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The mid-air crash of Frecce Tricolori. (Photo courtesy of NDMS)



The solo plane crashed in a concession area, exploding into a 1600 degree fire ball. (Photo courtesy of NDMS)

Medical Response to Ramstein AFB Disaster: Lessons to Be Learned

What can be learned from the medical response to the Ramstein AFB disaster when three jets collided above a crowd of 300,000 people, killing 69 and injuring 500? Dr. Cowan, from NDMS, went to Germany with a team of surgery and burn specialists to try to find answers.

On August 28, more than 300,000 people gathered at Ramstein US Air Force Base near Frankfurt, West Germany. They had come to watch performances by aerobatic teams, the annual Flug Tag Air Show. The day turned to tragedy when three jets of Italy's Frecce Tricolori (Tricolor Arrows) collided above the crowd. Approximately 500 people were injured (most of them burned) and 69 people were killed at the base or died later from their injuries.

Following the crash, Naval Captain Michael Cowan, MD, special assistant for the National Disaster Medical System (NDMS) in the Office of the Assistant Secretary of Defense of Health Affairs, went to Germany with a team of surgery and burn specialists. They were to learn about the medical response to the incident and to find out how the actual triage and transportation mechanisms compared

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with the plans that had been established for such an event. Could any lessons learned be of value in modifying NDMS plans? Capt. Cowan described the crash and the response to it during Grand Rounds at the MIEMSS Shock Trauma Center in December.

The crowd at Ramstein lined the main runway. Freccie Tricolori began its maneuver called "arrow through the heart." Nine planes flew parallel to the ground and then went straight up in the air. They divided into a heart pattern perpendicular to the ground, four planes going one way, and four going the other. The ninth plane pulled away from the group and turned back to "pierce the heart" and fly over the crowd. "From the ground," stated Capt. Cowan, "it looks as though the planes pass very closely. The solo plane is actually to be several hundred meters above and behind the others."

By reviewing videotapes of the fated performance, Dr. Cowan and other investigators saw that the pilot of the ninth jet came in too low and too fast. He hit the lead plane, which flipped to its left and hit another. Those two planes crashed along the runway, scattering burning debris for 500 meters. The solo plane landed about 50 meters from the crowd, broke into a ball of fire, bounced across the runway, and landed in a crowded concession area where refreshment trucks were parked. The plane slammed into one of the trucks, which stopped its progress and sent the fireball straight up. "The vertical containment created some ironic occurrences," noted Capt. Cowan. "Plastic mugs full of cold beer remained right next to where people were virtually incinerated by the 1600 degree fireball."

The lead and left wing planes crashed within 2 seconds after the mid-air collision. It was only 3.2 seconds from the mid-air crash until the solo plane traveled 1500 feet to the concession area.

The crew of the primary fire truck stationed at the base extinguished the fire within 92 seconds. The first med-evac helicopter arrived within 4 minutes. Twenty helicopters would be ferrying people away from the site in the coming hour. Every injured person was off the base in 1 hour and 36 minutes. Within 2 hours, all of the primary receiving hospitals had triaged, treated, redistributed, admitted, or

made some disposition of all the casualties.

In preparation for Flug Tag, security and emergency preparations were high. In the crowd were at least 1500 American and German uniformed police officers as well as a number of plainclothes officers. Four aid stations had been set up for the air show. Each was augmented with intravenous fluids and additional medications. The Ramstein clinic was about 1500 meters away; it has no in-patient facilities, but it is a large and well stocked air force clinic.

Videotapes showed that people in the crowd initially froze until the fireball went up and the danger passed. Then a large number of the 300,000 people surged forward to help in an almost simultaneous response.

The injured people who could walk started to move toward the clinic. Nearly all had been burned and many were naked because their clothes had been burned off by the intense heat.

The ranking medical officer and his aide had been watching the air show from the air control tower. The aide had two hand-held radios: one to keep the officer in touch with the base central command post and the other to link him with the German Red Cross and the German and American medical nets. As the aide ran down the tower steps, she fell and broke both radios, seriously compromising communication throughout the event.

The physician began to intercept patients running up the road to the

clinic, and he started a medical triage station. An oral surgeon from the crowd, who had been trained extensively in disaster management, set up a second triage station. Three more were established by ambulances from the aid stations. Within 5 or 10 minutes, there were five medical triage areas within 50 meters of each other. Each site acted autonomously, with little awareness of the others' activities.

From a systems view, it was a multiple casualty event with five triage sites. Those sites managed about 186 people. The other 300 injured people got to medical care on their own. They drove their cars, commandeered buses, or used government vehicles. They left the base, one of the tightest controlled ground and air space in western Europe, before the 1500 uniformed police officers could secure the site. The plan called for them to be quietly triaged into delayed categories and taken to hospitals in an orderly, convenient way.

"For reasons that are still unclear," noted Capt. Cowan, "the air traffic tower was out of communication for several vital minutes after the crash." The helicopter crews on the base tried to contact the tower for directions, but no one answered. An American pilot radioed to the other pilots and organized their flight into the crash site. They found the triage stations and lined up near them so that patients could be loaded.

Almost all the survivors suffered from burns. Those who also received



Hundreds of thousands of spectators had gathered at Ramstein AFB for Flug Tag, a demonstration of aerobatics by fighter jet teams. (Photo courtesy of NDMS)



Fire suppression units arrived at the crash site within minutes. Sixty-nine people died in the explosion or as a result of their injuries. (Photo courtesy of NDMS)



Within 1 hour and 36 minutes, 186 injured people were triaged and transported from the scene. (Photo courtesy of NDMS)

severe trauma were in the center of the fireball and did not survive. One remarkable exception was a woman at ground impact. The solo plane dug up a berm of earth that buried her and then hopped over the runway, hit the truck, and burst into flames. Two feet of earth separated this woman from the 1600 degree fireball. She was severely traumatized but she was not burned.

The primary receiving hospital for Ramstein Air Force Base is Landstuhl Army Hospital, several kilometers away. Landstuhl activated its disaster plan without the advantage of knowing how many patients would arrive. As patients began to arrive by helicopter, automobile, and ambulance, the disaster plan began to break down and was modified in the heat of the activities. At one time, 13 helicopters were sitting on a landing pad designed for two.

In 1.5 hours, Landstuhl Hospital received about 120 patients in no particular order of priority. Most of the seriously injured were transported here: 14 were hospitalized and another 80 were transferred for hospitalization elsewhere. Only six needed immediate surgery (a laparotomy, several escharotomies, and treatment of a compound femoral fracture), so the hospital's operating room capabilities were not overwhelmed.

Germany has a sophisticated distribution plan for burned patients. It was established in the early 1980s after an incident in which propane gas leaked into a campground in Spain and ignited; many people were horribly burned. In the current system, a staff member at each of the 20 burn units in the country calls a central phone number in Hamburg each day to report the number of beds available for burned patients. In a mass casualty incident, one call to Hamburg can allow the burned patients to be distributed primarily.

After the Ramstein disaster, no call was made to the Hamburg distribution center. The physicians on the helicopters distributed patients themselves, presumably not knowing how to gain access to the system.

Twenty-nine severely burned patients were taken to Ludwigshafen, the nearest major burn center, which has a nominal burn bed capacity of nine. On that day, a nurse had called Hamburg and given an availability of

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Many of the injured suffered extensive burns. Their clothing was incinerated by the heat of the fire ball. (Photo courtesy of NDMS)

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zero because they were full. Because Ludwigshafen has remarkable expansion capability, the patients were cared for adequately — either admitted or transferred secondarily.

The pattern of patient distribution following this disaster is seen often. Although dozens or hundreds of hospitals are within a reasonable distance, most patients are taken to only a few. In the Ramstein situation, nearly all patients were treated primarily at three hospitals: Landstuhl took care of the severely injured initially, St. Johannes took care of several hundred less severely injured, and many of the burned patients were sent to Ludwigshafen.

Capt. Cowan summarized the lessons learned from this event:

People will help each other and themselves in an emergency. Disaster management personnel will not be able to stop individual efforts. Knowing that people *will* help, EMS agencies should channel the public's energy by training them.

Burned patients in a disaster represent a particular challenge. Their needs are different from those of multiple trauma patients. A relatively small number of burns can completely overwhelm a casualty care system. Training such as the course "Advanced Burn Life Support" sponsored by the American Burn Association should be made widely available.

It seems to be a recurrent, even

inevitable, observation that, during a disaster, command, control, and communication break down when needed most. Problems encountered at Ramstein could have hampered patient care but did not. The high level of training and medical readiness among both lay and medical people in the Ramstein community allowed adequate care for the victims. Disaster plans need to recognize the fragility of high technology during emergencies.

Lack of record keeping is a recurring problem. Even trained prehospital care providers responding to disasters often overlook this vital aspect of emergency response.

Finally, the "morbidity" of psychological devastation of individuals in the community, both survivors and health care providers, may eventually

Treating Trauma In Rural Areas

Today's foundation of trauma care systems is constructed on an urban model: it assumes small geographic area, high population density, short transport time, and enormous commitments of hospital resources and staff. Stuart A. Reynolds, MD, is an attending surgeon at Northern Montana Hospital and chair of the Montana Committee on Trauma for the American College of Surgeons. Addressing the 11th National Trauma Symposium in December he encouraged those involved in establishing trauma care systems with a rural component to recognize that the urban model "may not be possible, and may not even be appropriate, in a rural environment."

Dr. Reynolds' practice is in Havre, Montana, a town of 12,000 at the northern border of the state. It is in a county that is about half as large as Maryland and has a population of 17,000. The service area of Northern Montana Hospital extends 60 miles west, 50 miles south, 100 miles east, and 25 miles north to the Canadian border.

The 70-bed hospital in Havre has two general surgeons and one orthopedist — the entire surgical population in a community with only 20 physicians. The nearest hospital with more extensive medical resources is in Great Falls, 110 miles to the southwest.

surpass that of the physical injuries. Psychological support and care must be built into emergency response plans.

The objectives of NDMS are to meld federal resources (for example, medical support, equipment, and supplies) into the local disaster response, to match patients with the facilities that can best treat them, and to financially support the hospitals that receive the victims of a disaster. By studying the responses to disasters, Capt. Cowan and his associates continue their efforts to design plans that are concordant with the facts and make the most efficient use of personnel, materials, time, and money.

◆ Linda Kesselring



"Rural hospitals do not need to solicit trauma patients," stated Dr. Reynolds. "They are delivered to our doorstep because there is no alternative for care. Unlike hospitals in urban areas, rural hospitals cannot 'opt out' of trauma care."

Dr. Reynolds noted that San Francisco has a population of over 700,000 in 46 square miles. The population of Montana is 826,000 in an area of 147,138 square miles. The respective population densities are 15,000 and 5.7 people per square mile.

Population density is low and hence personnel resources are low. Montana is 41st in the United States in per capita supply of physicians. "We cannot generate institutional or financial resources in the same fashion as urban areas," explained Dr. Reynolds.

Fifteen percent of the medical facilities in Montana have full-time physician agreements for coverage. There are no verified trauma centers in Montana.

Rural areas have higher roadway mortality rates than urban areas. "The pristine environment that we all like to visit is the place where we bury two-thirds of the people killed in highway

traffic crashes in this country."

In a study of the severity of injury in 600 patients in eastern Washington, 3.4 percent had an ISS greater than 20 and another 15 percent had an ISS between 10 and 20. In Montana, 5 percent of trauma is due to gunshots; the rest is blunt trauma.

Studies done in Utah in 1977 and in Vermont in the early 1980s revealed 20 percent preventable mortality among trauma patients arriving at rural hospitals. In the Utah study, 50 percent of those who died had survived long enough to reach the hospital for resuscitative efforts or transfer to another facility. The report from Vermont indicated that a significant number of patients who died did so en route to a larger institution, having bypassed a smaller hospital. The reasons people died were linked to factors such as failure to recognize surgical urgency, failure to manage ventilatory problems, and failure to transport the patient appropriately.

Dr. Reynolds noted that urban systems have such good results because response and transport times are short, advanced life support is available, and patients can be evacuated quickly to a hospital with the right capability. "In rural areas," stated Dr. Reynolds, "we are beset in the prehospital setting by distance. The time to discovery of an injured person may be long in areas of low population and on roads with little traffic. Once the system is alerted to an emergency, it takes a long time to get to the site and then to a hospital. Since most of our prehospital care providers are basic EMTs, intervention in the field is usually limited.

"Prehospital care can be enhanced by reducing the time to definitive care, by teaching EMTs to recognize critical injuries, and by transporting patients immediately." According to Dr. Reynolds, these approaches are incongruous with the standard DOT program, which advocates the proper "packaging" of patients before transport. Dr. Reynolds also called for increased coordination of helicopter services and EMS in rural areas.

A trauma patient who arrives at a rural hospital in the middle of the night is met by a nurse, who is responsible for initial assessment and resuscitation. (Again because of distance, the physician coming from home usually does not arrive at the hospital until the

patient gets there.) "If the trauma victim is to survive," said Dr. Reynolds, "the nurse must be able to anticipate the critical needs of the physician. The rural nurse, although sometimes looked upon as being outdated and unknowledgeable, has responsibilities that require significant training."

The physician in a rural hospital is usually a family practitioner with limited training and experience in trauma. In a town of 2500, a physician may see 25 trauma patients per year, one of whom is severely injured. Even though the physician might have some training, trauma management skills deteriorate if they are not used.

"Physicians who live in rural areas treat our neighbors, friends, and, on occasion, even our families, particularly our children. We want to have the best possible care for them. We must create systems in which rural hospitals can function as best as possible in the early management of the trauma victim.

"The American College of Surgeons publishes a document that lists the resources necessary for caring for trauma patients. It formerly was called 'Optimal Resources for the Care of the Trauma Victim.' The title has been changed to 'Hospital Resources for Optimal Care of the Trauma Victim,' which is much more appropriate for rural areas. Rural health care providers must learn how to apply their limited resources as efficiently as possible in caring for the victims of trauma."

Rural systems must be based on the community hospital, noted Dr. Reynolds. The level of care at each segment of the system must be redefined. Just as definitive acts can be carried out in the field, specific treatments can be carried out in a small hospital emergency room. "An ER staff, with adequate training and knowledge, can offer more to a patient than a helicopter crew because of space and other factors," stated Dr. Reynolds. "A rural surgeon can administer treatment that will improve a patient's chance of getting to a trauma center alive.

"Many physicians in rural areas do not recognize preventable mortality, because the mortality rate is so consistent that it becomes the standard. For this reason, I have become a strong advocate of quality assurance in all aspects of trauma care. Trauma registries should be established in every institution to define the results

of medical care and to point out deficiencies in that care. Autopsies should be required in all instances of violent or unexplained death: that is the only way we can find the exact reason our treatment failed.

"Differences in distances, resources, and people in rural areas lead to a difference in the management of trauma there. The rural institution cannot opt out of trauma care. Trauma comes to us as a commitment, whether we want it or not. With assistance from people in urban trauma environments, we must learn how to provide optimal care with persistently limited resources."

◆ Linda Kesselring



Legal Experts on EMS

Because of continuing concerns of physicians, nurses, and prehospital care providers regarding their liability exposure in the EMS environment, a panel of legal experts addressed a workshop on legal issues at the 11th National Trauma Symposium in December. Faculty for the panel were Harry Teter, Jr., Esq., general counsel for the American Trauma Society; Thomas M. Reardon, JD, chairman of the health and law department of the Harvard University School of Public Health; Barbara Siebelt, RN, who has clinical and EMS experience and is health-risk manager for Risc, Inc., in Towson; and David G. Spackman, JD, former general counsel of Boston City Hospital, which manages EMS in that city.

The panel gave the following information:

- If there are 10 principles of risk management, the first 7 are, "Be pleasant to the patient." If you are nice to people they are less likely to object to your treatment; if you are not, there will be hard feelings.

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Maryland EMS: Why Volunteer?

Volunteers . . . what would EMS do without them? A majority of more than 20,000 BLS and ALS providers across the state are volunteers, not only providing their life-saving skills free of charge but also giving up precious time with family and friends to do it. Are these EMS volunteers anachronisms in these days of tough economic times that call many to work two jobs, saving their free time for recreation and relaxation? What makes EMS volunteers willing to devote their time and effort to the system?

It's not all excitement and glory, despite the flashing lights, sirens, and uniforms. There are also routine chores, sick people, and long hours. And the Maryland EMS System has stringent requirements for certification for its EMS personnel — starting with 110 hours of training for basic EMT personnel and including over 24 hours of continuing education to be completed within 3 years of certification or recertification. But working for the EMS System seems to give volunteers more of a return than the usual volunteer job. Most EMS volunteers feel a strong sense of community and a challenge to know more and do more to help other people.

For this two-part series, we asked a few volunteers to share their feelings with us; the words heard most often were "gratifying," "accomplishing something," "satisfaction," and "I really love it." They describe personal rewards that money can't buy.

Below is part 2 of "Maryland EMS: Why Volunteer?"



Leon Hayes with Region V Administrator Marie Warner-Crosson

Leon Hayes, Maryland and National Registry EMT-P

Waldorf Volunteer Rescue Squad & Mobile Intensive Care Unit

"I dropped roots when I moved here and became involved in the community. People here care about and look out for one another; they are part of the lives of their friends and neighbors. When I joined in 1973, I wanted to accomplish something special that would make my children proud of me. I fell in love with EMS—and never get tired of it. This is an effort that makes a difference to the community. I tell new people, 'You can hold your head high—you're doing something that very few people can—or will—do.' It's also important to gain the confidence of the public; when they understand the system they are supportive." Mr. Hayes is a drug-chain specialist and pricer and in charge of safety/environment for the District McKesson Drug Corporation. He is also chairman of the Region V EMS Advisory Council.



Sharon Garrison, CRT

Captain, Frostburg Ambulance Service

"There's a feeling you get when you can help. You make a difference and can bridge the crisis. An incident may only take an hour, but it's very gratifying. I'm on call 24-hours-a-day with my pager; of the 400 calls recently made by my company, I've run 250 of

them—even when I'm not on the schedule. I really love it. Sometimes people ask, 'How can you stand the blood and misery?' Your training takes over. You're sharing with others. The AIDS problem hasn't scared me off. If you take precautions, the risks are minimal. The risk is worth it—the need is there." Capt. Garrison has been active since 1978.



Allen Ruby, CRT

Flintstone Volunteer Fire Company

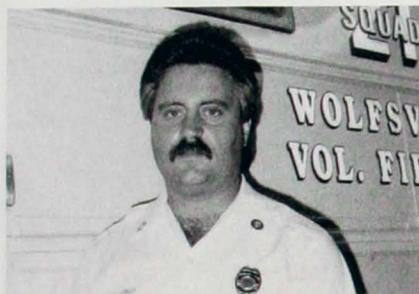
Following in the footsteps of his father, grandfather, and uncles, Mr. Ruby took an active role in the fire company at an early age. He joined in 1970, became an EMT in 1972, and a CRT in 1974. "There are rewards in knowing that you are helping your community," he says. "Once you've done it, you'll never forget it. It's a good feeling to help your fellow humans." Mr. Ruby should know all about nurturing the human spirit—by profession he is a psychiatric nurse at the Thomas B. Finan Center. Although Flintstone is a small community, it is close to Routes 40 and 48 and sees a number of bad accidents. The next generation of family is also involved—Mr. Ruby's son is a junior fireman in the same company.

Wayne Dyott, CRT

Easton Volunteer Fire Department

Wayne Dyott has been a volunteer in EMS in Talbot County since 1975. "In 1985, five of us took the first ALS training course at Easton Memorial Hospital—and now we have 17 CRTs giving countywide service 24 hours a day. It is gratifying to me now to see the results of our toils." As a respiratory therapist at Easton Memorial Hospital, Mr. Dyott sees the difference in the condition of patients brought in since ALS has been in place. "Patients are more viable and hospital stays are shorter. I speak to patients who have had treatment before and since ALS was established and they find the

competence of the emergency personnel reassuring." Talbot County pays a small amount to its ALS volunteers to help with their traveling expenses.



Terry Lewis, EMT-A, EOA/MAST

President, Frederick County Volunteer Fire/Rescue Association

Involved in EMS since 1974, this Wolfsville native has been a firefighter/first responder/EMT in Myersville and Frederick City; his father and cousins are also active. "One of the best things about being trained and retrained to be sure you know the newest methods and protocols is that if you are on the scene of an emergency, whether it is with your unit, or on the job, or out in public, you don't have to stand around and wish you could do something. You know what to do about it. It feels good to have the knowledge and skills to be able to assist when you are needed." Mr. Lewis emphasizes that a volunteer better be prepared to put in a lot of time and effort, but it's worth it.

Jim Lyons, CRT

Past-President, Joppa-Magnolia Volunteer Fire Department

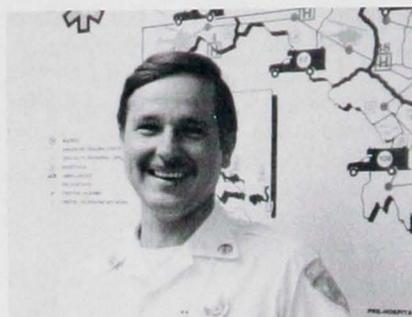
Jim Lyon's family has a tradition of helping their community. His grandfather, Patrick Henry Birthistle, was a hostler for the Baltimore City Fire Department from 1890 to 1948. He fought the great Baltimore fire and he drove horse-drawn vehicles until 1930, when he switched to the back step of mechanized fire engines. Jim Lyon's father was president of the Long Green Volunteer Ambulance Company and his sons were part of that company. "There was a need for an ambulance driver in about 1970," Mr. Lyons says, "and I was browbeaten to take the job. Look what happened!" Mr. Lyons is now vice-president (and former president) of the Harford County

Volunteer Fire and Ambulance Association and chairman of the Regional Fire Chief's Planning Council. "I encourage young people to study to become EMTs and CRTs not only because it gives a strong base of trained people in the community, but because it helps them establish a foundation they can grow from. These skills give valuable opportunities in the medical field if they stick to it. Some of our young volunteers have gone on to military careers or became phlebotomists or IV therapists after learning their basic skills in EMS. They mature fast if they go that extra step to proficiency." Mr. Lyons is an accountant/lawyer by profession.

Kathy Frick, CRT

Delmar Volunteer Fire Department

"It's fulfilling for me to see the patients in both their prehospital and in-hospital care. I can really appreciate the fine job being done by prehospital care providers in an uncontrolled environment." Ms. Frick has been an emergency department (ED) nurse for the past 15 years and is ALS supervisor for Peninsula General Hospital. "Working as an EMS volunteer, I enjoy using my own judgment, within protocols, up to the point where I need physician consult. And I like to work with the families." Ms. Frick lives in Delmar, a town on the Delaware/Maryland line; her company has dual responsibilities in both states. "There are only a few CRTs in town, so you go when you are needed. My volunteer work gives me a better perspective of the whole EMS picture." She began her volunteer work in 1976. The ED at Peninsula General Hospital has five nurses who are CRTs and several who are EMTs.



C. Kingsley Poole, CRT
Community Rescue Service Substation, Maugansville

When Fire Battalion Chief Poole first joined the Hagerstown Fire Department as a firefighter, he felt unprepared to meet the medical emergencies he might run into and worried that valuable time would be wasted before skilled EMS care could reach the scene. He learned CPR and became an EMT to meet this need. When he moved to Maugansville, there was no ambulance company in town. Community Rescue Service in Hagerstown covered that area but the distance made a delayed response inevitable; it was agreed that a sub-station would be opened if the ambulance personnel could be found. Now 25 percent of the sub-station's calls are out of the first-due area; they sometimes help out when Community Rescue Service is busy elsewhere. "There is a great deal of self-satisfaction in being able to supply these vital services to your friends and neighbors," Chief Poole says. "You can say that EMS is my vocation, my avocation, and my life." Chief Poole is chairman of the Washington County EMS Committee.

Richard Michael, CRT

Ambulance Captain, Union Bridge Volunteer Fire Company

Mr. Michael's involvement in EMS began in 1965 in York, Pennsylvania, when he was a senior in high school. He became part of the Maryland system in 1973. "The hardest part in the beginning is overcoming the fear of whether you will make the right decisions. Your first call is the worst. But you overcome that feeling through learning your job. Every call is different and it often presents challenges you are not quite prepared for. But you learn to improvise as you know more. Once it gets in your bloodstream it's hard to get it out. There is great satisfaction in knowing you have done your best in a crisis situation." Mr. Michael is pastor of St. James Lutheran Church and chaplain of Carroll Lutheran Village, which includes a nursing home, cottages, and apartments. His 12-year-old son looks forward to becoming a junior member of the fire company.





Legal Experts On EMS

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- Document, document, document. Your professional conduct is evaluated through written records. Fill in all the blanks; put an "X" through unused spaces to indicate that it is a conscious omission. State facts, do not give opinions. The patient is not drunk; he has certain behaviors and symptoms. Let someone else draw the conclusions.
- Consent may be oral or implied. It is implied if the patient rolls up his sleeve in anticipation of getting an injection.
- Follow policies and procedures, even if you don't agree with them. There are ways to effect change internally through the quality assurance (QA) mechanism.
- Do not include grievances or people problems in event reports. Heal them internally. Include them in confidential QA reports where they cannot be used against you in litigation.
- Even if you are delegating authority, you are still in charge.
- When in doubt, treat and transport. You will not be accused of kidnapping.
- Drive safely. This will save time, energy, and legal fees.
- Do the best you can with the

resources available. If your job is impossible to deal with, leave it. Use a common-sense approach.

- Negligence has three cornerstones: Deviation from the standards of care, injury to the patient, and injury caused by the deviation. Don't deviate from the standards of care.
- Make sure your job description accurately describes what you do; if it does not, have it changed so what you do is reflected on paper.
- If you must follow a policy that you feel is inappropriate, write a preamble to your report saying, "Under the direction of" Make every effort to have the policy changed.
- Mission statements and public relations materials can be used against you if you do not live up to them. If standards are breached, have something in writing. If there are any questions, ask the state medical board about it and keep the reply. You may need proof at some later date. Charges have been brought as long as 20 years after an incident.
- Be motivated by professional good sense. Strive to maintain high standards.
- Record unusual events.

- Contrary to what you may have read, not one good samaritan ever lost a case.
- If you are an EMT, fill in runsheets promptly.
- Maintain confidentiality.
- If there is a problem, your educational records will be looked at; maintain your continuing education and certification standards. Be aware of regional and national changes.
- Trauma centers should band together to set up a risk-reduction group across state lines consisting of known capable individuals proficient in trauma surgery. (Of 15,000 trauma cases investigated, 5 percent of physicians account for 80 percent of the malpractice awards. If incompetents were weeded out, awards could be reduced 70-80 percent.)
- Get rid of the word "legal" from your vocabulary; replace it with the word "defensible." Be motivated by good professional practice, not by fear of being sued.
- EMTs should have a checklist for vehicles, equipment, and supplies. To avoid having the list become too familiar, reverse the procedure and check it from bottom to top sometimes.

◆ Erna Segal

Address Correction Requested
MIEMSS, Maryland EMS News,
22 S. Greene St., Baltimore, MD 21201-1595

Director: R Adams Cowley, MD
Editor: Carl A. Soderstrom, MD (301-328-5537)
Managing Editor: Beverly Sopp (301-328-3248)

University of Maryland at Baltimore
22 S. Greene St., Baltimore, MD 21201-1595

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