operator and Rescue Specialist with the Delaware State Police Aviation Unit.
The success of this pilot program was critically illustrated on May 28, 2008 when the DSP EOD team was activated to respond to Milford, Delaware for a possible pipe bomb in a residence. Wilmington Police Officer Paramedic, Sgt. Ringle, was the closest available tactical paramedic when the call came in and was directed to respond by DSP Sgt. Ben Parsons. This incident lasted for 25 hours and resulted in the rendering safe of 8 extremely dangerous pipe bombs. Medical support became vital during the incident, as the operational conditions varied greatly, and the long incident made bomb technician health and well being a primary concern.

There have been many other incidents where the agreement provided a DSP medic for a WPD incident or vice versa. There have also been several occasions where a DSP and a WPD medic have worked side by side on calls where two or more medics were needed. This agreement saves time and resources, and also demonstrates how law enforcement agencies can put aside jurisdictional boundaries and political red tape to work together to truly provide Homeland Security the way it was intended. DSP thanks the Office of Emergency Medical Services and our Medical Director Dr. Ross Megargel for their support and forward thinking in making this objective a reality.

Within the Delaware State Police, Trooper Paramedics are also responsible for medical training, the Divisions AED program and Communicable Disease Control. DSP Medics trained 726 sworn law enforcement members in CPR/AED and 250 in First Responder. All Trooper Paramedics hold Instructor Level Certification in Pediatric Advance Life Support, Advance Cardiac Life Support, Basic Life Support and CPR/AED and are affiliated with an American Heart Association Teaching Center. Through these affiliations, Trooper Paramedics taught in area hospitals and provided specialized training to approximately 2,500 fellow health care providers.
Since March of 2001, Christiana Care/LifeNet has served the citizens of Delaware and our surrounding states by providing critical care interfacility transport and emergency scene support to over 4,300 patients. A second aircraft, LifeNet 6-4 was added in Sussex County in November 2006 and is based out of the Georgetown Airport.

488 patients were med-evaced by our aeromedical service in 2008. Of the total med-evaced patients, 209 were trauma patients and 52 were scene responses. The remaining were patients suffering from medical, neurological, cardiac, pediatric, high risk ob and neonatal issues.

LifeNet has a referral base of 20 hospitals in 5 different states providing critical care transports for them. We have also provided scene response to Pennsylvania, Maryland, and New Jersey, along with assisting the Delaware State Police with scenes in Delaware.
Prevention

- Injury Prevention
- Safe Kids
- SNAP
- First State, First Shock!
- CODES

Photo Submitted by Mike Lowe
Prevention

**Delaware Coalition for Injury Prevention**

Injury Prevention includes prevention awareness and public education. This is the role of the injury prevention component of the Trauma System. The goal of the Trauma System is to decrease death and disability from injury. In Delaware in 2008, **128 persons died instantly from their injuries**. No amount of Trauma System resources, specialists, organization, or planning could have saved these lives. The solution to effectively decreasing this kind of injury death lies in prevention of the injury entirely, or in decreasing its intensity through safety measures such as wearing a seatbelt or decreasing speed. Only by teaching people to make safer choices and to learn to use safer habits can the number of these scene deaths be decreased. Injury prevention addresses the public education needs that can impact the statistics on scene deaths, as well as decrease the numbers of injured overall. In response to Delaware Title 16, Chapter 97’s public information, prevention, and education mandate, the Office of EMS staffs the *Delaware Coalition for Injury Prevention* and the *Safe Kids Delaware* program.

Despite the fact that many injuries and acts of violence are preventable, they continue to be the leading killer of Americans in the first four decades of life. From 1992 through 2005, injuries were the leading cause of death of Delawareans between the ages of 1 and 44 years. This translates to an **average of two injury-related deaths each day in our state** (Delaware Health Statistics Center). The Delaware Trauma System estimates that in a 12-month period, **over 91,000 people** seek treatment at Delaware hospital Emergency Departments for injuries. Injury and violence in a single year will ultimately cost the nation $406 billion - $80.2 billion in medical costs (6% of total health expenditures) and $326 billion in lost productivity (State & Territorial Injury Prevention Directors Association). Injury hospitalizations in Delaware accounted for 8.2% of all hospital discharges and $194 million in aggregate charges in 2005. The leading cause of injury hospitalization was falls (Delaware Health Statistics Center). Delaware hospital costs for injury-related care of children through age 19, from 2002 through 2005, were nearly $32 million. The leading causes of these injuries were falls and highway crashes (2008 Childhood Injury in Delaware). Throughout the lifespan, Americans are at risk for disability or death due to injury. No age is a “safe” age when it comes to injury and violence. Injuries have associated risk factors which can be predicted and modified. Therefore, injuries must not be viewed as random accidents, but as **preventable occurrences in need of organized efforts to save lives**.

In 2001, a group of individuals representing Delaware organizations active in injury prevention came together to form a **Coalition for Injury Prevention** under the auspices of the Division of Public Health, Office of Emergency Medical Services. This program is committed to supporting statewide injury prevention efforts through surveillance, training and technical support, community partnerships, encouraging development of interventions at multiple levels, and determining the effectiveness of interventions through evaluation.

In order to give direction to this collaboration, the Coalition developed a **Strategic Plan for Injury Prevention in 2005**. The purpose of this Strategic Plan is to provide a framework for injury prevention efforts and their development in Delaware. The Plan addresses the nine major causes of injury and disability in Delaware – falls, motor vehicle crashes, traumatic brain and spinal cord injury, suicide, poisoning, fire injuries, dog bites, firearm injuries, and drowning and water injuries. A plan for each focus area was developed by teams of Coalition members - professionals and citizens with experience in each area. Because injuries have modifiable risk factors that can be predicted systematically, the teams used the public health approach to define and identify risk factors for each topic area. They identified goals,
objectives, action steps, and evaluation methods to aid in effectively addressing the problem of each injury focus area. In 2009 the Coalition teams will be working on updating and revising their action plans.

The Coalition’s goal is that through this plan, its vision of safe communities in Delaware will be realized, as measured by fewer injuries, fewer risk-taking behaviors, safer environments, and reduced incidence of injury-related disabilities. Through effective surveillance, partnerships, interventions, training and evaluation, the Coalition’s goal is to help Delawareans learn that injuries are preventable and choose to take steps to reduce their injury-related risks.

In 2008, six of the nine Coalition teams joined to work on one multi-faceted project. Coalition networking identified some specific communities whose residents were interested in learning more about injury prevention. The 19802 zip code area of Wilmington is a community characterized by high incidence of injuries and crime. In order to respond to the community’s request for meaningful injury prevention initiatives, the Coalition first needed to know the residents’ perceptions of their community’s safety issues.

With the support of a faith-based organization in the 19802 community, the Northeast Alliance, and the Traumatic Brain and Spinal Cord Injuries Prevention, Violence Prevention, Dog Bite Prevention, Motor Vehicle Crash Prevention, Fall Prevention, and Suicide/Suicide Attempts Prevention Teams, a community survey was developed. The survey received expedited approval from Christiana Care Health System’s Institutional Review Board. Community leaders helped to distribute both electronic and paper copies of the survey. Data analysis revealed that the respondents’ top five safety concerns are drugs and alcohol, guns and gunshots, speeding, crime, and children in the streets.

The emerging 19802 data has been used to successfully write and implement a mini grant in collaboration with community stakeholders. This "Train the Trainer" mini-grant was used to teach residents about the dynamics and resources available for the victims of domestic violence. Currently, the survey data is being shared with agencies, civic associations, and other community organizations so that additional planning can occur with 19802 stakeholders.

The following 10 pages summarize the 2008 highlights for the individual teams of the Coalition for Injury Prevention.

![Delaware Trauma System Registry Cause of Injury, 19802 Zip Code, 2007](image)

This graph shows the causes of injuries serious enough to require hospitalization in 2007 to persons living in the 19802 zip code.
Prevention

Delaware Coalition for Injury Prevention
Poisoning Injury Prevention Team
Submitted by Kevin Osterhoudt

Team Leader: Kevin C. Osterhoudt, MD, MS

Member Agencies: The Poison Control Center at The Children’s Hospital of Philadelphia, Delaware Risk Watch, Safe Kids Delaware.

Key Objective: The Poison Control Center is a non-profit public health organization, certified by the American Association of Poison Control Centers, with these missions:

- Provision of a free 24-hour daily public poisoning-assistance hotline to guide families in crisis
- Provision of regional toxic epidemic surveillance
- Provision of expert toxicological information to public health, governmental, and public news broadcast agencies
- Dissemination of community poisoning prevention education
- Provision of expert toxicology information and education to health care professionals
- Participation in toxicological research.

Key 2008 Project Name: At the direction of the legislature, the Division of Public Health enters into an annual contract with The Poison Control Center at The Children’s Hospital of Philadelphia to provide poison control services to the citizens of Delaware.

Brief Project Description: The Poison Control Center provides poisoning prevention outreach to the community and also offers a schedule of professional continuing medical education topics. The Federal Institute of Medicine has reported that poisoning is the 2nd leading cause of injury-related death within the United States, and that poison control services are cost-effective by saving $7 for each $1 invested. The Poison Control Center promotes the use of the national Poison Help Hotline number, 1-800-222-1222, which provides a toll-free connection to the appropriate regional poison control center when dialed from Delaware or anywhere within the United States.

Project Outcome: Educational materials were provided to agencies in Delaware through various venues. The phone hotline assistance was provided to families in Delaware with concerns related to potential or actual poisoning episodes. In 2007, the Poison Control Center received 8,393 calls from Delaware and was able to manage 60% of human exposures at home without burdening the state’s other emergency medical systems. When advanced medical care was needed, the clinical toxicologists at the Center provided over 1,700 consultations to Delaware health care providers. The top five toxicants involved in these consultations were: analgesic drugs, sedative-hypnotic drugs, antidepressant drugs, cardiovascular drugs, and cleaning agents. In 2007 the Center also played a critical role in identifying and monitoring a regional fentanyl-tainted heroin epidemic, and in responding to public concerns regarding the highly publicized lead contamination of toys.
Prevention

Delaware Coalition for Injury Prevention
BUrn Injury Prevention Team
Submitted by Susan Givens, Richard Ward and John Lattomus

Team Leaders: Susan K. Givens, Richard R. Ward, John F. Lattomus

Member Agencies: Delaware State Fire Marshal’s Office, Delaware State Fire School, Delaware State Fire Prevention Commission

Key Objective: To reduce the number of fire related injuries and deaths in Delaware.

Key 2007 Project Names:
1. Pass the Reduced Ignition Propensity Cigarette Law (R.I.P.C.) Bill.
2. Increase the number of schools participating in the Fire Education Arson Resistance (FEAR) Program in Delaware.
3. Increase the public’s awareness and proper use of smoke alarms.

Brief Project Description: On January 1, 2009 the State law mandating Reduced Ignition Propensity Cigarette (RIPC) became effective. This is aimed at decreasing the number of cigarette-caused fires in Delaware. Six smoking-related deaths occurred in Delaware in the year 2007. Educational programs about the importance of early detection and warning of fire were offered through numerous public displays and presentations. In addition, the FEAR Program, which teaches the importance of early education concerning laws and consequences of being involved in fire-setting behavior was implemented.

Project Outcome:
The FEAR Program was placed in six schools in 2008 with plans to include eight additional schools in 2009. The RIPC will be closely monitored and enforced in the year 2009, in an attempt to reduce smoking-related fires. Educational outreach continues.

Cumulative data from the State Fire Marshal’s Office shows the need for continued public education on the importance of smoke detectors in preventing fire-related deaths and the age groups most often involved in fatal fires:

![Delaware Fatal Fires, by Detectors Present 1999 - 2008](image1)
![Delaware Fatal Fires, by Age Group 1999 - 2008](image2)
Prevention

**Delaware Coalition for Injury Prevention**

**Fall Prevention Team**

Submitted by Carol Landry

**Team Leader:** Carol Landry

**Member Agencies:**
American Red Cross, Bayhealth Medical Center, Beebe Medical Center, Christiana Care Health Services, Division of Services for Aging and Adults with Physical Disabilities, Foulk Manor North, Ingleside Retirement Apartments, Inc., Milford Parks and Peggy Mack, consultant.

**Key Objective:** Long term goals include reducing fall-related fatalities by 2010 and reducing the rate of hip fractures in adults over age 65 years old through Fall Awareness Education programs in all three counties using multi-pronged initiatives.

**Key 2008 Project Name:** Senior Fall Prevention Exercise Classes, Fall Awareness Programs, Public Service Announcements

**Brief Project Description:**
Senior fall prevention exercise classes were held as a follow-up to the 2007 Senior Aquatic Fall Prevention pilot project. Findings revealed that even though the project had been completed in August 2007, seniors continued to do some sort of exercise. Furthermore, there were no falls requiring hospitalization in the group from September 2007 through June 2008. This same group repeated the Senior Aquatic Fall Prevention Project during the summer of 2008. A comparison group was formed with seniors who only did land exercises. 30 participants in the water exercise group and 20 participants in the land-based group completed one-hour exercise classes twice a week for six weeks. Pre- and post-screening was completed with 33 seniors (25 aquatic and 8 land participants).

Public Service Announcements (PSA’s) were developed emphasizing the importance of preventing falls among seniors. The 15-second PSA’s included informational resources for fall prevention. In conjunction with this promotion, sites for future fall prevention education programs are being identified.

**Project Outcome:** The goal of decreasing falls serious enough to require hospitalization was successfully met. There were only five falls among the participants (two from the aquatic group and three from the land group). None of the falls required hospitalization. In both groups, improvements were noted in balance, endurance, mood, and ability to perform activities of daily living. Education about fall prevention continues through the PSA’s, which were submitted to four Delaware radio stations in September 2008. A list of Delaware nursing homes and assistive living facilities has been developed as potential future sites for fall prevention education programs.
Prevention

Delaware Coalition for Injury Prevention
Drowning Prevention Team
Submitted by Marie Renzi

Team Leader: Marie Renzi, MSN, RN

Member Agencies:
1. Office of Drinking Water - Delaware Division of Public Health
2. Emergency Medical Services for Children – Office of EMS – Division of Public Health
3. State of Delaware Division of Parks and Recreation, Department of Natural Resources and Environmental Control
4. City of Milford Parks and Recreation
5. Kent County Department of Planning Services – Division of Enforcement and Inspections
6. Beebe Medical Center
7. Sussex County EMS
8. University of Delaware – College of Nursing

Key Objective: To prevent water-related injuries and drowning deaths in the State of Delaware.

Key 2008 Project Name: Revision of State of Delaware Regulations Governing Public Pools and integration of the Virginia Graeme Baker-Act into Delaware.

Brief Project Description: In 2007 and early 2008, the Drowning Prevention Team met monthly with the Division of Public Health to assist in the revision of the State of Delaware Regulations Governing Public Pools.

In 2008 the federal Virginia Graeme Baker Pool and Spa Safety Act was enacted to prevent public pool-related injuries and drowning deaths in children by:

- Requiring the use of proper devices such as anti-entrapment drain covers and fences/barriers, and by establishing a grant incentive program to encourage states to enact comprehensive pool and spa laws;
- Educating the public about drowning prevention;
- Establishing a federal swimming pool and spa drain cover standard; and
- Ensuring public pools are equipped with proper safety devices.

The Drowning Prevention Team monitored the legislation, which went into effect in December of 2008. Division of Public Health representatives are working to incorporate the law into the State of Delaware Regulations Governing Public Pools and to determine how the law will be implemented in Delaware.

Project Outcome: In 2009, a revision of State of Delaware Regulations Governing Public Pools should be completed to update regulations last revised in 2003.
Prevention

**Delaware Coalition for Injury Prevention**

**Motor Vehicle Crash Prevention Team**

Submitted by Joan Pirrung, Alene Honecker and Trish Bachman

**Team Leaders:** Joan Pirrung, APRN, Alene Honecker, Trish Bachman

**Member Agencies:** Christiana Care Health Services, Bayhealth Medical Centers, Delaware Office of Highway Safety, University of Delaware Cooperative Extension Community Traffic Safety Program

**Key Objective(s):** Coordinate public awareness efforts to reduce the number of alcohol related injuries and fatalities from motor vehicle crashes.

**Key 2008 Project Name(s):**
1. Holiday Mocktail Parties – Safe Family Holiday Events
2. Partnership with Delaware Office of Highway Safety (OHS)

**Brief Project Description:** Team members from A I duPont, Bayhealth Medical Center, Beebe Medical Center, Christiana Care and Nanticoke hospitals again hosted holiday Mocktail parties. These events were organized by each institution utilizing informational materials provided by OHS. Institutions held and will continue to hold other non-alcoholic party planning initiatives during other holiday family events such as Halloween and St Patrick’s Day.

A I duPont, Bayhealth Medical Center, Beebe Medical Center, Christiana Care and Nanticoke hospitals will continue to provide their local communities with pamphlets, brochures and posters from OHS during health fairs, community events and on Emergency Department bulletin boards.

**Project Outcome**

1. Attendance for Mocktail parties in 2008: 1,950  (1,500 in 2007)

2. Distribution of materials given by OHS to hospitals and rural health ministries: 58 posters - 1,125 flyers - 220 table tents

3. **Alcohol-related fatalities declined from 46% of all traffic fatalities (2007) to 37% (2008)**
Prevention

Delaware Coalition for Injury Prevention
Traumatic Brain and Spinal Cord Injury Prevention Team
Submitted by Virginia Corrigan

Team Leader: Virginia R. Corrigan, MSN, RN


Key Objective:
1. Decrease the number of brain and spinal cord injuries suffered by Delaware citizens and
2. Improve quality of life for those who have suffered these injuries and prevent further injury.

Key 2007 Project Name: ThinkFirst Delaware: Media Project, Concussion Education and Shaken Baby Syndrome Education

Brief Project Description: Every Delaware hospital trauma program has been provided with ThinkFirst materials and invited to join these best practice community injury prevention programs.

In 2008, the ThinkFirst programs reached 17,135 high school students and young adults, 365 juvenile offenders through partnership with the US Attorney’s Office, 1,800 elementary school students, and 4,275 parents and teen drivers in partnership with the Office of Highway Safety.

The ThinkFirst Media Contest, being launched in February 2009, will make students in every high school in Delaware aware of the long term effects of brain and spinal cord injury and will encourage every student to develop Public Service Announcements to help educate other students about how to keep safe and avoid brain and spinal cord injuries.

Because of its success, the concussion program will become a train-the-trainer program in 2009. Shaken baby syndrome will be addressed using “Baby Mikey,” a realistic infant with a see-through skull so participants can see the damage done to the brain when a baby is shaken.

Project Outcome: ThinkFirst program pre- and post-testing indicate significant increases in knowledge and changes in attitude and self-reported behaviors. Four teenage young women were unhurt in a high speed crash because they had all been wearing seat belts after participating in ThinkFirst. Hosts of the juvenile offenders program find the program to be “essential for these young men and women.” Audience evaluations of the Graduated Driver License Parent Orientation Program indicate that “every parent needs to be exposed to this information before they let their teen drive.” The concussion program will be extended at the request of the target audience.

This poster was made by a five year old first grade boy when he was asked to draw a picture of what he had learned in ThinkFirst for Kids!
Prevention

**Delaware Coalition for Injury Prevention**

**Violent Injury-Assault, Firearm, and Homicide-Prevention Team**

Submitted by Captain John Evans

**Team Leader:** Captain John R. Evans, Delaware State Police

**Member Agencies:** Beebe Medical Center, ContactLifeline, Delaware State Police, Domestic Violence Coordinating Council, Kent County Department of Public Safety, Emergency Medical Services Division, Sussex County Emergency Medical Services, Department of Natural Resources and Environmental Control, People’s Place II, Inc., Wilmington Hospital.

**Key Objective:** Identify at-risk communities through data analysis and community feedback. Provide a positive impact on residents’ decision-making behaviors regarding assault, firearms, and homicide.

**Key 2008 Project Name:** “Helping a Village Protect its Children” - the 19802 Community Project.

**Brief Project Description:** Networking identified specific communities where residents were interested in learning more about injury and violence prevention. Within the 19802 zip code of New Castle County, the team educated residents about the dynamics of violence, firearms and the importance of gun locks, and provided general safety information. The Delaware Coalition for Injury Prevention and the Domestic Violence Coordinating Council (DVCC) participated in a health fair at the Kingswood Community Center, in the 19802 area. The Coalition for Injury Prevention distributed gun safety information and gun locks; the DVCC provided information on prevention of domestic violence. Feedback from health fair attendees identified the need and interest in decreasing violence in their community. In response to that need, the Coalition for Injury Prevention, the DVCC, and ContactLifeline partnered with Kingswood Community Center to hold a two-day ‘train the trainer’ event, *Promoting Safe and Stable Families*, for residents of the 19802 community. Program assistance was provided through a mini-grant from the Jewish Family Services of Delaware, Office of Prevention and Early Intervention.

**Project Outcome:**

1. At Kingswood’s Health Fair, about 50 gun locks were distributed to adult residents with instruction on their proper use. Information on gun and home safety was also distributed.

2. Beebe Medical Center staff participated in a Cape Henlopen school district ninth grade Health and Safety Fair where 76 students signed the Student Pledge Against Gun Violence.

3. Fifteen 19802 community leaders from Project Stay Free completed the ‘train the trainer’ *Promoting Safe and Stable Families* program, learning about the dynamics of violence, the impact of domestic violence on children, and the resources available to victims and their families in the 19802 community. Program graduates have provided resources and presentations to 23 individuals in Project Stay Free’s parenting group and become involved in a new group, *Men Against Abuse*. Male parents from these groups have begun to exchange information on domestic violence and sexual assault awareness.

4. In 2009 similar activities will be offered to communities in Sussex County’s 19933 zip code.
Prevention

**Delaware Coalition for Injury Prevention**

**Dog Bites Team**

Submitted by Cynthia Martin and Scott Vogel

**Team Leaders:** Cynthia Martin, Scott Vogel

**Member Agencies:** Mispillion Kennel Club, Literacy Education Assistance Pups, Delaware SPCA Humane Education Department (latter dissolved, December 31, 2008).

**Key Objectives:** Promote responsible dog ownership and educate children on safety around animals, thereby lowering the incidence of dog bites.

**Key 2008 Project Name:** “A leash is the best bite prevention.” - responsible pet ownership education.

**Brief Project Description:** The Delaware SPCA Humane Education program presented over 500 age-appropriate programs throughout Delaware in 2008. Members of the Mispillion Kennel Club assisted by bringing their own dogs to demonstrate obedient, well-trained canine companions. Mispillion Kennel Club promoted responsible pet-ownership through community outreach programs and teaching dog training classes. Literacy Education Assistance Pups (L.E.A.P.) taught pet safety to children as a routine segment of the reading assistance program. In addition, prevention of animal cruelty was taught in terms of “respect for all living creatures.”

The prime age group to reach with safety messages is kindergarten through fourth grade. The children who had the opportunity to participate in these programs have gained skills and information, and adults who participated in Responsible Pet Programs have gained a better understanding of their roles in ensuring the safety of children and their pets.

**Project Outcome:** Through dog training classes and community outreach programs, children were taught how to greet a dog, how to be safe around animals, and respect for all living creatures, and the importance of developing well-trained and socialized pets was stressed.

There are a variety of dog groups in Delaware but few participate in public education programs. There are many dog training programs in the State. The American Kennel Club has a wide range of resources available for humane educators. The challenge is pulling these pieces together to fill the current void and continue providing humane education programs for the Delaware public.
Prevention

**Delaware Coalition for Injury Prevention**

**Suicide Prevention Team**

Submitted by Elizabeth McCout

**Team Leader:** Elizabeth McCourt, J.D., Director of Crisis Services, ContactLifeline, Inc.

**Member Agencies:** ContactLifeline, Inc., Mental Health Association of Delaware, NAMI (National Alliance on Mental Illness) of Delaware, New Directions Delaware

**Key Objectives:** Promote suicide prevention as a preventable public health problem, engage in primary prevention through education and gate-keeper training, identify and target at-risk groups in Delaware and provide connection to state and community resources, and enhance existing crisis intervention services available to those in immediate need.

**Projects by Member Agencies:** ContactLifeline achieved a five-year accreditation through the American Association of Suicidology and maintains its status as Delaware’s only AAS accredited affiliate of the National Suicide Prevention Lifeline network. In 2008 ContactLifeline’s Crisis Helpline received over 2500 calls from individuals in Delaware through the National Suicide Prevention Lifeline network and connected callers with intervention and counseling resources.

The Delaware State Suicide Prevention Coalition sponsored the second *State Suicide Prevention Conference*, with over 300 attendees. The conference highlighted the comprehensive Delaware Suicide Prevention Plan, which mirrors the National Suicide Prevention Plan. The Coalition received a $500,000 Garrett Lee Smith Youth Suicide Prevention award, which will fund such initiatives as gatekeeper training, youth suicide prevention toolkits, a high school peer to peer program, a warm line transfer between ContactLifeline and Child Mental Health, and a teen Lifeline website as a portal to youth suicide prevention information and activities.

Mental Health Association of Delaware provided over 20 different support groups weekly throughout the state for those experiencing depression, an anxiety disorder, or the loss of a friend or loved one to suicide. These support groups, including the Grief and Healing Survivors of Suicide support groups, often supplement existing treatment services and can help to prevent problems from intensifying while providing connection to additional community resources.

NAMI-DE’s *Warm Line* is a free service available during workday hours. It is staffed by support services personnel who provide emotional support for families and loved ones dealing with serious mental illness. Problem-solving and communication techniques are reviewed with empathy, crisis and relapse periods are discussed, and care for the caregiver is encouraged. Information about coping strategies and other helpful resources (groups, agencies, books, videos, websites, etc.) is shared.

New Directions Delaware (affiliated chapter of the Depression and Bi-Polar Support Alliance) held monthly support meetings and two twelve-week seminars on depression and bi-polar disorder, offering mutual support and education for persons with depression, bipolar disorder, and suicidal ideation, their families, and their friends in 2008.

In 2007, the State Department of Corrections developed and implemented a suicide prevention policy supported by gate keeper training for all employees working in state correctional facilities. Throughout 2008, this suicide prevention training was provided for all new employees.
Safe Kids

Safe Kids Delaware (previously the Delaware SAFE KIDS Coalition) is a non-profit organization comprised of volunteers dedicated to reducing unintentional injury in children from birth to age 14. The Office of EMS in the Delaware Division of Public Health serves as the Lead Agency. An affiliate of Safe Kids Worldwide®, it is a state level coalition, led by an expert Board of Directors, with active county chapters.

Unintentional injury is the leading cause of death and disability to our most precious resource, our children. The mission of Safe Kids is to work to prevent accidental injury to children under 14 years of age. This is accomplished by raising awareness of current preventable injury issues in Delaware, educating individuals in injury prevention strategies, and motivating people to share the vision of an injury-free life for all children.

Since its inception in 1992, Safe Kids Delaware has provided a myriad of child safety educational events and activities for children and their parents as well as for professionals. Throughout the year, Safe Kids is showcased at many community health and safety fairs in Delaware. The program provides Child Passenger Safety Education and car seat inspections. Multiple fire and burn safety awareness events with smoke detector distribution are also held. Some other areas of focused education include gun safety, water safety, playground safety, and poisoning and fall prevention.

In 2008 Safe Kids Delaware participated in 686 health fairs in schools, businesses and communities; 16 bike rodeos distributing 342 helmets; held Safe Kids Days in all three counties reaching 4,750 children and family members, and taught 155 children to *Walk this Way* Safely to School. SAFE KIDS and partners checked, corrected and replaced numerous child safety seats. Our Annual SAFE KIDS - EMSC Conference had 85 attendees whose evaluations showed that they thought the conference was very worthwhile.

Safe Kids Worldwide demonstrates in the following graph the significant declines in injury-related death rates since they were founded in 1988:

![Decreases in Unintentional Injury-Related Death Rates in Children 14 Years and Younger in the United States](chart.png)
Prevention

Special Needs Alert Program
SNAP

The Special Needs Alert Program (SNAP) is currently funded by a grant from the Department of Health and Human Services, Health Resources and Services Administration, through the State of Delaware’s Public Health Preparedness Program in partnership with Easter Seals, Delaware and Maryland’s Eastern Shore. The Program was implemented in July 2004. Currently there are 151 children enrolled throughout the state, including 23 children with tracheostomies and ventilators. The program was evaluated and deemed effective according to surveys by the University of Delaware Center for Disabilities Studies in 2006.

The purpose of the program is to identify a special needs child when placing a 911 call. Parents/guardians enroll children in the Special Needs Alert Program (SNAP), by completing the SNAP forms. Once paperwork is completed, the information is entered in the SNAP electronic data base. The child’s medical information is given to the 911 dispatch center, the county based paramedic service and the local fire company. Some have the information in hard copy, secure notebooks and some agencies have it on secure laptops in their units for quick reference in route to a 911 call at the child’s address.

Photo Submitted by SNAP
Prevention

First State, First Shock!  
CPR and AED Program

The Delaware Office of Emergency Medical Services (OEMS) is charged with “coordinating a statewide effort to promote and implement widespread use of semi-automatic external defibrillators and cardiopulmonary resuscitation...” (DelCode Title 16, Chap 97)

Funding and support from the Health Fund Advisory Committee in 1999 helped implement the Public Access Defibrillation (PAD) program First State, First Shock. The Office of Emergency Medical Services is the lead agency for the PAD program and is committed to the following goals:

- Decreasing death and disability in Delaware by decreasing time to defibrillation in cardiac arrest patients.
- Promoting heart health and early detection of the signs and symptoms of heart attack.
- Increasing public accessibility to Automatic External Defibrillators within the state.
- Increasing the number of Delawareans trained in Cardio-Pulmonary Resuscitation (CPR) and AED use.
- Insuring First Responder and police vehicles are AED equipped
- Tracking outcome to guide future efforts.

The purpose of the First State, First Shock program is to increase survivability from cardiac arrest in Delaware by increasing access to an Automatic External Defibrillator (AED) to be utilized during an emergency situation. Under the First State, First Shock program, Delaware has been able to establish some key initiatives. Among these initiatives is the placement of at least one AED in every school statewide that has a population over 75 students (according to statistical information obtained from the Delaware Department of Education).

The First State, First Shock program, with funds from the Health Fund Advisory Committee and rural access grant, has grown exponentially placing 2,270 AEDs in-service. Some of the equipment purchased has augmented the abilities of the existing first responder system. By placing the AEDs with the police agencies (state and local) and the volunteer fire services, we have a greater opportunity to impact our entire state.
There have been two major challenges to the AED program in 2008:

1. The increased sales of over-the-counter AEDs. AEDs are labeled as medical devices by the FDA and required physician prescription to purchase and possess. The general population may now purchase an AED with complete disregard for the state’s rules and regulations regarding possession of an AED. This also presents a problem with maintaining accurate databases of AEDs in-service throughout the state. The significance of this problem becomes evident when a manufacturer has a device recall.

2. Manufacturer/vendor recall. In January 2007 one of the vendors was ordered by the FDA to conduct a recall of a certain model device of which the state had purchased 448 units. This recall put a significant strain on OEMS personnel assets.

Sudden cardiac arrest is a public health issue. Cardiac arrest data from Delaware pre-hospital reports indicate that 72% of all out of hospital cardiac arrests occur within the home (see graph below). Therefore an emphasis is being placed on increasing the number of AED units and trained persons within the first responder system and then secondarily, places of public assembly. Locations of public assembly include churches, assisted living facilities, recreational facilities and restaurants.

The net result of these initiatives will hopefully be an increase in return of spontaneous circulation in cardiac arrest patients. Increasing AED deployment and CPR/AED training increases the chances for resuscitation of cardiac arrest victims. Data from 2008 showed a significant increase in Return of Spontaneous Circulation in cardiac arrest patients (35% in 2008 compared to 19% reported in 2002). These statistics are among the best in the nation.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Cardiac Arrests</th>
<th>Patients Pronounced Dead by Paramedics</th>
<th>Patients Transported to Hospital</th>
<th>Patients that Experienced a Return of Spontaneous Circulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>780</td>
<td>170</td>
<td>610</td>
<td>158 (26%)</td>
</tr>
<tr>
<td>2005</td>
<td>752</td>
<td>185</td>
<td>585</td>
<td>170 (29%)</td>
</tr>
<tr>
<td>2006</td>
<td>756</td>
<td>166</td>
<td>590</td>
<td>190 (32%)</td>
</tr>
<tr>
<td>2007</td>
<td>756</td>
<td>151</td>
<td>605</td>
<td>215 (36%)</td>
</tr>
<tr>
<td>2008</td>
<td>745</td>
<td>117</td>
<td>628</td>
<td>222 (35%)</td>
</tr>
</tbody>
</table>
Prevention

Crash Outcome Data Evaluation System

CODES

In 1999, the National Highway and Traffic Safety Administration (NHTSA) awarded the Division of Public Health’s Office of Emergency Medical Services (OEMS) a grant to develop a Crash Outcome Data Evaluation System (CODES) in Delaware. The CODES Project is a collaborative effort between several state agencies including the State Police, Office of Emergency Medical Service, Health Statistics Center and Office of Highway Safety. Many types of data (e.g., demographic, injury severity, hospital charge, etc.) are collected from these agencies and are linked, analyzed and publicized so that state agencies, policymakers and the public can better understand the causes and impacts of motor vehicle crashes. With this information, the Division of Public Health can create and prescribe prevention programs with demonstrated potential for improved outcomes.

Based on the analysis of Crash Outcome Data Evaluation System (CODES) linked data, the following is the summary of traffic overview in crashes. From 1998 to 2005, vehicle drivers accounted for 60% of traffic fatalities and injuries. Passengers of vehicle accounted for 34% of traffic fatalities and injuries. The remaining 6% were pedestrians, pedalcyclists, and motorcyclists. Although more females were reported to be injured (54%) than males (46%) in crashes, more males (65%) were killed than females (35%). The fatality rate per 100,000 population was 15.82 in 2005, a decrease of 5% from the 2004 rate of 16.69. The injury rate per 100,000 population decreased from 962 to 784 from 2003 to 2004. Figure 1 and 2 shows the trends of the traffic related fatality and injury rates for United State and Delaware from 1999 to 2004. The traffic related fatality and injury rates varied by age in Delaware, with the peak at 15-24 years old (Figure 3 and 4).

In 2008, Delaware CODES collaborated with NHTSA to evaluate the estimated effects of motorcycle model by using imputation techniques. Linked data will continue to be made available for policy development, legislative decision-making and public education in the form of fact sheets and research notes.

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1 Including car, trucks, motorcycles, and pedalcycles.
Figure 1: Traffic Related Death Rates, United States and Delaware, 1999 to 2005

![Figure 1](image1)


Figure 2: Traffic Related Injury Rates, United States and Delaware, 1999 to 2005

![Figure 2](image2)


Figure 3: Traffic Related Death Rates in Delaware by Age Group, 1999 to 2005

![Figure 3](image3)

Data Source: Delaware Vital Statistics Center, and Delaware Crash Outcome Data Evaluation System (CODES) program
Figure 4: Traffic Related Injury Rates in Delaware by Age Group, 1999 to 2005

Data Source: Delaware Vital Statistics Center, and Delaware Crash Outcome Data Evaluation System (CODES) program

Photo Submitted by: New Castle EMS
Appendix

**Paramedic Writes Story for EMS Magazine**

*Photos by Lee Morris, NREMT-P*

Part 1

Part 2

**Understanding the role of Basic Life Support in the latest American Heart Association guidelines**

(2 part series published in the March 2008 EMS Magazine)

By Paramedic 1/C Robert J. Sullivan

*New Castle County EMS*