A Conversation with the Director, MIEMSS

In an effort to record many of the personal philosophies of R Adams Cowley, M.D., this section is offered to make his thoughts a matter of record:

First Question: What are the critical challenges facing EMS in future years?

- Economic instability over the past several years has created funding constraints in the progress of emergency medical services. In order to offset this impact, operating efficiencies and asset utilization must be improved.
- Federal grants will no longer be available to initiate and continue newer projects for EMS. This situation should accelerate the greater involvement of local communities in the further development of EMS and the delivery of emergency medical care to the patient. In the past, the State and the Federal Government have made available funding for the improvement of EMS. Now, the time has come for the local jurisdictions to increase their involvement for the continuation of such health care. It will be the task of each local community to establish the type of emergency medical services demanded by its citizens.
- Another challenge faced by the Institute and the entire medical community is a loss of the spirit of volunteerism. There are many reasons for this loss. Included in these

is the change in the family unit and the living styles of the individual. However, volunteers are needed to carry on the fire and emergency medical services necessary within a community. In Maryland, volunteers provide over 85% of these services and if these services are withdrawn, the taxes necessary to provide them would burden the citizen with countless millions of additional dollars. I have heard it said that most Emergency Medical Technicians-Ambulance do not volunteer because of the burden of training that is thrust upon them. Let me emphasize that this training is not mandatory but voluntary. The goal of EMS training is to develop a cadre of highly trained individuals that are prepared to carry out the requirements of field intervention medicine (pre-hospital care) so necessary to save a life. In my opinion, the time has arrived to consider new approaches to EMT training. The technology available to accomplish this today, did not exist ten years ago. What I am talking about is modules of training provided by video cassettes and through satellite transmissions. The implementation of such innovations will cut costs and increase individual proficiency. Incidental to these innovations would be correspondence courses for further professional development. An ambulance company could establish its own unit learning center and promote group study which would increase personal individual

interactions and thus establish better field medical intervention teams. Each ambulance company could then have company level trainers or instructors to train its own individuals to standards without the necessity of travel and increased instructor costs. A real commitment on the part of individual ambulance companies will be necessary to implement this type of individual training. In this manner, a system of sequential training at the local level would be developed. The EMT-A Refresher Training Course should become a skills qualification test in which hands-on tasks are presented and entire ambulance companies would be offered an opportunity of running through such training. I can see this as a "fun-type" situation instead of an austere environment of formal testing. The existing turbulent economics demand changes of this kind if EMS is to survive. The EMS system must be looked upon as a system that will distribute knowledge and information to its many components, and this must be an embodiment of practical knowledge if advances in field medical care are to continue. Knowledge must be a productive force that provides a continuity of patient care.

Second Question: Will the number of trauma centers existing in the United States increase?

- In the past two years, there has been an increased emphasis in the establishment of trauma centers. I attribute the reason for this to the greater public awareness of the trauma victim. The media has publicized the need for such

centers through magazine articles and television programs. The book, Shock Trauma, has served the purpose for which it was intended and that is to offer more information on the actual internal workings of a trauma center. I am hopeful that the television special "Shock Trauma" will also emphasize the need for such centers.

- When you consider that 142 citizens lose their lives on the highway daily, you thus realize the need for establishment of additional such centers. In my opinion, ~~trauma~~ as has often been said, trauma is the leading cause of death in the young people. The future of our society as well as the increase in our gross national product depends on the saving of individuals lives that have been lost through trauma.

Third Question: We talked so much about Trauma as the Killer of Young People. How About the Elderly?

- The human body as a system of systems becomes increasingly susceptible to sickness, finds it harder to fight off disease, takes longer to recover, and has more organs that are in the need of repair. At present, those over 65 represent 11% of the population and account for an estimated 40% of the physician office time, 33% of hospital time, and 25% of all prescription drugs.

- You see approximately 80% of older Americans have some chronic condition. By the end of this decade, the number of U.S. men and women over the age of 64 will reach 30 million and the life expectancy presently set at 73 years will increase to at least 78 years. The majority of these individuals require health care for acute infectious diseases and for treatment of chronic diseases such as cardiovascular disease, arthritis, diabetes, central nervous system ailments, cancer, and the infectious diseases. Control of these conditions; have medical needs that can be met by the use of various pharmaceutical agents, that is drugs are available to treat most of these conditions. The great killer diseases of the past, lobar pneumonia, scarlet fever, typhoid, poliomyelitis and small pox have been conquered by antibiotics and immunizations. Some of the major problems that will confront the physician in the future, will be diseases that result from the aging process. But, trauma will remain one of the important areas for the utilization of the surgeon. Trauma can only be reduced by public safety campaigns which require many years to bring about changes in human behavior.
- Diseases of the heart and blood vessels afflict more than 65 million Americans and account for more than 60% of the deaths in the United States each year. These include more than 600,000 heart attack deaths, and 175,000 stroke deaths.
- Some 35 million Americans have hypertension as defined by the World Health Organization criteria, that is, blood pressure of 160/95 or higher, and death in these individuals can be lowered considerably. Through biomedical engineering

remarkable progress has been made in constructing body parts for replacement. For example, every year, over 200,000 people whose joints were crippled by arthritis receive artificial hips, knees, shoulders, finger joints, and elbows.

NOTE 1 - Put note 1 on page 7 here

- Biomedical engineering has opened a new frontier.
- In the future, synthetic blood vessels could replumb the circulatory pipe line of 300,000 people with vascular diseases.
- The mass production of an effective artificial heart could save between 17,000 and 50,000 people yearly from death due to heart disease.
- Artificial hearts will be the supportive therapy of the future.

Note 2 - insert note 2 from page 7 here →

- A myoelectric hand appears so lifelike that it can pick up objects with ease. This hand is controlled by electrodes placed in the forearm stump that activate the motor that controls the hand.
- A new synthetic blood, Fluosol-DA, a Fluorocarbon-based concoction performs the duties of red blood cells by carrying oxygen and carbon dioxide to and from the body tissues. This substance has a real life-saving potential in life-saving situations, and can be used until a matched blood donor is found or until the body replenishes its own supply of natural blood.
- A diabetic in the future, will be able to receive insulin from a small refillable artificial pancreas placed in the diabetic's ~~blood~~ chest wall.

- Also, substitute vocal cords can be fashioned from leg and arm tendons.
- A multi-layer combination of shark cartilage, cowhide, and plastic is the bioengineer recipe for an artificial skin for burned patients. This skin is a thin and protective sheath and the body doesn't reject it because it doesn't cause infection. This skin substitute has been used to cover as much as 60% of a patient's body.
- A new plastic unbreakable heart is being tested in humans beginning this year. The heart's plastic and aluminum ventricles are controlled by a power supply outside the body to which are connected two six foot tubes that run from the chest to the power system.

Note 2 Insert on page 6 as indicated.

- In arthritis, a silicone rubber hinge is being used to reconstruct finger joints in arthritis sufferers. A liver support system is being developed and will, at some time in the future, assist patients with liver disease.

Note 1 Insert on page 6 as indicated

- A single electrode about the size of a pin head can implanted on the cochlea in the inner ear in order to provide better hearing
- Experimentally, a miniature TV camera so small that it fits into ~~the~~ a glass eye can transmit images through a computer built into the frame of the patient's special eye glasses in order to enhance visibility; although this doesn't produce perfect vision, it does assist in better sight for many blind patients.

Fourth Question: How can the cost for this sophistication be controlled?

- The med-evac helicopter will play a greater role in the future of emergency medical services care delivery.
- This is logical when consideration is given to the allocation of extremely expensive resources that must be available in order to deliver proper patient care.
- The area of "high technology" is increasing. High technology is the label attached to semi-conductors, computers, and other electronic products which are increasing in usage within the medical community. High technology products carry with it great capital investments and transcend traditional barriers in the practice of medicine. As a consequence of this, there is needed an emphasis on co-operation and coordination to encourage the use of these products and thus reduce the capital costs that occur with duplication of such assets. Expenditures of this kind cannot be borne by one hospital or one medical center. The Med-Evac helicopter will be used for transportation to these centers.

* make this the closing paragraph

- "The future," according to science writers, "will be what circumstances the human will and the human intelligence make of it."
- Change must take place without a disruption of the sense of continuity that is essential as we continue to build patient care delivery.
- Special task forces and study groups must be established to analyze and evaluate the actions that must be taken on a formal ~~five-year~~ basis five years hence. This is the only way that continuity may be continued.

- The simple equation for the future is cost control and increased productivity. In order to accomplish this, we must look into every phase of our organization questioning every procedure no matter how precious and hallowed by usage and tradition. Through this critical process, a more efficient organization will emerge that will be able to respond quickly and imaginatively to the patient care delivery systems.
- Ultimately, the Institute's ability to thrive depends on the people that work within its organization. These people offer a professionalism and dedication that is unequaled and these men and women will guide the Institute in the years ahead and thus assure a greater growth as well as a special sense of stability and maturity that is so necessary to continue survival.
- It is people that provide the vital link between the Institute and the field. They help create and shape health care delivery services for the citizen. At the present time there exists a state-of-the-art electronics/ computer network that can link major medical centers and offer consultation through the transmission and receipt of medical information quickly and accurately. Such services give rise to greater productivity and improved communications for saving lives. This is one of the dimensions of cost-crisis that will offer specific ways to hold down the ever increasing costs of medical care.

- Medical control is one of the challenges that faces the emergency medical services systems. Although medical societies, not the states, control medical licensure, the states must be able to set standards for the certification of physicians as medical control officers.
- A physician, to qualify for medical control, must be familiar with EMS training, procedures, and protocols, and there must be a rapid acquisition of information for making immediate critical decisions.
- Computer assisted exercise simulations have been developed and should be used and designed to document the experience in exercises of large magnitude. The computers available today have evolved numerous methods that enable a group to simulate the processing of critically ill and injured victims into specialty referral centers. The scenarios for disaster or for emergency preparedness exercises can be used to stimulate thought and the players can become the decision makers as the computer offers problems for resolution.

AJG/aml
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