STATUS
Considering 11/19/2024

TYPE
Copy

OCLC #
5842535

228365455

SOURCE
ILLiad

REQUEST DATE
11/19/2024

NEED BEFORE
12/18/2024

BORROWER
WAU

RECEIVE DATE

REQUESTER REFERENCE

LENDERS
*CUN, CUN, MNU, MNU, OHS, OHS, UMV, UMV

DUE DATE

AE

AE

4th Floor
RC 682 .A1 N3 1975

BIBLIOGRAPHIC INFORMATION

LOCAL ID

AUTHOR

ARTICLE AUTHOR Cobb, L. A., and H. Alvarez III.

TITLE Proceedings of the National Conference on Standards for Cardiopulmonary Resuscitation (CPR)

ARTICLE TITLE Medic 1: The Seattle system for management of out-of-hospital emergencies

IMPRINT Dallas : Available from Distribution Section, American Heart Assn., ©1975.

FORMAT Book

EDITION

ISBN

VOLUME

NUMBER

DATE 1973

PAGES 179-82?

Sending P. 177-182

INTERLIBRARY LOAN INFORMATION

ALERT

AFFILIATION JAPAN ARL PROJECT; GWLA; WEST.

COPYRIGHT US:CCL

VERIFIED <TN:2304110> : <ODYSSEY:duwamish.lib.

MAX COST OCLC IFM - 80.00 USD

LEND CHARGES OCLC IFM - 21.00 USD

LEND RESTRICTIONS

IFM
$ 21 —

SHIPPED DATE 11/19/2024

FAX NUMBER

EMAIL interlib@uw.edu

ODYSSEY duwamish.lib.washington.edu/ILL

ARIEL FTP

ARIEL EMAIL

BILL TO ILL- Libraries
University of Washington
Box 352900
Seattle, WA, US 98195-2900

BILLING NOTES USA - PLEASE BILL IFM (we can also pay with Credit Card) - Please "Conditional" with questions.NON-USA - We can pay by IFM, credit card, or IFLA Voucher. We cannot pay by check. Please "Conditional" with questions.

SHIPPING INFORMATION

SHIP VIA Loans: USPS Library Rate/ Articles: Odyssey,

SHIP TO ILL - Libraries
University of Washington
4000 15th Ave NE Box 352900
Seattle, WA, US 98195-2900

RETURN VIA Library Rate

RETURN TO Interlibrary Services/UCSF Library
530 Parnassus Avenue
Room 311
San Francisco, CA, US 94143-0840

PROCEEDINGS
of the

National Conference on Standards for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC)

May 16, 17, 18, 1973

National Academy of Sciences
Washington, D. C.

Cosponsored by:
American Heart Association and National Academy of Science-National Research Council

With Support of:
The National Heart and Lung Institute and The National Center for Health Services Research and Development, Department of Health, Education, and Welfare

The Conference was supported in part by Contract No. NO1-HL-3-2960 from the National Heart and Lung Institute and the National Center for Health Services Research and Development, Department of Health, Education, and Welfare.

Available from
Distribution Section
American Heart Association
7320 Greenville Avenue
Dallas, Texas 75231

PREFACE

A National Conference on Standards for Cardiopulmonary Resuscitation and Emergency Cardiac Care co-sponsored by the American Heart Association and the National Academy of Sciences-National Research Council was held in Washington, D.C., May 16-18, 1973. The Conference was attended by representatives of 45 national organizations, 30 medical schools, and 58 Heart Associations.

A previous National Conference had been held in Washington on May 23, 1966 and a statement by the Ad Hoc Committee on CPR of the Division of Medical Sciences, NAS-NRC, was published in JAMA in 1966. During the ensuing years, new concepts, knowledge, technics, and methods of CPR had evolved. In addition, changes in therapeutic modalities had been described and applied in both drug and electrical therapy. Therefore, it became necessary to review the whole field of CPR and ECC and make recommendations for appropriate changes.

The goal of the Conference was to establish a new set of standards for Basic Life Support, Advanced Life Support, Life Support Units, and Mediocolegal aspects of CPR and ECC to satisfy the national need for effective community-wide stratified systems of emergency cardiac care.

Invitations for manuscripts were requested, and some 200 were received. Fifty-four manuscripts were selected for presentation at the Conference.

A pre-Conference statement prepared by special task forces was submitted to participants prior to the Conference. After all manuscripts had been presented to the Conference, panels convened to modify the pre-Conference statement as required by the consideration of information gained from the manuscripts.

Several revisions of the Conference Standards were reviewed by national bodies and the final report appeared as a supplement to the Journal of the American Medical Association in February 1974. Over 800,000 copies of these supplements have been circulated nationally and internationally to date. A copy of the supplement is included in the Appendix to these Proceedings, which lists the names of the Conference Steering Committee, the panel members of experts, and the organizations that were represented at the Conference.

The purpose of these Proceedings is to make available the manuscripts which were presented by the authors. Forty-eight papers out of a total of 54 papers are included. Some of the authors chose to have their manuscripts published elsewhere.

The American Heart Association expresses its appreciation to Archer S. Gordon, M.D., Conference Chairman, to the Conference

Steering Committee, the authors of position papers, panel members, and to all of the national organizations that took part in the Conference, particularly our co-sponsor, the National Academy of Sciences-National Research Council. Also, partial grant support from the National Heart and Lung Institute and the National Center for Health Services Research and Development, Department of Health, Education, and Welfare is acknowledged as having helped to make the Conference possible.

It is our hope that these Proceedings will stand as a point of scientific reference for those who develop and deliver emergency cardiac care.

Arnold Sladen, M.D.
Chairman
Committee on Emergency Cardiac Care
American Heart Association

March 1975

CONTENTS

WELCOMING REMARKS

S.D. CORNELL

Ladies and Gentlemen:

At the outset of what is obviously a hard-working, tightly-scheduled conference on an extremely important subject, it behooves a welcomer to limit himself to two or three minutes and then get out of the way. That I intend to do.

It is, however, for the very reason of the importance of your deliberations that I cannot refrain from taking those two or three minutes to make two or three points.

First, the National Academy of Sciences and its component National Research Council perform many and varied functions. Nearly all of them have in common the characteristic of bringing knowledgeable men and women together from the near and far reaches of the country—or the world—to concert their efforts toward some goal that they regard as worthy, either in the public interest or as a scientific or technological goal of itself. In this particular characteristic we find an image of ourselves of which we are especially fond: that of a great university, a community of scholars and of knowledge, devoted to furthering in a multitude of ways the evolution of more knowledge and of the welfare of humankind. Thank you for your contribution to that image.

Second, among all the enormous variety of our efforts, we find none more satisfying than those related to immediate measures for the preservation of life and the amelioration of suffering. It would be difficult indeed to identify an undertaking more squarely in that category than yours in these next three days. That is why it gives us particular satisfaction to have the opportunity—with the support of the National Heart and Lung Institute and the National Center for Health Services Research and Development—to join with the American Heart Association, and all of you, in this conference; and particular pleasure to see it take place within our facilities.

Finally, let me confess that a person less inured to his own ignorance than I am might feel embarrassment at being in your midst. I do not. Through the experience of welcoming many groups to this institution I am hardened to the realization that I know less about the matter at interest than anyone within eyesight or earshot. A generalist is always a layman among experts and must take such consolation as he can.

The time has now come for me to clear the track. As I have pointed out, I cannot offer you either assistance or wisdom. I can, however, offer appreciation for your readiness to come together, good wishes for your success, and welcome. These I do now extend to you, most warmly, for the President and officers of the Academy and the Research Council.

ize that individual efforts must be consistent with the overall program.

SUMMARY

The following is a list of program goals which are being implemented in the State of Illinois' Total Emergency Medical Service System.

Goal I. To provide accessibility and emergency medical service to every citizen of Illinois in order that each may receive benefits of emergency and critical care medicine.

Goal II. To develop a comprehensive emergency and critical care system which will fully utilize existing resources while stimulating the development of new care capabilities where these are insufficient or totally lacking.

Goal III. To develop practical and workable solutions to the emergency medical service problem utilizing accepted forms of health care application.

Goal IV. To plan and develop all phases of the program utilizing community and areawide planning.

Goal V. To evaluate and monitor programs continuously in order to determine all critical factors to provide for ongoing modifications and analysis.

Goal VI. To develop a total system that will be financially and administratively self-supporting without continued subsidization from external sources or reliance on a state or federal bureaucracy.

Fortunately for the State of Illinois, a vast amount of experience in problem identification and systems remodeling in the area of emergency medical service has been gained. With the successful development of the Statewide Trauma Care Program, specific problems and their solutions have been identified and tested. By using the positive and negative feedback approach, the entire health community of the state has gained a considerable degree of sophistication in the area of emergency care systems development. Because of the statewide systems development of a trauma care network, there has been the emergence of a healthy and practical implementation environment where problems approached on an empirical basis have been studied as ongoing events by the entire health community. It is the effort over the past 2 years that is enabling Illinois to step forward to a total systems approach to emergency and critical care medicine on a statewide basis. Emergency medical care is no longer a neglected disease in Illinois.[13]

REFERENCES

1. Boyd, DR. Computerized trauma registry (editorial). J Trauma 11:449-50, 1971.
2. Boyd, DR. A total emergency medical service system for Illinois: a preview. Ill Med J 142:486-88, 1972.
3. Boyd, DR; Dunea, MM; and Flashner, BA. The Illinois plan for a statewide system of trauma centers. J Trauma 13:24-31, 1973.
4. Boyd, DR and Flashner, BA. The critically injured patient—concept and the Illinois statewide plan for trauma centers. Springfield, Illinois: Department of Public Health Printers, 1971.
5. Boyd, DR; Lowe, RJ; Baker, RJ; and Nyhus, LM. Trauma registry: new computer method for multifactorial evaluation of a major health problem. JAMA 223:422-28 1973.
6. Boyd, DR; Lowe, RJ; and Flashner, BA. "A controlled systems approach to statewide emergency medical services implementation." Presidential-elect paper presented at the American Public Health Association meeting, Atlantic City, N.J., 14 November 1972.
7. Boyd, DR; Mains, KD; and Flashner, BA. Status report: Illinois statewide trauma care system. Ill Med J 141:56-62, 1972.
8. Boyd, DR; Rappaport, DM; Marbarger, JP; Baker, RJ; and Nyhus, LM. A computerized trauma registry: a method for a comprehensive investigation of a health problem. *Proceedings of San Diego Biomedical Symposium,* Feb 1971.
9. Con, RD. The prehospital care of medical emergencies. Proceedings of Maryland National Conference of Emergency Health Services, December 2, 1971. U.S. Department of Health, Education, and Welfare, 1972.
10. Flashner, BA and Boyd DR. The critically injured patient: a plan for the organization of a statewide system of trauma facilities. Ill Med J 139:256-65, 1971.
11. Mains, KD; Boyd, DR; and Flashner, BA. A new health professional: the trauma coordinator. Ill Med J 142:158-60, 1972.
12. National Academy of Sciences—National Research Council Committee on Trauma and Committee on Shock. *Accidental Death and Disability: The Neglected Disease of Modern Society.* Washington, D.C.: National Academy of Sciences-National Research Council, 1966.
13. Ogilvie, RB. Special message on health care. Springfield, Illinois: State of Illinois Printing Office, 1971.

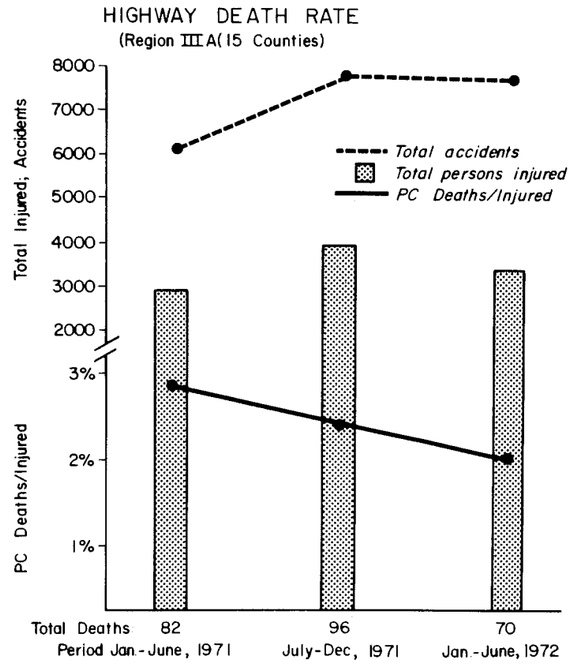

FIGURE 1—Highway accidents, injuries, and mortality. Note the increase in the number of accidents (auto) and injuries (individual) during the study period. The percentage of patient deaths per individuals injured (PC Deaths/Injured) has decreased from 2.8% to 2.1% in this study period.

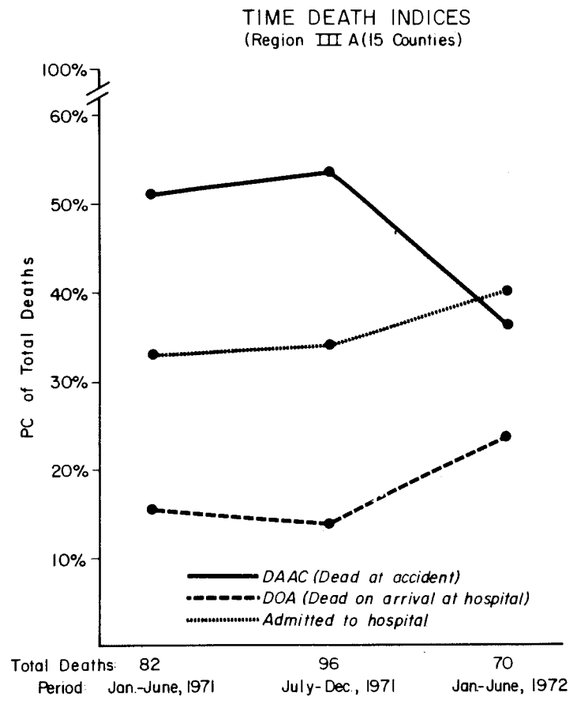

FIGURE 2—The time of death: Dead at accident (DAAC), Dead on arrival at the hospital (DOA), and those dying after admission to trauma centers. Shown is the decrease in DAAC from 51.2% to 37.1%, while the DOA and after admission deaths correspondingly increase.

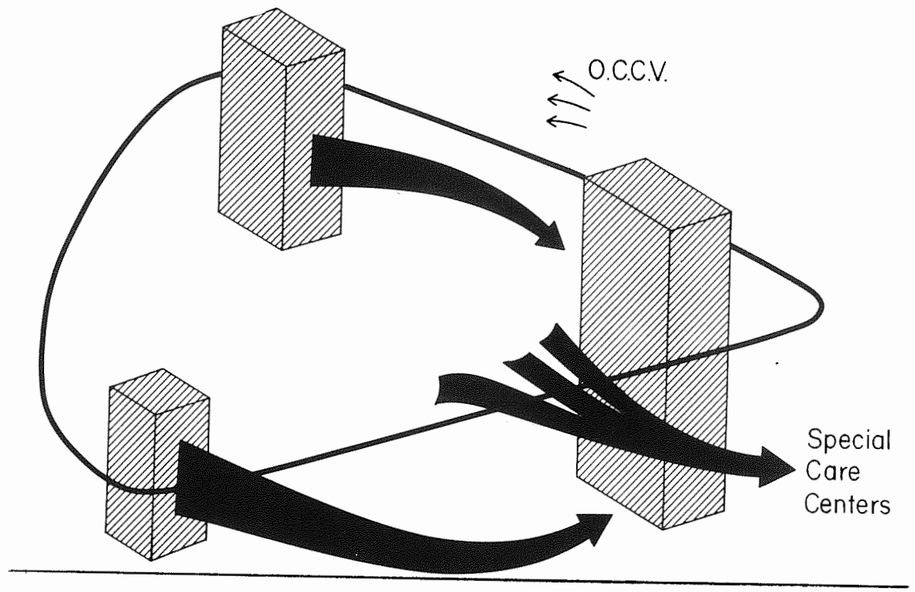

FIGURE 3—A graphic conceptualization of the areawide categorization of hospitals in the Trauma Program. Small "Local" and medium-sized "Areawide" Trauma Centers selectively refer patients to the larger Regional Center. Patients with unique problems leave the basic catchment area to Special Trauma Treatment Centers.

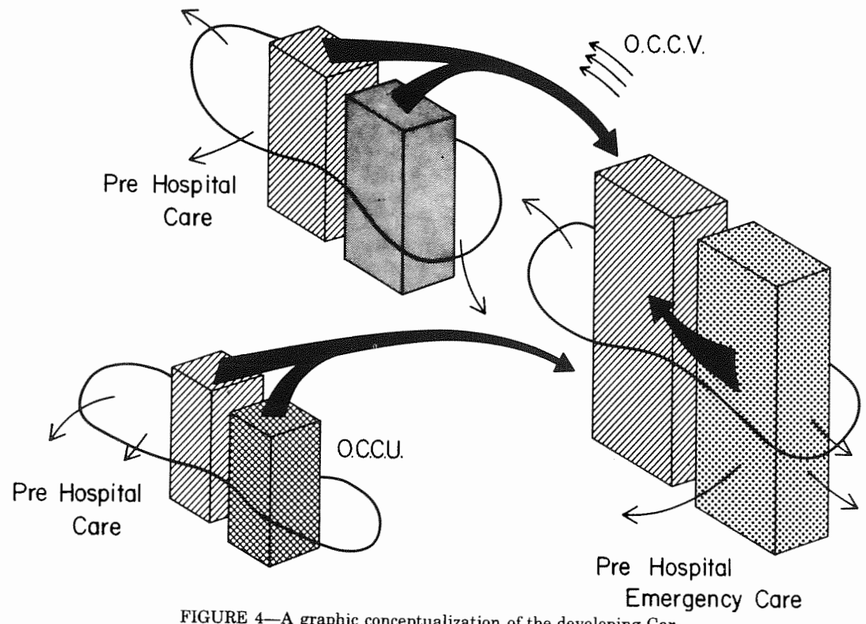

FIGURE 4—A graphic conceptualization of the developing Cardiac Care System. Multiple hospitals in each local, areawide, and regional community will be involved with primary emergency cardiac care. Outlying Critical Care Units (OCCU's) and Overland Critical Care Vans (OCCV's), as well as prehospital emergency care programs, are being developed. As emergency coronary care improves, including acute open-heart surgery, a referral system will be implemented as shown.

MEDIC I: THE SEATTLE SYSTEM FOR THE MANAGEMENT OF OUT-OF-HOSPITAL EMERGENCIES

LEONARD A. COBB, MD and HERNAN ALVAREX III, MC*

*Department of Medicine, University of Washington and Harborview Medical Center, Seattle, Washington.

For the past five years we have been involved, in Seattle, in the planning, development, and implementation of a project designed to evaluate the feasibility of improving substantially the general level of out-of-hospital emergency care. Heavy, but by no means exclusive emphasis has been directed to the patient subject to sudden cardiac death and to the early treatment of myocardial infarction.

FUNCTIONS AND OPERATION

Table 1 summarizes what we consider to be the major functions of this system. A rapid (2-5 minute) response is provided, and the response time from dispatch to arrival on the scene now averages 2.9 minutes. Resuscitation from circulatory arrest, particularly when due to ventricular fibrillation, is heavily emphasized. Early therapy of acute myocardial infarction, trauma, and other life-threatening emergencies are prime functions of this sytem. For the patient with suspected acute myocardial infarction, this includes direct hospital coronary care unit admission to nearly all hospitals in the community. Public education has received a great deal of attention in this program, and we believe this to be a very important function. Finally, and perhaps most importantly, there has been improvement of other emergency medical services throughout the community.

Figure 1 demonstrates the salient operating characteristics of the system. The patient, or more commonly, someone with the patient, initiates a call for assistance. The fire department dispatcher is a key link in the system. He dispatches in all instances the nearest of the ten strategically located aid units. This ensures a rapid response which is, of course, critical in dealing with patients who already need, or will need, cardiorespiratory support. If a life-threatening emergency is likely, the dispatcher also sends out a mobile intensive/coronary care unit and its paramedical personnel. Indications for this double response include sudden collapse, suspected heart attack, major trauma, drowning, obstetric problems, unconsciousness and others. As is described below, certain engine companies of the fire department are also dispatched to ensure a 2–5 minute response time to the patient.

The paramedics, after arrival, evaluate the patient and in appropriate instances communicate with a physician. In selected cases an electrocardiogram may be transmitted to the hospital. However, in our experience, *continuous* telemetering of the electrocardiogram is neither desirable nor necessary when adequately trained paramedics are on the scene. If the patient requires resuscitation, definitive therapy, including drugs and endotracheal intubation, is carried out under standing written orders and without physician involvement. If the patient needs transporation to a hospital coronary care unit, bed availability is assessed by the fire department dispatcher, and the patient is admitted directly to a CCU, avoiding dangerous delays inherent in many emergency rooms. Patients with suspected acute myocardial infarction are placed under continuous electrocardiographic monitoring until admitted to a hospital coronary care unit.

Table 2 summarizes the principle methods used in operating this system. We have taken advantage of the existing agency responsible for delivering emergency medical care; in our community this is the Seattle Fire Department. Physician direction, supervision, and training has been a major commitment to the project. Involvement of the county medical society, all of the area's 14 hospitals, many service clubs, and citizens are an integral part of the system's operation. Easy patient access to the system is critical—utilization of a commo: emergency telephone number (911) has been a helpful adjunct.

PARAMEDICAL TRAINING

Paramedical training to a near-physician level for the management of common out-of-hospital emergencies is a critical aspect of our system. Figure 2 presents a breakdown of the thousand-hour training program now in effect. There are 105 hours of lectures and didactic sessions, and eighty-seven hours of formal laboratories and tutorials are scheduled. The paramedical students have 538 hours scheduled for informal labs in the hospitals and in the mobile intensive/coronary care units. Finally, the internship represents an additional 288 hours of supervised, structured training. The course is physician-directed and has been taught to firemen who enter the program with Emergency Medical Technician-A training and usually after several years' experience on the fire department aid units. To date,

50 firemen have completed this advanced level training program.

Our first efforts at paramedical training produced a course of about 150 hours' duration but was backed up by ten months of experience in which a physician accompanied every run of the secondary response mobile intensive/coronary care unit. This proved to be invaluable training but has been replaced by expanding the scope and duration of the hospital training period and providing for a carefully supervised period of responsibility and evaluation in the field during the 288 hour internship. We believe the internship is probably the most valuable aspect of the paramedics' training. Details of the training program are described in the paper "Medic I: The Seattle Advanced Training Program," by Alvarez, Miller, and Cobb, also presented at this conference.

LIFE SAVING EFFECT

A simple, but incomplete, way of evaluating a service such as this is to total the number of patients who received life saving therapy. Table 3 lists and categorizes 202 patients who received such therapy in the first three years of operation. These patients were treated in the field, brought to the hospital, and subsequently discharged home. The importance of ventricular fibrillation in this group of patients is quite evident—141 of these 202 long-term survivors (70%) were treated for this dysrhythmia. The vast majority of these patients had ventricular fibrillation which was present on arrival of the aid units. Only 20 of the long-term survivors were persons who developed ventricular fibrillation after the units' arrival. Other problems, particularly respiratory and/or circulatory arrest, were also handled effectively in a sizable number of patients.

An index of the utility of this system which is more difficult to evaluate is that relating to the effects of early treatment of less dramatic dysrhythmias and of the reduction of morbidity in other emergencies. Our impression is that these are very important functions. However, this aspect of care is difficult to quantify.

A very high proportion of the witnessed cardiac arrests in the city are attended by our units. We have treated over 900 patients with ventricular fibrillation present upon our arrival. A nearly equal number of patients with straight line electrocardiograms have also been seen. Shown in Figure 3 is a representation of our three years experience in managing ventricular fibrillation present on arrival of the units. This experience is broken down into the first two years (511 patients) and the subsequent third year (310 patients). In comparing these two time periods, it is evident that there has been a significant improvement in the percentage of patients who have been resuscitated, hospital survival of the resuscitated patients, and in the percentage of patients who have become long-term survivors, i.e., discharged from the hospital. The immediate resuscitation rate has increased from 34% during the first two years to 44% in the third year ($p.<.01$). The percentage of patients salvaged (long-term survivors) has increased from 11% in the first two years to over 20% in the third year ($p.<.001$). We believe there are several reasons for the improved resuscitation rates. First, response time has been made more uniform by dispatching engine companies when a district aid unit cannot reach the patient in 2-5 minutes. In addition, the firemen on all units have been trained to become more proficient in performing cardiopulmonary resuscitation. At the present time, the majority of all fire fighters in the Seattle Fire Department have received the instruction offered by the EMT-A 81-hour training program. An additional factor relates to public education and is described below.

CITIZEN CPR TRAINING

Approximately a year-and-a-half ago this community embarked on a program to train 100,000 citizens to perform cardiopulmonary resuscitation (CPR). To date, 40,000 persons of high school age and above have requested and received CPR training. The course consists of three hours of lecture, movie ("Pulse of Life"), manikin practice and discussion. In addition to teaching CPR the classes provide an excellent forum for discussion of other aspects of emergency care, including early warning signs of heart attack and the availability of the local emergency services. The cost of the program, including instruction, record keeping, supplies, movies, etc., approximates $1.25 per student. At the present time 20% of the resuscitations carried out by our units are initiated by persons who by happenstance are at the scene. The comparable figure three years ago was 5%. The details of the program and its preliminary evaluation are described in the paper "Experiences with CPR Training of the General Public," also presented at this conference.

MEDICOLEGAL CONSIDERATIONS

Paramedical activities similar to those described here have medical-legal implications which warrant consideration. In most states enabling legislation will need to be introduced and acted upon. Such legislation can also provide for certification and examination of paramedical personnel. Immunity from civil liability for the paramedics, supervising physicians, hospitals and others is a complex matter which has been provided in some laws; however, the constitutionality of such laws has yet to be tested. Malpractice insurance is another mechanism that should be considered. An example of model legislation has been provided [U.S. Department of Health, Education and Welfare Publication #(HSM) 72-2017, May 1972. *State Statutes on Emergency Medical Services,* pp. 191–192.]

SUMMARY AND CONCLUSIONS

We have reviewed our initial three years experience with an out-of-hospital emergency medical system manned by highly trained paramedical personnel. The system is stratified and provides for primary response by emergency medical technicians as well as secondary response by advanced paramedics. Medical care is physician-supervised and is closely monitored. Although considerable attention has been directed to the acute complications of coronary disease, particularly the problem of sudden death, we firmly believe in the concept of a broadly based emergency medical system capable of responding to all life-threatening emergencies.

It is quite evident that many patients who experience ventricular fibrillation can be effectively resuscitated if appropriate therapy is promptly administered. Clearly, the optimal goal for the management of coronary artery disease is primary prevention of atherosclerosis. Similarly, effective means of preventing secondary complications should be developed. However, until such goals are attained, we believe there is a definite need in many communities for the type of service outlined here.

We are impressed with the ability of non-physicians to acquire certain medical skills and judgment. Indeed, the effectiveness of our system is largely dependent on paramedical personnel. Such systems will probably have an impact greater than that of hospital coronary care units in reducing the mortality from acute complications of coronary artery disease.

ACKNOWLEDGMENT

Supported in part by a contract from the National Institutes of Health NHLI-2474 and by a grant from the Washington Alaska Regional Medical Program.

TABLE 1

MAJOR FUNCTIONS OF THE SYSTEM

1. Rapid (2-5 minute) response
2. Resuscitation from circulatory arrest
3. Early therapy of acute MI, trauma, and other life threatening emergencies
4. Direct CCU admission
5. Public education
6. Improvement of other emergency medical services

TABLE 2

METHODS USED

1. Utilization of established emergency care system (fire department)
2. Hospital based and directed
3. Extensive paramedic training
4. Community wide involvement
5. Easy patient access

TABLE 3

SEATTLE MEDIC I
3 YEARS' EXPERIENCE

LIVES SAVED—202

Ventricular fibrillation present on arrival	121
Ventricular fibrillation after arrival	20
Ventricular tachycardia and clinical shock	10
Bradycardia and clinical shock	8
Respiratory and circulatory arrest	14
Respiratory arrest, intubated	19
Other	10
TOTAL	202

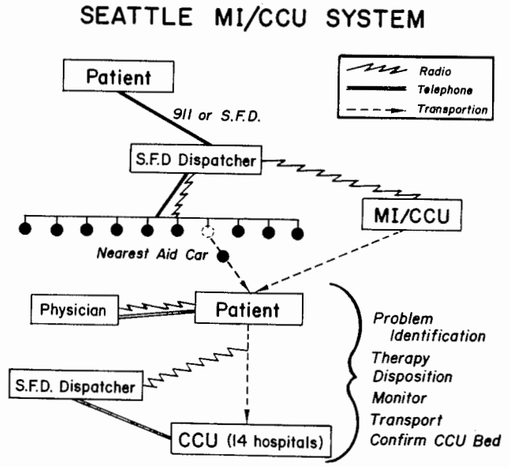

FIGURE 1—Operating schema for mobile intensive/coronary care units working with fire department aid unit equipment and personnel. A total of three units are equipped and staffed to function as mobile intensive/coronary care units.

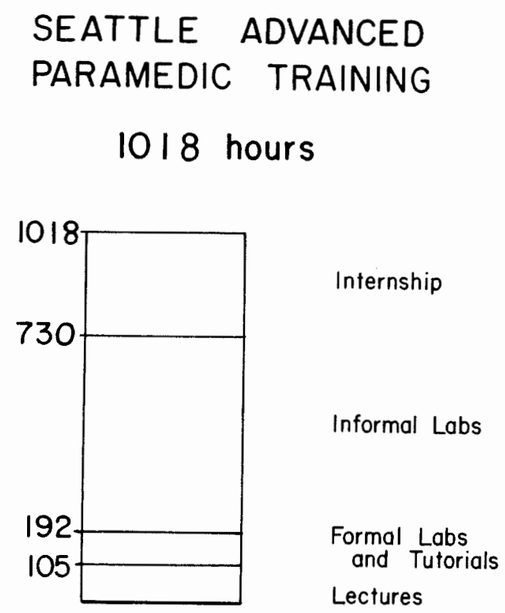

FIGURE 2—Advanced paramedical training program.

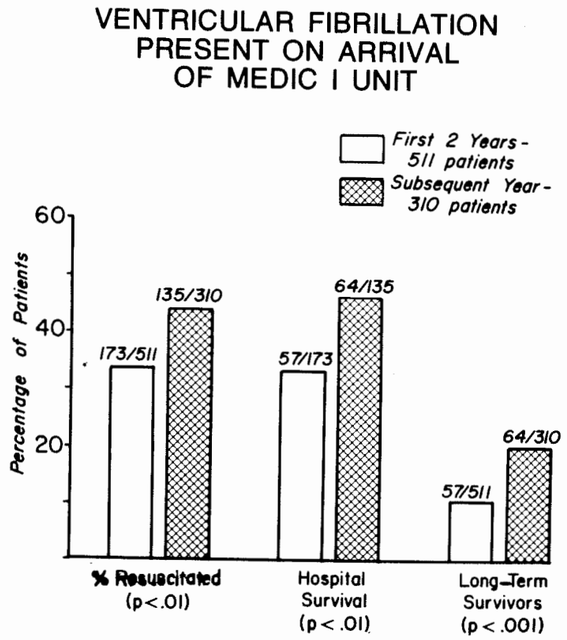

FIGURE 3—Outcome in 821 patients with ventricular fibrillation present on arrival of the fire department units. The experience between the first 2 years (511 patients) and the 3rd year (310 patients) is compared.

CARDIAC EXPERIENCE JACKSONVILLE RESCUE BRANCH FEBRUARY 1973

ROY BAKER, MD and CAPTAIN JOHN M. WATERS

A. Total suspected 26's* called in and responded to.	255
1. Evaluated on scene as non-cardiac.	86 (33.7%)
B. Total evaluated on scene as possible cardiac.	169 (66.3%)
1. Dead at scene/no resuscitation attempted.	24
2. Dead at scene following CPR.	4
TOTAL CARDIAC CASES DEAD AT SCENE	28 (16.6%)
C. Total transported viable to hospitals	114
D. Total DOA at hospital following CPR	5
E. Total treated at scene and not transported by Rescue.	22

OCCURENCE OF CARDIAC INCIDENTS BY TIME OF DAY

0000–0600 – 24
0600–1200 – 47
1200–1800 – 54
1800–2400 – 45

LOCATION

Home	131 (78%)
Public Building or Business	22
Other	7
Street	2
Industry	2
Doctor's Office	2
Hospital	2
Recreation	1

AID ADMINISTERED

Oxygen	201
Airway Cleared	44
IV	17
EKG Telemetry	13
CPR	12
Medication	9
Defibrillation	8

*A "Signal 26" denotes breathing or cardiac difficulty.

*RESPONSE TIME OF RESCUE UNIT **

Systemwide – 7.1 Minutes
Cardiac cases dead at scene – 6.3 minutes.

*(Combat unit often arrives before Rescue unit, but times not available).

ASSISTANCE BY OTHER FIRE UNITS OR POLICE

110 cases of 169 (65%)

CPR RESULTS (Includes Shock & Drugs)

No of Cases	11
Died at Scene	4
Delivered to Hospital Under CPR but DOA	5
Delivered to Hospital Viable	2
Discharged From Hospital	0
(Expected Discharges from past experience.	1.7)

SUMMARY

Of 169 suggestive cardiac patients, Rescue arrived 7.1 minutes (average) after call for help. 136 patients (80.5%) were successfully treated in the field or delivered alive to the hospital. Twenty-four patients (14.2%) were not considered cadidates for resuscitative measures on arrival at scene despite an average arrival time of 6.3 minutes. CPR, including defibrillation and cardiac drugs, was employed eleven times. Four of these patients were pronounced dead in the field; five were DOA at the hospital despite continual CPR; two died after arrival at the hospital. There were no long term CPR survivors in February, though past experience would have indicated 1.7 long term survivors.