CHAPTER 5: HUMAN RESOURCES IN EHC

INTRODUCTION

Emergency health care, a service filled with daily stresses as well as complex financial and political barriers, demands a team of knowledgeable, skillful, and dedicated professionals. Whether in a rural area, urban region, industrial country, or less developed nation, all experience difficulties in recruiting, developing, and maintaining human resources. This chapter offers creative practical solutions by authors from the Soviet Union, Peru, Republic of San Marino, Japan, Mexico, and the US.

As an example, rural emergency health care (EHC) systems have unique problems in training personnel dispersed throughout thousands of square miles. In the first paper, several approaches such as teleconferences and mobile training units successfully used to reach volunteer staff in the state of Idaho are illustrated. On a larger academic level, a disaster training program, known as the European Centre for Disaster Management has been established in San Marino. These efforts were initiated by the WHO, the UN, and the Council of Europe for training, research, coordination of assistance, and diffusion of disaster information. The Centre is instrumental in training instructors in Disaster Medicine and disseminating useful academic materials.

Not as common, but with increased frequency, training EHC and disaster management courses in a cross-cultural setting is used. Insight and knowledge are especially necessary in understanding the students' culture, language, work environment, national resources, and program limitations. These issues are addressed in the paper by David Loudon, OD.

One of the largest EHC volunteer organizations is the American Red Cross, which is committed to the business of recruiting, traininng, and retainng specialized volunteers. The paper on this topic gives step-by-step management approaches in obtaining and keeping high quality volunteers.

There is no doubt this chapter offers numerous perspectives and practical solutions to the human resources problems that plague EHC systems worldwide.

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VOLUNTEER PERSONNEL IN THE IDAHO EMS SYSTEM

Paul B Anderson

In rural and frontier areas, many EMS personnel are volunteers. For example, in Idaho about 90% of the EMS personnel in the state are volunteers staffing over 200 local EMS units. Volunteer EMS personnel are typically highly motivated, and dedicated to providing excellent EMS response. Since EMS crews that are primarily comprised of volunteers need to maintain a livelihood in some other endeavor, EMS training and other programs need to be designed and delivered to permit this to occur.

In the 1970s, as EMS systems were first being developed, many people stepped forward to take EMS training and function on a volunteer basis. In the 1980s, there has been an obvious change as it has become more and more difficult to recruit and maintain sufficient numbers of EMS personnel, particularly in small, rural communities. In Idaho, this is particularly the case in communities with a population of less than 200.

Recruitment efforts for EMT volunteers has become more intensive. While, ten years ago, a newspaper article was often sufficient to generate enough interest in a rural community to fill an EMT class, much more effort is now needed to find students. Reasons include competition for scarce volunteer resources, fear of liability suits, and some have pointed to an increasing "cocooning factor" that may become more of a problem as people tend to withdraw from community activities. In Idaho, when the EMS system was inititated in 1973, recruitement was viewed as a local responsibility. This is still the case to a great extent, but now the state EMS program has to help by developing television public service announcements (PSAs), brochures, news releases and by conducting recruitment sessions.

The Idaho EMS System, in addition to utilizing volunteer EMT personnel on ambulance units, has initiated quick response units (QRUs) in about 100 locations throughout the state. In rural areas, an ambulance service may have three or four volunteer QRUs in the surrounding geographical area. When an emergency occurs, the QRU is dispatched simultaneously with the ambulance unit. The QRU is a non-transport unit capable of providing basic life-support until the ambulance arrives to transport the patient. The two-tiered approach ensures that trained EMS crews will reach the patient more quickly in rural areas. This also, of course, results in the need for a larger number of volunteer personnel to participate in the system.

After volunteers have been recruited to serve with an EMS unit, they need to be trained. In a rural state, where EMS units are widely dispersed throughout the state, this represents a particular challenge. More specifically, in Idaho, volunteer EMS units with training needs are dispersed throughout 83,000 square miles.

In Idaho, EMT training programs are taken to rural communities rather than requiring volunteers to travel long distances to reach a training site. The training courses are conducted primarily on week nights and weekends in order to fit the schedules of volunteers. Typically, an EMT course in a rural area is conducted over several months and qualified instructors must travel often times long distances to conduct classes. Training

aid sets have been developed and packaged to facilitate training in rural locations. In the past year, an Idaho video production project was carried out to produce high quality instructional videos for EMT classes. Instructors are now able to provide consistent didactic training within time constraints, leaving them more time to emphasize practical skills instruction.

Continuing education is a particularly important component of volunteer EMS programs. Most volunteer EMTs do not have the exposure levels of critical patient situations that full-time EMS personnel have, because the critical cases are diluted among the members of the volunteer unit and rural areas have lower run volumes than urban areas. In order to compensate for the lack of high exposure levels, continuing education programs are vitally necessary.

The State of Idaho has an EMS program that conducts periodic educational conferences. This program is an integral part of a comprehensive continuing education program for EMT personnel on a statewide basis. These conferences are conducted in communities in each regional area of the state for the convenience of EMS personnel, particularly the rural volunteers. Besides holding the conferences in locations that are convenient, every effort is made to minimize the costs so that volunteers can afford these continuing education opportunities.

Another approach used by the State of Idaho is to deliver quality continuing education programs by use of teleconferencing. The Idaho Statewide EMS Communications Center is equipped with a 48-port computerized teleconference bridge terminal. This permits interactive audio teleconferencing to be conducted for EMS personnel in all areas of the state. Typically, video programs are sent to EMS units for use as part of the program. Each site then contacts the bridge terminal for the interactive portion of the session, including additional didactic material and a question and answer session. About 1,500 EMT personnel, primarily volunteers in rural communities, participate in each teleconference.

The teleconferencing approach has been shown to be effective, based on learning uptake studies using pretests and posttests, but there continues to be a need for hands-on skills training. The Idaho EMS System has developed a Mobile Trauma Training Unit (MTTU) concept to provide periodic skills training for rural volunteers. Three MTTU vehicles are now in use to conduct MTTU sessions in about 150 community locations throughout the state each year. The concept is to provide realistic simulation of actual events in order to help compensate for the relative lack of critical patient exposure experienced by rural EMS personnel. The MTTU concept involves a number of stations. For example, one station utilizes an extrication simulator device to teach these skills, and another uses realistic manikins and video technology for multi-trauma situations. The Idaho MTTU concept has been adopted by a number of other rural states to deliver skills training to rural volunteer personnel.

At this time, the Idaho EMS System is developing a Mobile Interactive Training Unit (MITU), using interactive laser video disc technology. This will permit an even more realistic simulation of critical patient events. The rural volunteer EMT personnel will be able to learn and maintain their knowledge and skills in an environment analogous to that of an airline pilot in a flight simulator. It is anticipated that the first MITU unit, with laser video disc learning stations, will be operational in Idaho within the next 12 - 24 months. The MITU vehicles will travel from community to community in a manner similar to the Mobile Trauma Training Units.

In addition to the need for continuing education programs to maintain competency and proficiency of volunteer EMS personnel, these programs also help motivate rural EMTs to stay current in the field.

The personal use of portable radios has also increased retention of volunteer EMT personnel. Hundreds of small, portable two-way radios have been distributed to EMTs in rural areas. Previously, volunteer personnel had to stay home near the telephone in order to be contacted for emergency calls. This made them virtually prisoners in their home when they were "on-call" for the local EMS unit. Through the development of a statewide mountaintop radio-microwave system, linked to a 24-hour statewide EMS communications center, volunteer EMT personnel in remote areas of the state are contacted by radio dispatch. With the use of a small, portable radio, the EMT has freedom to move around the community and can be contacted immediately when an EMS incident occurs. The rural EMT can leave home, go to the grocery store, attend a high school basketball game, etc., and remain on call. When the radio alert is given, the EMT can be at the QRU or ambulance station in just a minute or two from virtually anywhere within the small, rural community.

The Idaho legislature has enacted liability protection for EMS personnel that significantly reduces their liability exposure, by limiting liability to those situations where gross negligence occurs. This is extremely important to volunteer EMTs, because they do not like risking their home, savings, etc. in the case of a lawsuit as a result of their EMS duties for the community.

The Idaho EMS System is implementing a program that addresses another factor that is important in terms of EMT retention, ie., assisting volunteers in dealing with critical stress. Critical incident stress debriefing (CISD) programs have been shown to be very effective in a number of other states for EMS personnel. In the case of rural volunteers, even though they typically do not handle large volumes of critical situations, they often know the people they treat. When the child down the

street is hit by a car and dies in their hands, or someone they have known for years has a fatal heart attack, the rural volunteer EMT has added stress because such events are very personal in their small communities.

As we enter the 1990s, more attention must be given to "incentives" for volunteers to be recruited and retained by rural EMS systems. We must recognize the increased competition for scarce volunteer resources, and disincentives for EMTs. Some say there is an increasing "cocooning factor" that may become more of a problem if people tend to withdraw from community activities. These factors make it all the more important for rural EMS systems to make changes that are necessary to keep the dedicated volunteers already part of the system and attract new volunteers.

TRAINING FOR HEALTH DISASTERS THE EUROPEAN CENTER FOR DISASTER MEDICINE

Dr. S William A Gunn
Prof. Corrado Manni

As disaster management becomes increasingly important in society's response to major emergencies, we believe that it might be useful to describe an idea for a disaster training facility and follow it through from its inception to final completion and implementation. We refer to the European Centre for Disaster Medicine, known after its French and Italian acronyms as CEMEC.

HISTORICAL BACKGROUND

Over the past two decades, international organizations, national authorities, and academic institutions have felt that a more technical approach and coordinated response were needed to cope with the increasing frequency and severity of disasters - whether caused naturally or by man. In the train of decisions and actions being taken to deal with this situation, the following milestones can be discerned regarding the establishment of the CEMEC.

Most countries and organizations had been reacting to disasters in a piecemeal fashion until the early 1970s, when advances were made toward an organized response. As a result, the World Health Organization set up the Office of Emergency Relief Operations and a little later the United Nations created the Office of Disaster Relief Coordinator (UNDRO).

In October 1979, in collaboration with the above-mentioned organizations, the Ministry of Foreign Affairs of the Republic of San Marino convened an international and intergovernmental conference to discuss "the defence [sic] of society against natural disasters in the Mediterranean Basin." Upon the evident success of this meeting and the consensus that coordinated action was essential, the Conference concluded that "...a permanent secretariat be established to deal with this problem and ... expressed the desire that the Republic of San Marino accept this task."

Welcoming this consensus, San Marino and its Permanent Representative to the United Nations in Geneva explored various possibilities with the United Nations and the emergency office of WHO, which at that time was formulating disaster training courses and introducing the idea into curricula of medical faculties.

WHO, London University, and the Catholic University of Louvain, which had already established close working relationships, introduced the problem to the Division of Higher Education of the Council of Europe. In March 1982, this resulted in a joint scientific workshop on the educational aspects of health disasters. Among its recommendations, the workshop proposed that the Council of Europe "promote and coordinate the development in Europe of courses concerned with disaster health..." The Council of Europe agreed to this, but there remained the question of academic, governmental, physical, and financial facilities.

In May 1983, at the Third World Congress of Emergency and Disaster Medicine held in Rome, we discussed the matter further and noted wide support for the idea.

In October 1984, at the WHO training seminar on veterinary disasters held in Rome, the WHO and Council of Europe representatives took up the matter of finding a site, and WHO agreed to approach the San Marino authorities which had always remained ready to welcome such a centre in the Republic.

In 1985, two informal interministerial meetings of the Council of Europe at Ravello recommended that States of Southern Europe draw up an agreement concerning mutual help in case of a disaster in the region.

In February 1986, San Marino hosted the European workshop on the educational aspects of health in major disasters. The project of creating a centre for disaster medicine was definitively agreed upon and it was proposed that the centre be housed in San Marino, the Republic's Ministries of Foreign Affairs, Health, and Civil Protection having extended the invitation.

At its 38th session, on 3 July 1986 the Parliamentary Assembly of the Council of Europe took note of the progress and invited its member States to accede to the Open Partial Agreement (Recommendation 1036 [1986]).

At a further meeting in San Marino, the modalities were finalized and CEMEC was officially born on 27 November 1986. A draft program was proposed and a provisional board was nominated to prepare the first training course. San Marino generously provided spacious offices at the State Hospital, secretariat facilities, and teaching aids.

In March 1987, a member of the Planning Committee went to San Marino as Scientific Coordinator

to prepare the forthcoming course. The Board established the program and the Centre became operational in October 1987.

In February 1989, the four Ministers of Civil Protection, External Affairs, Health, and Education set up a San Marino Commission of Support.

The European Centre for Disaster Medicine is, thus, an intergovernmental, international organization, established under the aegis of the Council of Europe and situated in the Republic of San Marino.

SCOPE

The scope of CEMEC covers training, research, diffusion of research results, coordination of health assistance, and dissemination of disaster information. The overall aim of the Center is to promote and improve prevention, preparededness, relief, and rehabilitation to disaster situations.

Training

This activity is carried out through:

1. Intensive courses on Disaster Medicine addressed to all those who could be involved in a maxi-emergency: doctors, nurses, rescue workers, veterinary surgeons, administrators, civil defense personnel, and volunteer associations;
2. European "workshops" for specialists in the field, who coordinate and plan the teaching programs; and
3. Training and specific seminars on problems of particular interest in disaster management.

Research and Diffusion of Results

Research activities include:

1. Coordination at the European level of Disaster Medicine research, in order to stimulate disaster studies and activate international collaboration;
2. Organization of round table discussions on subjects relevant to the teaching and research programs; and
3. Publications.

Coordination and Organization of the Medical Aspects of Assistance

This is one of the top priorities for CEMEC. Recent experience, especially in connection with the major nuclear and toxicological disasters, has clearly demonstrated the urgent need for better coordination of medical assistance at interdisciplinary and international levels.

Information

This is carried out at four levels:

1. The collection of information and the creation of appropriate computerized files;
2. The establishment of a data bank which will facilitate the rapid consultation of didactic material and bibliographical information;
3. A specialized library; and
4. The publication and distribution of teaching material and manuals reflecting the concerns and activities of the Centre, such as its seminars, round table discussions, refresher courses, and research.

In a sense, CEMEC represents the latest element in the historical evolution of mankind's response to disasters. Man has advanced the application of disaster medicine from the primordial attitude of fatalistic resignation to the modern programming of interventions and the realization of operative plans whose objectives are to minimize the consequences of disasters, both natural and those caused by man.

DISASTER MEDICINE

In order to understand the role and scope which CEMEC proposes to exercise, it would be useful to first recall the fundamental objectives of this new discipline. Disaster Medicine proposes to:

- Encourage the inclusion of Disaster Medicine in the curricula of medical schools;

- Transfer the progress of biomedical technology to the fields of emergency. In fact, in cases of disaster, medical assistance cannot fully avail itself of the most modern and sophisticated diagnostic multiparametric aids like computerized monitoring, telemedicine and diagnosis by means of images;

- Favor the construction of highly specialized hospital centers, like trauma centers, neurotraumatology, burn centers, anti-poison centers, etc. Besides carrying out provider tasks in everyday emergencies, the centers should be ready to intervene in case of a disaster. They should carry out research on the prevention and treatment of the effects of disasters;

- Introduce programs for the development of existing national emergency medical services (EMS), in order to reduce delays and improve the quality of services in hospitals and on the disaster site. Unfortunately, EMS is still in its infancy in many countries;

- Define and improve the sectors of collaboration between civil and military medicine. It is to be

hoped that cooperation between these two groups will cross national boundaries. The convergence of multiple and experienced actions is expected to improve the quality of assistance and increase the information necessary for more effective prevention and preparedness programs;

- Collect into a single body of knowledge, the specific elements of Disaster Medicine which is fast becoming a specialty. These come from interdisciplinary related medical branches like traumatology, reanimation, intensive care, epidemiology, infectious diseases, nutrition, etc., and from other disciplines like management, communications, transportation, logistics, etc.; and

- Promote public education programs aimed not only at experts but at all communities.

In fact, CEMEC pays particular attention to the last two points. It intends to act as a catalyst among the numerous scientific disciplines and as a teacher whose function will, for the most part, be directed towards the training of teachers who in turn can spread the knowledge of Disaster Medicine. The first series of courses conducted by CEMEC took place from October 26 to November 14, 1987.

SUMMARY

The European Centre for Disaster Medicine is one of the principal institutions devoted to teaching and training in the new discipline of Disaster Medicine.

The aim of CEMEC is to promote the prevention and mitigation of the effects of natural and technological disasters through research, training, and international collaboration, in particular among the countries of Europe. Through permanent mechanisms and in cooperation with the Council of Europe, the World Health Organization, the Office of United Nations Disaster Relief Coordinator, universities, civil protection associations, and other specialized bodies, CEMEC is able to bring its humanitarian and scientific contributions to society, against the suffering and destruction caused by disasters.

CONCLUSIONS

We have felt that describing the gestation of the CEMEC venture from its beginning to its operational reality, might prove useful to others who contemplate such a project. The account also shows the gradual progression of disaster medicine as a specialty. We believe that the multiplication of such centers is desirable.

We would like to pay particular tribute to the people and the authorities of the Republic of San Marino, who, while living in a small country have largely participated in the development of CEMEC. As in many other fields, San Marino has contributed more than its share to the welfare of mankind.

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ENTRENAMIENTO PARA EL PERSONAL PREHOSPITALARIO (SOCORRISTA - TECNICO) EN CUIDADOS DE LA SALD EN CASOS DE EMERGENCIA

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1. El grupo de ponentes abrirá la sesión con una definición del personal prehospitalario (Socorrista

- Técnico) y como se relaciona para loscuidados de salud en casos de emergencia a (EHC).

RESPESTA

Es la persona que deberácontar con los conocimientos y técnicas - dentro de las diferenrtes urgencias médicas prehospitalarias. Se considera como persoonall prehospitalario a todo aquel que se en - cuentra involucrado en las muy distintas sittuaciones de emergencia - existentes dentro de su communidad, y que cuenta con las técnicas, procedimientos y conocimientos para asistencia, prevención y control de los mismos.

Dentro de los diferentes enlaces dcoordinados para el funcionamiento - integral delals áreas de emergencia, permitiendose así la acción conjunta y ordenada.

2. Una completa versión de la situación cotidiana País del expositor.

RESPUESTA

La República Mexicana ocupa una extensión de 1,958,201 de kilometros cuadrados en la que se localizan regiones con caaracteristicas diferentes entre cada una de ellas que hacen de la República Mexicana un conjunto completo de contrastes, los suelos, los climas y cada uno de los elementos que proporcionan el medio natural y que varian de una zona a otra.

Se distribuye al Territorio Nacional en Regiones, las cuales son: Región Noroeste, Región Norte, Región del Occidente, Región Central, Región del Golfo, Región del Sur, Región de la Peninsula de Yucatan.

En éstas regiones se comprenden 32 entitades (31 Estados y el Distrito Federal).

Los Gobiernos de los Estados cuentan con sus respectivos departamentos de Salubridad y el Sector Salud, que proporcionan diversas maneras de servicos en estrecha relación con la Secretaria de Salubridad, que actúa en todo el Territorio Nacional, los Gobiernos locales como en el caso del Departemento del Distrito Federal, mantiene otros Centros como los Hospitales de Emergencia, directamente vinculados con la Dirección General de Servicios Médicos del DF.

Asi tambien se suman los esfurzos que en materia de atención prehopitalaria proporcionan los grupos, asociaciones e institucioness filantrópicas o de beneficiencia privado, ocupanda un lugar relevante la Cruz Roja Mexicana., que lleva a cabo una labor altamente destacada.

México, cuenta con la Capital más poblada del Mundo, el DF, con una población de aproxaimadamente más de 18 millones de habitantes, y en una superficie de 1,479 m^2 es por lo tanto una de las Metrópolis por demás conflictivas. En un estudio realizado dreccientemente se obtuba un promedio de 2,500 lesionados, atendidos mensualmente de los cuales 2,000 son inngresados a los diferentes Centros Hospitalarios existentes en ella, y a los 500 restantes son estabilizados en su totalidad en el lugar mismo de la urgencia, siendo el oindice de mortalidadd por accidende cercano al 3.2% de la cantidad de pacientes ingresados a Centros Hospitalarios.

a) ?Que clase de personal prehosptalario es usando en el Sistema de cuidados de la salud en casos de emergencia? (EHC)

RESPUESTA

La base primordial de un compleji estructural operativo como lo es un servicio de emergencia es el Socorrista.

El cual previamente fué seleccionado mediante su publicidad (siendo el más común el de carteles y cercanos a los Centros de Operaciones de urgencias), y en los cuales son solicitados los requisitos que convienen a los diferentes cuerpos, grupos, instituciones etc., buscando en la mayoria de los casos al personal que obtenga el perfil idoneo para el servicio prehospitalario.

Es aqui donde se parte para fomar los técnicos especialistas que conforrman los servicios de urgencias, yo que despuess de terminar su periodo básico el socorrismo se les deja motivados para continuar con una especialiddad como los son Técnicos en Emergencias Médicas, Rescate en Alta Montaña, Rescate Acuático, trasportes, siendo en algunos de los casos inovaciones y en algunos otros acciónes desarroadas durante muchos años anteriores, sienddo de los más relevantes desastres, paracaídismmos, espeleología, radioperadores, busqueda commn perros adiestrados, busqueda y rescate de personas en accidentes aéreos, rescate y salveamente en carreteras.

b) ?Cuales son sus funciones?, como son entrenados para enfretar los requerimientos de sus funciones especificas.

RESPUESTA

Se a observado que en los Centros de operaciones de urgencias de los diferentes cuerpos, existe personal capacitado (en el mayor de los casos), para realizar las funciones cotidianas, siendo en la mayoria de las veces personal voluntaario y personal remunerado, todos ellos a las ordenes de uno o más personnas responsables de los servicios, los cuales son seleccionados previamente basandose en sus años de experiencia y sus conocimientos la que brinda una confiabilidad a los servicios que soliciten.

Cuando se require de un servicio más especializado por ejemplo un accidente en la montaña, por lo regular se encuentra el personal técnico especializado que sale de su Cenrto de operaciones con el material que con anterioridad a sido evaluado para su uso y con personal de apoyo, siendo éste personal especialista en el ramo ó

en su defecto en socorrista, ya que dentro de su capacitación tiene el entrenamiento básico para cumplir esta función, a su vez aactiva un sistema operativo que enlaza a sus elementos obtiendo una respursta primaria, especialistas concentrando a los mismos en el centro de operaciones de urgencias o en su defecctos si posee los medios, se traslada al lugar mismo, ó cercano al percanse ya que también se evalua la magnitud del accidente para que se active ó no este dispositivo, y no se desperdicie los recuersos que podrian ocuparse en algo más relevante.

Con esto no se quiere decir que el socorrisrta posea toda la capacitación ppara ser un técnico especialista en todas sus mmodalidades, sino que el objetivo es de hacer de él un individup que sea capáz de realizar funciones de los cuales sin contar con material y equipo, una insignia ó unniforme que represennte a cualesquieria de los cuerpos de rescate existentes, sea un elemento que de respueta a cualesquieria de las eventualidades que prevalescan, utilizando para ello su capacitación y su proprio criterio que ha sido indulcado en los salones de clase y pueda improvisar, mitigando hastta donde le sea posible el dolor humano, no con esto se require decir tampoco que desconosta el uso de la tecnología para este tipo de servicio pero dadas las condiciones de cualquier gran urbe se debe tomar en suenta de que cuando se terminan de laborar en un Centro de Urgencia a descansar ó simplemente no se encuentra al elemento en servicio puede oocurrir una emergencia que este cerca ó se presencia e inmediamente se activan los valores y conocimientos que se obtuvieron dentro de su programa de capacitación logrando así una respuesta favorable.

Es así que partiendo de abase confiables el primer objetivo inmediato es el socorrismo, esto conlleva a obtener lo más fundamental en atención prehospitalaria ya que sin estos principios el futuro especialista divagaria en sus criterios y no habría un seguimiento escalafonario que le permite perpetuar los mismos.

Todo esto basandose en largos años de experiencia, en algunas organizaciones enn cuidados de la salud en casos de emergencia, de las cuales algunas de ellas no llevaron estos principios motivando a originar grandes tropiezos.

Dentro de los cuerpos de emergencia qure existen en el País, son variados sus programas de capacitación siendo afortunadamente la minoria los que no llevan una programación de adiestramiento que verdaderamente se ajusten a la necesidad de proporcionar un servicio, con la efectividad requerda, lo que hemos podido constatar es de que en la gran mayoria de ellos, adies tran a su personal en sus Centros de operaciones, en los cualess varian en horarios y días, sus entrenamientos, siendo frecuentemente los fines de semana y algunos otros tres días, y hasta dos días senanarios.

Algunos de ellos cumpplen su programa en dos mesees, siendo que también - otros lo realizanhasta en un año, logicamente llos programas que tienen mayor duración el personal egresa mejor preparado, la gran mayoria de estos toma como parámetros a las Instituciones con más experiencia, para realizar sus programas de caapacitación, habiendo algunas más sobrepasan el escalafon impartiendo el programa para técnicos en Emergencias Médicas, aquí hacemos - un parentesis ya que durante mucho tiempo se ha tomado el Socorrismo como la piedra angular (en México) para la Sistema de la Salud en Casos de Emergencia, y el sobrepasar este linneamiento se carecería de ua base sólida, por ejemplo, en el Ciclo de la preparación de un Médico, tiene que llevar los programas primarios, secundarios, preparatorios, y profesionalles de su carrera, si acaso le faltare alguno de estos, podríamos imaginarnos lo que pasaria.

Afortunadamente una de las Instituciones con más experiencia, en lo que se refiere a quidados de la sallud en casos de emergencia, proporciona en apoyo en extrenmo meritoria, ya que sino es certificado como socorrista, no podrá continuar su preparación como técnico en emergencias médicas, o en alguna de las otras especialidades.

Dentro de este estudio daremos a conocer las diferentes materias impartidas pretendiendo generallizar los programas de capacitación y adiestramiento de los diferentes cuerpos de emergencia.

Anatomía, Fisiología, Primeros Auxilios, Levantamiento y transporte de lesionados. Acondicionamiento fiaico, Códigos y claves para uso de radiocomunicación, técnicas de rescate, disciplina para actos solemnes, introducción a relaciones humanas, instrcción para técnicos en emergencias médicas y especialidades.

A pertir de ser egresado de éste curso se certifica al alumno como una persona apta para cubrir servicios de emergencia, pasando a formar como parte interrgal de la Institución primaria, y su paase a continuar su preparación como técnico en cualquiera de sus modalidades, siendo la mayor aceptación como Técnico en emergencias Médoicas.

c) ?Cual es ssu función organizacional y en que clase de vehiculos trabajan?

RESPUESTA

Hoy en día se elabora con Unidades en servicios de emergencia, con los tipos I y II, para la mayoria de las urgencias urbanas y carreteras, con personal de tripulaciómn capacitada y adiestrada en su mayoria, siendo algunas de Denpendencias Gubernamentales y dee Instituciones privadas, así como Asociaciones Civiles, las que proporcionan para este tipo de servicios personal multidiciplinario.

Existe una Central de helicópteros, situado al Oriente dee la Ciudad, y que esta siempre pendiente

dealguna llamada de Auxilio, proporcionando el apoyo a quien lo solicite.

Esta Central, es coordiada por una Secretaria Gubernamental Capitalina. El Distrito Federal es constituido por 16 Delegaciones Politicas y por lo que hemos constatado las unicas Institucioones que ce bren todo el Area del DF, son el Escuadron de Rescate y Urgencis-Médicas, Cruz Roja Mexicana y la Direccción General de Servicios Médicos del DF, siendo el primero y el ultimo de los enunciados Gubernamentales y la Cruz Roja Mexicana como una Institucion de Asistencia privada.

Asi también se ha confirmado que la Institución que siemore ha estado a la vanguardia es la vanguardia es la Cruz Roja Mexicana, ya que en el presente cuenta con 7 Centros de atención prehospitalaria, distribuidas en puntos estratégicos y regidos por una Sede Central que a suvez gobernia a sus centros operacionales, en cada entidad haciendo - con ello una cobertura Nacional.

Las Unidades que proporcionan los cuidados de salud en casos de emergencia de los diferentes cuerpos, se situan en areas conflictivas y cercanos ó dentro de las estaciones de Bomberos, así tambien se puede encontrar, en todo el Territorio Nacional, Comandos de Rescate de diferentes Corporaciones con personal Técnico especialistea o multidiciplinario, como por ejemplo los grupaos de comando de la Comisión de busqueda y salvamento de la Dirección General de Aeronáutica Civil, dependiente de la Secretaria de Comunicaciones y Transportes. La decision para usar este tipo de personal tiene la particularidad de haber sido seleccionado en base o un perfil idoneo y definido del alumno, para los cuidados de la salud en casos de emergencia, ya qque tomamos en cuentaa las necesidadees poblaciconales y urbanes del País, que require de Personal Profesional, de alta calidad.

Las limitaciones finaancioras varian de acquerdo a Instituciones y groupos afines a estos servicios. Ya que algunas se encuenntran patrocinadas por Secretarias Gubernamentales, otras de ellas por medio de organismmos Internacionales, vinculados en el País y otras tantas de Asociaciones Civiles, que por medio de colectas y donaciones tratando alguna de ellas y de la mejor manera posble ser financiadas ppara llegar a ser autosuficientes.

d) ?Cuales son los conflictos que suurgen con otros cuerpos de emergencia?

REPUESTA

En el marco legar para el desarrollo de estas actividades, se basan een las Leyes publicas y señala:

"Codio Penal para el Distrito Federal, en mamateria común y para la Republica Mexicana en materia Federal."

Articulo 340 - al que encuentre abandonado en cualquier sitio a un menor incapáz de cuidarse asimismo, óa una persona herida, invalida, ó amenzada de un peligro cuqlquiera se aplicara de uno dosmeses de prisión y multa si no se diere aviso de inmediato a la autoridad ú omitera el auxilio necesario cuando pudiera hacierlo - sin riesgo personal.

Este marco trae consigo la ayuda positiva en emergencias de algunas Instituciones y Asociaciones Civiles que se preocupan por elevar el Nivel de la atención prehopitalaria, pero también nos lleva a obtener la accción negativa de algunas cuerpos de emegencias, tomando como amparo esta Ley sin preocuparse de acrecentar sus conocimientos que muchas veces son empiricos deñando la atención e imagen detan honorable labor, ocasionando roces que son faciles de solventar al llegar la autoridad competente al lugar de los hechos demostrando su labor erronea.

e) ?Donde se encuentra el personal entrenado?

RESPUESTA

Donde exista una escuela que ofrezca la capacitacción y adiestramiento para el servicio prehospitalario.

Y que dependiendo del oorganismo que lo proporcione se debe evaluar que:

- Existan metodos de actuaización;
- Haya la innfraestructura para recibir la capacitación;
- Exista la evaluación de los instructores, y demás personal;
- Promueva la capacitación constante; y
- Tener en cuenta su curriculum de la Institución que imparte la capacitación asi como su figura en los servicios de emergencia.

f) ?Quien es el responsable para certificar el entrenamiento y la certificación del entrenamiento?

RESPUESTA

Generalmente dentro de los cuerpos de enmergencia, proveensegún su organigrama con una area de capacitacion lo que a su vez, designa a la persona encargada del sistema interescolar que entre sus prioridades es el mantener continua la superación académica entre sus caapacittadores, ya que por ende esta sse vera reflejada con los educandos.

Es esta le persona la que tiene la responsabilidad de certificar que el individuo (avalando para tal efecto uun funcionario del cuerpo O del area a fin), después del desarrollo de las funciones objetivas de un programa es apto para otorger los cuidades de salud en casos de emergenccia.

Desgraciadamente son escasas las Institucionees que recertifican a su personal después de recibir el adiestramiento.

Dentro de las Instituciones que realizan la recertificación de conocimientos toma como antecedente el curso de egreso del alumno, así como sus horas de servicio en urgencias prehospitalaria, todo esto a manera de un proceso protocolario para coontinuar prestandar la asistencia de emergincias y con otro nivel de capacitación.

g) ?Que material de entrenamiento y curriculum son usados?

RESPUESTA

El material usado para lla capacitación es en base a la didáctica y pedagogía complementandose conn textos de algunas contennidos y tecnologia didáctica a las necesidades circunstanciales para la capacitación y adiestramiento.

PREHOSPITAL AND ADVANCED TRAUMA LIFE SUPPORT PROGRAMS IN MARYLAND

RA M Myers, MD

In the first 4 decades of life, trauma is the leading cause of death in the United States. Only cancer and atherosclerosis exceed it in overall causes of death in all age-groups.

Morbidity from trauma-related injuries is staggering from hospital costs and lost work time. Over 150,000 people die yearly in the United States from trauma related causes.

The quality of the initial assessment and management of the severely and or multiple injury patient has a marked impact on the patient's final outcome. Assessment and treatment begin in the field at the scene of the accident with the prehospital rescuer and extend into the hospital phase with the physician and nurse receiving the injured patient. The "trauma" physician must have a general knowledge of the entire field of medicine, particularly resuscitation. The principles of treatment encompass a wide range: from pediatric to geriatric, airway to shock and any organ system. Thus, an organized and constant approach must be developed towards the traumatized patient to ensure optimal outcome.

The Advanced Trauma Life Support (ATLS) course is dedicated to the first hour of initial assessment and primary management of the trauma patient. It starts at the time and point of impact and continues through initial assessments, life-saving intervention, reevaluation, stabilization, and where needed, transfer to another health care facility The course consists of precourse and postcourse tests, didactic lectures, volunteers made up to represent specific injuries, patient assessment, discussions, development of life-saving manipulative skills, practical laboratory experience, and a performance proficiency evaluation. Upon completion of this course, the physician should feel confident in implementing the basic trauma skills taught in the ATLS Course.

The ATLS Student Course is designed to train physicians in the concepts, skills and techniques used in initial patient management through the use of lectures, skill demonstration and skill practice stations. This educational format affords the physician the opportunity to practice life-saving techniques under live and simulated conditions.

The ATLS Instructor Course is a training program designed to teach the physicians to become ATLS Instructors. The primary emphasis is on teaching methods and techniques in conjunction with the content material.

TABLE 1

ATLS

Type of Course	Classes Taught 1980-1986	Participants Total Courses 1980-1986
Instructor	558	10,976
Abbr. Instr.	87	
Student	2,579 (41)	52,310(820)
GRAND TOTAL	3,265	63,286

Between 1980 and 1986, 3,265 ATLS courses were held in the United States. This resulted in the training of 63,286 physicians. There were 558 instructor and 87 abbreviated instructor courses, resulting in the development of 10,976 instructors. These instructors were then involved with training a further 52,310 providers through 2,579 courses averaging 20 students per course.

The physicians undertaking the courses come from a variety of specialties and subspecialties. Apart from the fact that the course is being promoted and produced by the American College of Surgeons, the American College of Emergency Physicians has now embraced this as one of the yardsticks of practice. Many emergency rooms demand both the ATLS and Advanced Cardiac Life Support verifications before employing a physician in their emergency rooms (accident service). The preponderance of physicians involved with the course are thus surgeons, emergency medicine specialists, family practitioners and anesthesiologists. The only requirement for entry into the course is that the person is a physician with a medical degree. Medical students in their fourth year may enter the course for credits and verification. Non-physicians

may audit the course, but they do not receive continuing medical education credits or verification despite successfully completing the final written exam and practical test.

In Maryland we have developed a parallel program for nurses, who then attend the same didactic lectures and skill stations as physicians. They do not participate in the cadaver or dog laboratory dissection. They do, however, receive nurses' continuing education units (CEU) through their own accreditation body. Having nurses and doctors work together gives them the opportunity to practice their skills as a unit, which is what occurs in the true confrontation of the trauma victim. These conjunctive programs are readily adapted to the ATLS Course; however, separate nurse instructors are required for various practical skill stations in the final patient assessment. We have, in Maryland, the ability to educate 18 nurses and 36 physicians per course.

TABLE 2

Advanced Trauma Life Support Program

Fiscal Years
1985-1989
Number of Participants per Course

	FY85	FY86	FY87	FY88
July	32	41	44	44
August	25	42	42	39
September	21	38	37	36
October	25	42	34	37
November	57	90	77	69
December	26	42	48	54
January	33	39	28	47
February	39	44	37	53
March	28	36	40	40
April	39	50	57	40
May	40	48	52	112
June	71	53	89	75
TOTALS	436	565	585	648
Number of Courses held Per FY	14	13	14	12

In Maryland we have further modified the course by using cadavers for dissection in place of dogs or other large animals, such as sheep or pigs. This is possible through our close work with the State Anatomy Board and the Medical School allowing us to make use of the cadavers that they have obtained. Each student in the dissection laboratory is expected to perform a venous cutdown, peritoneal lavage, chest tube insertion, pericardocentesis, needle cricothyroidotomy and surgical cricothyroidotomy. As part of the demonstration, a thoracotomy is performed to make the students familiar with the chest content and the problems associated with thoractomies in acute emergency trauma. The concept of cross clamping the aorta to manage hemorrhage in the chest is pointed out, particularly for emergency medicine physicians. The anatomy of the femoral region is displayed to indicate the femoral artery, vein and nerve and long saphenous at its junction to help understand the concept of central, long-line insertion through the femoral vessels. It also allows for arterial monitoring in the femoral artery. Many students have specifically come to Maryland to participate in our cadaver dissection instead of the dog lab.

The patient assessment using the volunteer model has been enhanced by having physicians and nurses work closely together to determine the injuries and the method of handling the specific trauma problem. The didactic lectures start with an introduction to the problem of trauma in today's society, stressing the morbidity and mortality incurred. The initial assessment of the traumatized patient is described from the primary assessment, with meticulous attention the "ABCDE"s: airway, breathing, circulation and core, disability (central and peripheral nervous system), and extremities and exposure. This primary assessment is followed by immediate rapid assessment of and intervention for the life- or limb-threatening problems. Once these have been attended to, a detailed secondary assessment of the patient, with the insertion of lines and tubes for resuscitation and stabilization, is performed. At this time, investigations are undertaken as related to blood, urine and x-rays. With the monitoring of the patient and achievement of stabilization, definitive plans are made in terms of the need for surgical procedures and definitive surgery as well as the disposition of the patient.

Each system lecture deals with resuscitation and then the specifics of the system. The airway lecture, for example, deals with upper airway control, techniques and equipment used to affect this, and the total securement of adequate ventilation of the patient. Particular care is given of the cervical spine, assuming that it is fractured or dislocated; this results in a heavy emphasis on its stabilization and protection. Following this lecture is the lecture on shock, describing its pathophysiology and grading. The signs and symptoms of hemorrhagic shock are dealt with as well as the volumes and types of fluids required for resuscitation. These lectures are then reinforced with the practical skills stations of airway management on mannequins (both adult and pediatric). The students are expected to master the technique of intubation using both straight and curved blades. A wide variety of upper airway management equipment is displayed, the various forms of cricothyroidotomy are presented to give the student both an awareness and a

demonstration of the practical skills of achieving these interventions.

The shock station demonstrates the surface anatomy of the major peripheral and central veins and methods of accessing them. Means of monitoring the patient's response to resuscitation are also introduced and demonstrated. The military antishock garments are available for the students to practice on, and the techniques for application and removal of the garment and their indication for use are discussed. The cadaver lab further reinforces this with the practical demonstration of intravenous cutdowns and anatomy of the groin.

Specific lectures on assessment and diagnosis of abdominal, thoracic, head, neck, orthopedic, pediatric, and obstetric trauma are presented. Burn, stabilization, and transfer protocols are discussed. In each of these lectures, the primary survey and initial resuscitation procedures are described. The methods for further diagnosing the patient's problem are developed and accompanied with aggressive resuscitation techniques. This all culminates in the decision to treat the patient locally or transfer him or her to the nearest trauma center.

Throughout the course, emphasis is placed on the clinical assessment of the various symptoms and their acute resuscitation. Each lecture begins with the specific objectives and ends with a summary of the lecture. Actual surgical procedures and maneuvers are not discussed (this is considered beyond the scope of the course).

Practical skills stations involve review of x-rays of neck injuries, spine and extremity immobilization, and the means of doing a detailed secondary assessment. "Mr. Hurt" is a rubber head with eight possible head injuries; students are given 3 to 4 minutes to examine the head and determine what injuries are present.

The moulaged injury made up patients present the most common types of injuries detected in trauma. They may be penetrating or blunt and involve any system such as the head and neck, chest, abdomen, and extremities. The patient could have a fractured femur and a ruptured spleen or neck and facial injuries and abdominal injury. the student must identify the injuries as he or she assesses the patient and the instructor asks what is found as the student examines the various body organs. The student must ask what is heard upon examining the chest. Are the peripheral pulses present? What are the vital signs? What are the responses to treatment interventions? "I have now placed a chest tube, what do I see and hear?" The examiner may respond with, "Air escaping in the underwater drain and the return to normal of breath sounds". As this is a somewhat stressful situation, the student is given two practice cases before the final test on a third moulaged patient.

Nurses and paramedics also take the full course, with exposure to all components except the cadaver dissection model. In its place, the nurses have a special section relating to the various surgical trays necessary for the surgical procedures done in the admitting area. They also learn how to assemble autotransfusion equipment.

In summary, this course provides the student both information on how to recognize, resuscitate and definitively treat the trauma victim in a complete and comprehensive manner. The ability to pre- and posttest the student on facts and access how this material has been interpreted and developed into the practical method of handling the traumatized victim in the immediate phase of postinjury, give the course developers the ability to determine the impact of this educational tool on the student.

FIRST RESPONDER - 40 hrs

- Introduction to emergency care;
- Anatomy and physiology and patient assessment;
- Airway obstruction and respiratory arrest;
- Cardiac arrest;
- Skills development and practice (I);
- Practical use of airway adjuncts;
- Shock, bleeding, and primary patient survey;
- Burns and exposure to heat and cold;
- Skills evaluation and quiz - airway care, pulmonary arrest, cardiac arrest and bleeding and shock;
- Injuries to extremities;
- Skills development and practice (II);
- Injuries to the skull, spine and chest;
- Skills development and practice (III);
- Heart attack, stroke, diabetes and epilepsy;
- Injuries to the chest, abdomen and genitalia;
- Poisons and drugs;
- Emergency childbirth; and
- Instructor administrated written exam.

First responders are ordinary civilians who have completed 40 hours of basic training. There is an introduction into emergency care as it relates to the anatomy and physiology of the human and instruction on how to assess a patient. They are taught to recognize airway obstruction; respiratory and cardiac arrest; bleeding and shock; burns; heat and cold exposure; and extremity, chest, abdominal, and genitalia injury. Emergency childbirth, heart attack, strokes, diabetes, epilepsy, poisons, and drugs are also discussed in this introductory program. Practical skills stations related to airway adjuncts, the arrest of bleeding, the treatment of shock and immobilization of extremities are given to reinforce the lecture program. This is followed with a written exam, which must be passed before the person can advance to the next phase. In essence, this is much like the first aid or Red Cross course given elsewhere.

First responders are not permitted to administer drugs or oxygen.

EMERGENCY MEDICAL TECHNICIAN AMBULANCE (EMT-A) - 110 hrs

- Bleeding and shock, advanced;
- Military anti-shock trousers;
- Principles of musculoskeletal care;
- Fractures of upper and lower extremities;
- Skills development and practice (IV);
- Injuries of the head, face, eye, neck, and spine;
- Skills development and practice (V);
- Skills evaluation and quiz - injuries (Mod. II);
- Medical emergencies I;
- Medical emergencies II;
- Emergency childbirth;
- Burns and hazardous materials;
- Environmental emergencies;
- Psychological aspects of emergency care;
- Lifting and moving patients;
- Principles of extrication;
- Skills development and practice;
- Skills evacuation and quiz - medical emergencies, childbirth, environmental emergencies, and lifting and moving patients;
- Ambulance operations I - emergency vehicle driving, records and reports, and communications;
- Ambulance operations II - vehicle and equipment maintenance, scene control, disasters, etc.;
- Situational review;
- Final written exam (MIEMSS conducted); and
- Final practice evaluation of skills (MIEMSS conducted).

In the upward career ladder, this is the next program, with a total of 110 hours of training over and above the first responder course. The same materials are studied, but in more detail, skills are added such as the use of the military antishock trousers, lifting and moving patients and extrication from sites of accidents. Ambulance operations are also explained such as driving, record keeping, reports and communications on the two-way radio, maintenance of the ambulance, control of scenes and the roles of ambulance crews in disasters. Medical emergencies, hazardous materials, environmental emergencies, and psychological aspects of emergency care are described. As each series of lectures and skills is completed, examinations are given to continue advancing in the program.

Students who are volunteer prehospital care providers may require 9 to 12 months to complete the 110 hours of training. The course can also be taken in a condensed version over a 3-week period, provided it is taken full time. This is usually done by people working full time in ambulance rescue.

CARDIAC RESCUE TECHNICIAN (CRT) - 270 hrs

- Roles and responsibilities;
- Human systems and patient assessment;
- Shock and fluid therapy;
- General pharmacology;
- Respiratory system;
- Cardiovascular system,
- Telemetry and communication; and
- Esophageal oral airway.

This person has to engage in 270 hours over and above the original 40 hours for the EMT-A. In CRT training, much greater emphasis is placed on all the previously mentioned lectures. Responsibilities are added in terms of assessment of patients and better understanding of shock and fluid resuscitation. Pharmacology is discussed for the first time. The cardiovascular and respiratory systems are studied. The student learns about cardiac rhythm, arrhythmias, and myocardial infarction. The use of telemetry and drugs to control the situation. Introduction to more sophisticated airway management through the esophageal oral airway (EOA) and the esophagotrachio gastric airway (ETGA) is undertaken. Credits earned in this program may be used towards the ultimate EMT-Paramedic program (7 units of the paramedic program are undertaken by the CRT).

AVIATION TRAUMA TECHNICIAN (ATT) - 318 hrs

- Roles and responsibilities;
- Human systems and patient assessment;
- Shock and fluid therapy;
- General pharmacology;
- Respiratory system;
- Cardiovascular system;
- CNS;
- Musculoskeletal system;
- Soft tissue injuries;
- Pediatrics and neonatal; and
- Telemetry and communication.

Three hundred and eighteen hours of training are required in this course; 11 of the 15 units of the paramedic training course are taught. The ATT, particularly in Maryland, is the copilot of the Med-Evac helicopter and is responsible for the patient during transport from the scene or another hospital to the trauma center. It is particularly difficult to manage the patient during the helicopter flight, because the noise of the aircraft drowns out the sounds of pulse beat and the vibration interferes with feeling the actual pulse. The ATT course emphasizes airway management and shock control. The ATTs are ultimately responsible for determining whether it is safe to transport a person by

helicopter from the field or whether that person should go by land transport to the nearest hospital for further stabilization prior to being transported to the trauma center by helicopter. In certain areas of the country, ATTs have been replaced by flight nurses and physicians who have general trauma training, as outlined previously, and are able to perform many more interventions for the patient both prior to leaving the scene or hospital and during flight.

EMERGENCY MEDICAL TECHNICIAN PARAMEDIC (EMT-P) - 410 hrs

- Roles and responsibilities;
- Human systems and patient assessment;
- Shock and fluid therapy;
- General pharmacology;
- Respiratory system;
- Cardiovascular system;
- CNS;
- Musculoskeletal system;
- Soft tissue injuries;
- Pediatrics and neonatal; and
- Telemetry and communication.

The EMT-P level is the pinnacle of prehospital training. These students are trained at local colleges and universities with specific programs set up in compliance with the US Department of Transportation. The paramedic course is nationally standardized so that the person successfully undertaking it will have the equivalent of national boards and can then transfer his or her practice to any region in the country. The curriculum includes 15 units accompanied by associated practical skills demonstration. The units include telemetry and communication, rescue, management of emotionally disturbed patients, pediatrics and neonatal discussions, obstetrics/gynecology, medical emergencies, soft tissue injuries, musculoskeletal system, central nervous system, cardiorespiratory system, general pharmacology, shock and fluid therapy, human systems and patient assessment, and roles and responsibilities. The minimal requirements for this are 410 hours, however depending on the college, this may range from 410 to 650 hours. In essence, these people are fully committed to the prehospital phase and are full-time employees in the services.

Maryland has divided its rescue area into five regions. the most densely populated region is Region III, which includes Carroll, Harford, Howard, Anne Arundel, and Baltimore Counties and Baltimore City. In 1985 and 1986, ambulance units in Region III responded to 165,144 and 180,660 emergency calls respectively. The second densest population in the state is in Region V. In 1986, this region was responsible for 98,708 responses to emergency calls. In 1986, emergency responses in Maryland totaled 334,225.

It is essential that prehospital care providers maintain their level of skills and clinical knowledge. To do this, they are required to take continuing hours of education on a regular basis. The EMT-P is certified for a 2-year period and is required to complete 72 hours of training in that period. The ATT has a 2-year period with a 40 hour requirement. The CRT has a 1-year certification with a 20-hour requirement, and the EMT-A a 3-year certification with a 24-hour requirement. In Maryland, 14,329 EMT-As, 2,268 CRTs, 35 ATTs, and 181 EMT-Ps are certified currently. We are also training and newly certifying 70 EMT-Ps, 8 ATTs, 400 CRTs and 2,500 EMT-As annually. There is thus a heavy involvement in prehospital training.

TABLE 3

Maryland Prehospital Providers

Provider	Cert. Period	Total To Date # Cert. Currently	Newly # Cert. Yearly	Cont. Educ. Hrs Rcrt Per Year
EMT-P	2 yr	181	70	72
ATT	2 yr	35	8	40
CRT	1 yr	2,268	400	20
EMT-A	3 yr	14,329	2,500	24

The emergency medical system in Maryland is a very coordinated and well-balanced program. It is one of the few state organized and controlled systems in the nation and is actually now a model for other states. Within the trauma system, the Maryland Institute for Emergency Medical Services Systems (MIEMSS) is responsible for the maintenance of standards for both the prehospital and inhospital trauma and emergency programs. The institute is authorized to designate trauma centers: the state currently has 11 regional trauma centers, the majority at the American College of Surgeons' (ACS) Level II with some at ACS Level I. Specialty referral centers have also been designated and include medical facilities for adult trauma, spinal cord and head trauma, hand trauma, eye trauma, burns, hyperbaric medicine, neonatal centers, and pediatric trauma. Thus, the prehospital and intrahospital phases of emergency medicine are coordinated through a single institution, providing for echelons of care in the field training programs and triaging and in the hospital phase with specialty referral systems.

The Advance Cardiac Life Support program developed by the American Heart Association has been developed to cover medical emergencies and is open for all people, physicians, nurses, prehospital providers such as Paramedics and CRTs. An overview of the topics discussed is shown in Tables 4. The number of ACLS participants in Maryland is presented in Table 5.