INTERNATIONAL CONFERENCE

EMERGENCY HEALTH CARE DEVELOPMENT

CALL TO ACTION
FOR WORLDWIDE EMERGENCY HEALTH CARE DEVELOPMENT IN THE 1990s

The delegates to the International Conference on Emergency Health Care Development, out of concern for the increasing worldwide human and economic loss due to trauma and other medical emergencies, have reached the following understandings:

- Emergency health care (EHC) consists of the timely provision of those preventive and curative interventions, which can relieve pain or prevent disability or death.
- Emergency health care involves the management of injury (codes E800-E999 of the International Classification of Diseases), acute medical illness, and acute emotional illness.
- Emergency health care is a basic need for all people.
- Injury is responsible for increasing morbidity and mortality in countries of all levels of economic development, and frequently has a much more severe effect on children and the working age population. Many injuries are preventable through health promotion and simple modifications in the home, school, and work environments.
- Recent advances in health care organization and medical technology have made it possible to significantly decrease the adverse effects of health emergencies.
- When an injury or sudden illness occurs, the first response is usually provided by family members or bystanders. Community education can improve this response.
- The majority of medical and traumatic injuries typically present to the primary care system.
- When disasters occur, the first medical response is provided by local providers of routine emergency health care.

Based on these observations, we call for the following actions:

- All authorities concerned with health at national, regional, and local levels should recognize emergency health care as an integral part of the primary health care system, and should ensure that their primary health care systems are capable of responding to emergencies.

- All authorities concerned with health should make optimal use of local personnel and the community at large by employing improved management techniques and training.

- All authorities concerned with health should integrate into existing and future public education activities curricula on injury prevention and response to emergencies and disasters.

- The health care community should make its contribution to the "International Decade for Natural Disaster Reduction" by:

  a) Strengthening local capabilities for responding to multiple casualty incidents using local personnel;

  b) Ensuring that national committees for the decade are fully aware of the potential of emergency health care services in effectively reducing the impact of disasters; and

  c) Adopting prevention and preparedness measures likely to reduce the number of casualties in a disaster.

- Additional research in emergency health care is needed. Funding agencies should support research on emergency health care delivery systems, intervention effectiveness, and training methodologies.

- World health authorities should collaborate in their efforts to bring to the attention of policy makers the public health consequences of health emergencies, and the need to improve local urgent health response capabilities.

- International health agencies and development organizations should collaborate in funding and assisting emergency health care development as a primary health care infrastructure improvement program.

- National and international disaster preparedness offices and agencies should work carefully with local emergency health care directors to coordinate plans for response to potential large scale events.

This resolution was developed by an Ad-Hoc Committee of the Conference. It was discussed, amended, and approved by the full Conference on 18 August 1989.

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FOREWORD

Medical Care Development, Inc., planned the International Conference on Emergency Health Care Development as a step toward raising consciousness of the need for improved emergency health services and disaster planning and management throughout the world.

In preparing for the conference, MCD sought leading experts in all areas of emergency services and disaster planning who could help the participants to find solutions to problems within their countries. We also sought speakers who had recent experience in dealing with emergency situations, such as the Armenian earthquake, and could explain practices that were successful and others which did not work very well. The papers included in these proceedings cover most of the presentations at the conference and collectively represent the state of current international thought on emergency medical services and disaster planning and management.

MCD acknowledges the financial and in kind assistance we received from the U.S. Public Health Service and the U.S. Department of Transportation. Translation costs for the conference were partially covered by WHO-PAHO, and several other agencies covered the costs for international participants, thus assuring that the conference reflected worldwide emergency health care concerns.

MCD and the sponsors and collaborators of the International Conference on Emergency Health Care Development hope that you find these proceedings useful in planning for advanced emergency health care systems in your country. In addition, we all stand ready to assist with emergency health care development in the future.

John A. LaCasse, Eng.Sc.D.
President
Medical Care Development, Inc.

INTRODUCTION

As I reviewed each paper for the proceedings of the International Conference on Emergency Health Care Development, I recalled the enormous amount of work individuals from all continents contributed to make the Conference a success. It was an extraordinary event where 500 delegates from 72 countries discussed at length, the needs and direction for emergency health care development in the next decade.

Results would not have been possible without representation from the three major disciplines of primary health care, disaster management, and emergency medical services. These groups reviewed each of their own specialty areas and discussed ways to integrate emergency health care into primary health care systems and disaster management plans. Discussions and recommendations thus were positive and further defined the need and direction of emergency health care.

The Conference proceedings cover numerous topics in detail and give practical solutions to many problems found throughout the world. In fact, very few papers addressed advanced technical difficulties but rather focused on universal concerns found in nations of all economic levels, such as: lack of personnel, training needs, the importance of planning, the role of epidemiology in planning emergency health care, how to plan for change, communication problems, coordinating efforts during a disaster, and how to retain volunteers.

With great pleasure, the Editorial Board reviewed and compiled the Conference presentations in order to capture and formalize the Conference. We hope these proceedings will be a helpful document that summarizes the Conference activities and serves as a valuable resource for continued and sustained emergency health care development.

Each chapter covers a wealth of information with an international perspective and collectively the proceedings offer a fascinating history of emergency health care development in many nations. A more subtle fact that threads its way through the proceedings was proof of major strides in emergency health care development, despite financial constraints, political barriers, and limited resources Although the epidemiology, geography, and political climate are quite different among nations such as Ethiopia, Brazil, Saudi Arabia, Taiwan, Spain, France, and the United States, emergency health care has a strong cadre of dedicated talented people who address many common issues and make things happen at their local and national levels. Each chapter gives written testimony of exciting emergency health care activities, ongoing issues, and many clever and practical solutions. We sincerely hope the proceedings will be valuable for you in improving your emergency health care services

Completion of these proceedings would not have been possible without the long hours of editorial review by:

- Dr. Richard Bissell, Conference Coordinator, currently at the National Study Center;
- Mr. Leo Bosner, EMS Consultant, DC Partners of Brasilia;
- Dr. Bo Brismar, Associate Professor, Department of Surgery, Huddinge University Hospital, Stockholm, Sweden;
- Mr. John Chew, Highway Safety Specialist, National Highway Traffic Safety Administration, US Department of Transportation;
- Dr. Harold Fleming, Senior Program Funding Officer, United Nations Children's Fund;
- Dr William Gunn, Director, Disaster Management Division, International Civil Defense Organization;
- Dr. Louis Emmet Mahoney, Conference Chairperson, Health Resources and Services Administration, Public Health Services, Department of Health and Human Services; and
- Dr. Eric Noji, Assistant Professor of Emergency Medicine, Department of Emergency Medicine, Johns Hopkins University;
- Dr. Sharron Silva, Evaluation Associate, Programs and Services Department, American Red Cross.

Jean Conover
Managing Editor
Medical Care Development International

CHAPTER 1: INTRODUCTIONS, CONFERENCE THEMES, AND CONCLUSIONS

CHAIRMAN'S FOREWORD

Louis Emmet Mahoney, MD, DrPH
Chairman, Conference Advisory Board
Health Resources and Services Administration
Washington, DC

The purposes of this Conference were several. The Conference was to review needs for emergency health care in different political and economic environments. Delegates were to review the status of emergency health care systems in developed and less developed countries, and to exchange information on strategies for adapting emergency care to different needs and different economic milieus. Finally, the Conference was to promote the development of emergency health care as part of the primary care services of all areas.

The timing of this Conference in 1989 was planned to coincide with the initiation of the International Decade for Natural Disaster Reduction (IDNDR) and with the beginning of the World Health Organization's campaign "Health for All by the Year 2000."

The national and international bodies who cosponsored the Conference felt that this time was optimal for the initiation of a ten-year strategic plan for development of the emergency care aspects of primary care systems

The Conference achieved its objectives. More than five hundred leaders of the international emergency and disaster medical community attended. Delegates from 78 countries were present. Scores of international official and voluntary agencies, health ministries, and educational institutioons active in emergeny health care were present. These Proceedings illustrate the breadth and depth of their examination of the status of emergency health care in the world-wide milieus which they represent.

These Proceedings were assembled and edited by an Editorial Committee comprised of representatives of several sponsoring organizations and interested delegates. They represent the majority of the papers and discussions presented during the Conference We apologize that some excellent papers that were presented are not represented here. Some papers have been submitted for publication elsewhere in national or international professional journals. For these, publishers' rules in regard to prior publication have led their authors to choose wider publication in professional journals over publication in these Proceedings. A number of panel discussions or extemporaneous addresses, for which no written paper was submitted, have been made available already on audio tape. In a few cases the authors or sponsoring organizations were not able to forward complete manuscripts to the Editorial Committee in time for inclusion in this document. In such cases, we have attempted to insert an author abstract or a chairman's summary when feasible.

We are pleased to present you with these Proceedings. The Editorial Committee and the sponsors hope that they are of use to all people and agencies interested in the development of emergency health care systems, wherever in the world they may be.

The Conference gratefully acknowledges the support of all sponsors, including the Health Resources and Service Administration, US Department of Health and Human Services; the National Highway Traffic Safety Administration, US Department of Transportation; the Pan American Health Organization, World Health Organization Regional Office for the Americas; the United Nations Disaster Relief Organisation; and the United Nations Children's Fund. We thank them for their financial support and for the participation of their representatives. We thank the meeting organizers, Medical Care Development, International, for their arduous labors in planning and organizing the Conference.

We also wish to acknowledge the contributions of the Conference Advisory Board, the Editorial Board who assembled these Proceedings, and the individual staff of MCDI and sponsors without whose dedication the Conference would not have been possible. These individual contributors are listed in the following pages.

We thank all delegates for their contributions to the Conference, to these Proceedings, and to the improvement of emergency health care throughout the world.

Beir bua agus beannacht!

WELCOME

James O Mason, MD, DrPH
Assistant Secretary for Health
and Acting Surgeon General,
US Public Health Service
Department of Health and Human Services

On behalf of the Department of Health and Human Services and the United States Public Health Service, I am very happy to welcome you to Washington, DC, for this important International Conference on Emergency Health Care Development.

Secretary Sullivan has asked me to extend to you his personal greetings and his regrets that he could not attend He is fully aware of the need for well-functioning emergency health service systems, and he sends his best regards and hopes that the Conference will achieve its goals.

An international conference on the subject of emergency health care is very timely. The United Nations

has proclaimed the 1990s as "the International Decade for Natural Disaster Reduction." The World Health Organization has proposed the goal of "Health for All by the Year 2000."

Here in the United States, we are building 1990 health objectives for our own Year 2000 project. Twenty-one priority areas have been identified for that project. Specific, measurable objectives relating to emergency medical services will be part of two priority areas - the area of preventive services and health education, and the area of prevention of unintentional injuries

There is good reason for this. Injuries are the fourth leading cause of death here in the United States, behind heart disease, cancer, and stroke. Injuries are the leading cause of death among Americans under the age of 40.

In 1986, injuries accounted for more than 3.7 million years of potential life lost in this country. This represented 31 percent of all years of potential life lost from all causes of premature death.

Because a large proportion of injury victims are young, many more years of potential and productive life are lost because of injuries than are lost because of late mortality from cancer or heart diseases.

Motor vehicle fatalities, as you might expect, are the leading cause of unintentional injury deaths. I'm happy that we in the United States have made significant progress in reducing this particular cause of death. We have reduced deaths from this cause almost 9 percent between 1978 and 1986. We intend to reduce them still further by the year 2000.

The cost of all unintentional injuries in the United States is estimated to be in excess of $100 billion for 1985. Just two categories - motor vehicle crashes and falls - account for some $86 billion of this total.

Another area of concern to you at this Conference is that of disaster health care. Disasters not only cause trauma to people; they also damage local health care systems and destroy health facilities. These medical emergencies have proven to be among the most difficult problems that health professionals world-wide have to deal with.

Whatever the cause of a medical emergency, we must have a way to care for the victims.

Victims of medical emergencies require multiple services. These services include:

- Rescuing them at the scene;
- Stabilizing them in the field,
- Transporting them to appropriate medical facilities; and
- Providing them with the definitive care they need.

These multiple services require highly-trained personnel and appropriate resources - ambulances, helicopters, communications, other equipment, and facilities. Together with their management and their administrative support, these elements are the components of a viable emergency health care system.

Emergency health care systems should be discussed in the context of the overall health care capabilities of a community or a region. They must be designed to meet local needs and available resources, and they must effectively serve the needs of their users. The principal purposes of this conference will be to:

- Define the kinds of emergency medical problems that exist in different parts of the world;
- Ascertain the different types of medical care needed to treat those who are injured;
- Review systems that are culturally and economically appropriate; and
- Discuss how to make them a part of the local health care system.

We of the US Public Health Service support these purposes. For that reason, we are pleased to join with the National Highway Traffic Safety Administration of the US Department of Transportation in cosponsoring this Conference. In addition, we have also received the support of the World Health Organization, the Pan American Health Organization, UNICEF, and the United Nations Disaster Relief Office.

All of us expect to benefit from the results of this conference We hope that your discussions will reveal new ideas and new ways of bettering emergency medical care here in the United States, as well as in your own countries and around the world.

Working together, sharing our experiences, we can gain new insights that may result in saving lives when future medical emergencies occur around the world, as they surely will.

We welcome you to our nation's capital. We thank you for being here today to participate in this important conference and wish you every success in your deliberations on the future of emergency health care.

WELCOMING REMARKS

Major General Jerry R Curry
Administrator
National Highway Traffic Safety Administration
US Department of Transportation

The National Highway Traffic Safety Administration of the US Department of Transportation is very pleased to be part of this important International Conference. The international health care community shares common problems which I believe also have many common solutions. Even during a period in history where "high tech" is an everyday word in health care, and where information transfer in many areas of our everyday life is

commonplace, we in health care, in many cases, have been unsuccessful in our efforts to share our success stories, our failures, and our lessons learned. This happens internationally, within our own country, and even at the Regional level. This International Conference specifically adresses that issue. The stated objectives of this Conference are clear in that we are here to learn and exchange ideas and concepts. I commend the organizers for that approach.

As we prepare to embark on this experience, I would like to offer you two challenges. These arise from painful experiences that we in the United States are learning from our efforts to improve emergency health care for our people.

The first challenge is that you consider the delivery of emergency health care within the context of a system which contains several interrelated components. I hope you will notice, as I did, that the conference sessions and workshops specifically address the components of emergency health care as parts of emergency health care systems, that include elements such as training, communications, finance, transportation, and the like. An effective emergency health care system must be built on a system and not solely on the strengths of one or several components. We have learned that the best prehospital program in our country cannot save lives if it does not have an appropriate hospital to deliver its patients to, or if that hospital cannot recognize and treat them effectively. Conversely, the most marvelous hospital in the world will not save lives if there is no prehospital program to rescue patients and deliver them to that marvelous hospital. Neither the prehospital nor the hospital component will make much difference if there is no method for access and if there is not the knowledge that an emergency health care system exists at all.

The emergency system must, I believe, include preventative measures that fall outside the scope of the more traditional medical setting. We in the United States consider highway trauma as a major public health issue. Trauma costs the American people nearly 133 billion dollars annually Nearly 50,000 people a year die in car crashes. As part of the system, and in order to reduce death and dying on the highways we must include programs to reduce drunk driving, increase safety belt use, and improve enforcement of our traffic laws. We have learned that without this systematic and comprehensive approach we cannot affect this tragic loss to society.

My second challenge to you also comes from painful lessons learned, and I think it is very important to this International gathering. I challenge you not to view emergency health care development as a jigsaw puzzle where the solution lies in the placement of a specific piece of specific color, of a specific shape, that can only be placed in a specific location. View it as a recipe where the ingredients are the components but you control the amount, the order, and the size. A pinch of this component may be appropriate for one country where a cup might be better for another. We are currently experiencing the results of trying to "make that piece fit" as we address rural trauma in our country. In the past we have taken the urban emergency medical services model and tried to make it fit our rural population. It did not work. We now recognize that there is not one urban model for an effective emergency health care program. Each locality has unique needs that must be addressed. There are many magnificent, but different models for emergency health care systems. I challenge you to choose the models and the mixture of components that properly addresses the special needs of your area.

We of the Department of Transportation are pleased to participate with you in this important conference. Please accept our appreciation for the support that you have given by your attendance, and our thanks for sharing the fruits of your experience with us.

CONFERENCE CONCEPT

Richard A Bissell, PhD
Medical Care Development International

This conference is taking place as a result of almost two years of hard work by a group of people who are convinced that some changes are needed in the way the world responds to emergencies that threaten the health and lives of individuals as well as masses of people.

The conference was conceived by a group of people with varying backgrounds who had come to common conclusions. In order to provide an example that will help put some of these conclusions into perspective, I would like to take a couple of minutes to tell you how I came to understand some of the problems we will be talking about. I will then connect the problems to the objectives for this conference.

I spent several years working with training and guiding community health workers in Latin America. I was thrilled with the idea that well-organized and moderately trained community members in some of the hemisphere's poorest communities could make a notable impact on the community's health status, without resulting in a lot of expensive physician input. I was impressed with the seriousness with which community health workers tried to prevent and cure the ills of their people. But time and time again I saw their frustration and pain when they were unable to help their people through relatively common and simple health emergencies, especially trauma, because their training did not provide them with the necessary background to deal with even the most common emergencies.

Years earlier I had worked as an emergency medical technician and paramedic, and I knew that people of average intelligence and unsophisticated educations could be trained to effectively deal with many common medical emergencies.

During the time I was studying at the University of Colorado School of Medicine, I was lucky enough to do a policy internship here in Washington at the US Public Health Service, Division of Emergency Medical Services, and later returned to Colorado to write that EMS section of the state health plan. In both positions I repeatedly saw that disaster response planners rarely communicated with the providers of routine emergency medical services, nor did the clinical providers put much thought into disaster preparedness. Later I saw the same pattern repeated in several jurisdictions in Latin America and the Middle East.

I spent a year in the Dominican Republic studying the epidemiology a hurricane disaster, and the medical and public health response to the disaster. I noted the same phenomenon that other researchers had found in earthquakes: that those who are injured or trapped in a disaster are rescued by local neighbors and public safety agencies, and receive their first care from local clinicians. It simply takes too long for outside clinicians to arrive for them to be able to help anything more than a small percentage of those who need immediate medical care. It thus became clear to me that, especially in poor countries, the best health sector preparation for disaster is to teach local people to handle routine medical emergencies, so that they will be available, trained, and practiced when a large event occurs.

Finally, when I started work in my current position dealing with a program to develop a national prehospital emergency medical service in the Middle East, I became aware that there were similar projects underway in several other countries, but that none of the people involved were talking with each other. This lack of communication and sharing of experience dooms all of us to commit the same mistakes over and over again.

I think you can begin to see that out of the experiences of just one person, some connecting threads begin to develop. When these experiences were added to and compared with those of the other people who helped develop this conference, some common conclusions were reached.

Medical emergencies, including trauma and life-threatening acute medical problems, constitute a major public health problem throughout the world. Their importance as major causes of death and disability has risen steadily as improvements are made in the control of infectious diseases, yet few health care systems have designed specific programs to deal with emergencies.

Medical emergencies typically present to the local primary health care system. In some localities the PHC system may offer the only care available, in others it may play the role of initial assessment, stabilization, and referral to a higher level of care. Regardless of the details, emergency medical care is the responsibility of the PHC system.

In mass casualty incidents and disasters only local health care practitioners and local population will be able to respond to the needs of the injured in a timely manner. The best disaster preparedness, then, is to train local human resources to handle routine emergency health problems, thus creating a trained base from which to build a disaster response.

Some countries and localities have developed innovative ways of caring for emergency needs, but little sharing of these experiences has taken place.

In general, the world health care and development organizations are ignorant of the above facts

The International Conference on Emergency Health Care Development was designed to address these issues, with the following specific objectives.

- Establish emergency health care (EHC) as an integral concern for primary health care systems throughout the world;
- Provide a mechanism for sharing experience and techniques for developing or improving EHC systems;
- Encourage the participation of the world's health agencies in the upcoming International Decade for Natural Disaster Reduction in the form of assisting in the development of local routine emergency medical capabilities, as the base for disaster health care; and,
- Establish goals and objectives for EHC development during the decade of the 1990s.

At the end of this conference we will suggest a call to action for the next decade. A team of people will be attending all of the sessions and will report back the major concerns and ideas that are expressed, so that these may be reflected in the call. I would encourage you all to also participate by depositing your own written ideas in a box that is set up for them at the registration desk.

EMERGENCY HEALTH CARE: A SYSTEMS PERSPECTIVE

Richard H Cales, MD
San Francisco, California

Emergency health care encompasses a series of events including recognizing the emergency, accessing the system, providing temporary stabilization, transporting the patient, delivering definitive care, furnishing rehabilitative care, and returning the patient to society. Achievement, however, requires a preexisting system.

SCENARIOS (PRESYSTEM)

Historically emergency care has been provided through a fragmented approach characterized by crisis management instead of systems analysis Two examples illustrate these shortcomings.

By the 1960s the United States public became dissatisfied with emergency care, often delivered at the scene by untrained ambulance attendants employed by funeral homes. Responding to political pressure the government provided funding to train Emergency Medical Technicians (EMTs) and to purchase ambulances, radios, and supplies. Unfortunately, in their zeal to provide personnel and equipment, they failed to address the need for adequate medical supervision of the newly created paramedical field personnel. Also, by improving the quality of prehospital care without addressing the inadequacies of subsequent emergency capabilities, they merely compounded the problem by stabilizing patients in the field only to see them die in the hospital.

In a similar vein sophisticated improvements in trauma care have caught the public fancy in recent years. Once again states have responded by designating trauma centers, capable of providing state-of-the art care for the seriously injured, without addressing the other aspects of the system. As a result many deserving patients never reach such specialized centers and, for those who do, spiraling costs of tertiary care are posing financial demands that threaten the future of trauma care.

Each of these examples demonstrates the effect of addressing the solution without first defining the problem

PRINCIPLES

Three basic principles, each dependent on the previous, underly the concept of emergency health care systems. First, decreasing death and disability requires improving care quality. Second, improving care quality requires providing emergency care. Finally, providing emergency care requires developing emergency health care systems.

Systems for emergency health care do not occur by chance - they entail multiple components that cannot be successfully realized without a deliberate, detailed development process.

COMPONENTS

Emergency health care system components fall into two general categories. clinical and non-clinical. Clinical issues include medical direction, communications, manpower, transportation, facilities, and medical evaluation. Non-clinical aspects include prevention, training, disaster linkages, medical education, and medical research.

Clinical

Medical direction, or medical supervision, can be characterized as clinical (on-line) or administrative (off-line). On-line responsibilities entail participation in the clinical management of individual patients, whether by on-site supervision of field personnel or by remote communication via radio or telephone.

Communications encompasses several distinct phases of emergency care. Examples include contact by the individual reporting the emergency, communication between the dispatcher receiving such notification and the ambulance responding to the incident, and remote supervision of field personnel by qualified medical specialists.

Manpower requirements vary widely depending on system design. Essential elements, however, include prehospital personnel who respond to the incident and transport the patient, clinic or hospital professionals who provide definitive care, and rehabilitation specialists who return the patient to a productive lifestyle.

Transportation capabilities also vary widely, depending on patient needs and system resources. While a hand-carried litter may suffice for a stable patient with a short evacuation route, fixed-wing aircraft are often required for transcontinental transport. Equally important are capabilities for transferring patients from entry-level to definitive care facilities.

Initiating a sophisticated response to the patient at the scene of the medical emergency provides no benefit unless he can be quickly moved to an appropriate facility for definitive care Some emergency health care systems, particularly in wilderness or underdeveloped areas, additionally utilize clinics to provide intermediate levels of medical care. Examples of specialized care facilities include those for neonates, burns, trauma, etc.

The final clinical component and, unfortunately, one most often overlooked, entails medical evaluation of the system itself. Such evaluation, commonly referred to as quality assurance, utilizes accepted methods for studying structure (content of system standards), process (compliance with system standards), and outcome (results of compliance with system standards).

Non-clinical

Prevention provides the health care system with the potential to decrease the need for the system itself. Types of prevention, borrowed from the injury model, have been characterized as primary, secondary, and tertiary. Primary prevention precludes creation of the hazard, ie., banning the manufacture of motorcyles. Secondary prevention mitigates the effect of the hazard, ie., requiring motorcyclists to wear helmets. Tertiary prevention provides treatment, ie., providing surgery for the injured motorcyclist.

Effective delivery of emergency health care necessitates thorough training for all personnel. All individuals require thorough instruction in all operational aspects of system function. Clinical personnel additionally require education in their respective areas of expertise, including periodic continuing education and testing.

Linkage with the disaster system, often the most misunderstood component, requires continuous attention. Public education, particularly regarding system access, should be ongoing. Linkages between the emergency health care system, which strives to deliver definitive care to single individuals, and the disaster response system, which strives to deliver essential care to large groups, require intimate knowledge of the strengths and weaknesses of each as well as commitment to cooperation between admittedly disparate agencies.

Medical education and research, essential components of all health care systems, provide the ability to profit from previous experience.

DEVELOPMENT

Development of a system for emergency health care entails four stages. Equally useful for other systems from manufacturing to services, they include justification, planning, implementation, and evaulation

Justification, in the context of emergency health care, provides the ability to plan the ensuing system on demonstrated need and available resources. Steps to achieve this include performing a thorough needs assessment and a detailed inventory of existing resources.

Succesful planning requires two considerations. First, the planning process should address the long-range need for emergency health care. Second, it must define specific goals and objectives for each system component.

Implementation encompasses issues surrounding both operations and care. Failure to implement both systematically, such as activating triage protocols before identifying specialty hospitals or vice versa, provide no benefit to patients and often waste precious system resources.

System evaluation, still in its embryonic stages with regard to emergency health care, requires assessment not only of the technical but also the personal aspects of care. Quality of outcome should be paralleled by satisfaction with care.

SCENARIOS (POSTSYSTEM)

Scenarios in the presence of an emergency health care system differ markedly from those detailed above. Two examples serve to demonstrate specific differences.

Cholera, unfortunately still a common entity in tropical areas, exhibits several characteristics amenable to a systems approach to emergency health care. First, improved santitation decreases the incidence of the disease. Second, through a network of strategically-placed clinics, patients obtain access to care earlier. Third, increased familiarity with the disease by trained health care professionals makes currently accepted medical practice more readily accessible. Fourth, readily available teams provide timely evacuation for individuals too ill to remain at the clninics. Fifth, hospitals have been built and staffed to meet the needs of the local population.

In the case of vehicular injury, preplanned system response offers similar benefits. First, highway safety advances have significantly reduced the incidence of serious injuries. Second, through widespread adoption of '911' patients achieve system access more quickly. Third, advanced life support teams provide state-of-the-art resuscitation and stabilization at the injury scene. Fourth, patients receive timely air evacuation by specially equipped aeromedical helicopters. Fifth, hospitals with immediately available trauma teams perform life-saving surgery. Finally, sophisticated quality assurance techniques provide capabilities to monitor outcome both for individual patients and overall systems.

SUMMARY

Emergency care of the seriously ill or injured requires a preplanned response. Timely delivery of such health care mandates development of emergency health care systems. Such systems offer the opportunity to improve the quality of care while maximizing benefits and minimizing costs.

CALL TO ACTION FOR WORLDWIDE EMERGENCY HEALTH CARE DEVELOPMENT IN THE 1990s

The delegates to the International Conference on Emergency Health Care Development, out of concern for the increasing worldwide human and economic loss due to trauma and other medical emergencies, have reached the following understandings:

- Emergency health care (EHC) consists of the timely provision of those preventive and curative interventions which can relieve pain or prevent disability or death;
- Emergency health care is a basic need in all countries;
- Injury is responsible for increasing morbidity and mortality in countries of all levels of economic development and frequently has a severe effect on children and the working age population. Many injuries are preventable through health promotion and simple modifications in the home, school, and work environments;
- Recent advances in health care organization and medical technology have made it possible to decrease significantly the adverse effects of health emergencies;
- When an injury or sudden illness occurs, the first response is usually provided by family members or bystanders. Community education can improve this response;
- The majority of medical and traumatic injuries typically present to the primary care system; and
- When disasters occur, the first medical response is provided by local providers of routine emergency health care.

Based on these observations, we call for the following actions:

- Health authorities at national, regional, and local levels should recognize emergency health care as an integral part of the primary health care system and should ensure that their primary health care systems are capable of responding to emergencies;
- Health authorities should make optimal use of local personnel by employing improved management techniques and training;
- Health authorities should integrate into existing and future public education activities curricula on injury prevention and response to emergencies and disasters;
- The health care community should make its contribution to the International Decade for Natural Disaster Reduction by: a) strengthening local capabilities for responding to multiple casualty incidents using local personnel; b) ensuring that national committees for the decade are fully aware of the potential of emergency health care services in effectively reducing the impact of disasters; and c) adopting prevention and preparedness measures likely to reduce the number of casualties in a disaster;
- World health authorities should collaborate in their efforts to bring to the attention of policy makers the public health consequences of health emergencies, and the need to improve local urgent health response capabilities,
- International health agencies and development organizations should collaborate in funding and assisting EHC development as a primary health care infrastructure improvement program; and
- National and international disaster preparedness offices and agencies should work carefully with local emergency health care directors to coordinate plans for response to potential large scale events.

Editor's Note:

This Call to Action was adopted by the Conference participants meeting in Plenary Session on August 18, 1989.