CHAPTER 8: PUBLIC EDUCATION

MARKETING IN EMERGENCY HEALTH CARE: A NEW LOOK FOR PUBLIC INFORMATION AND EDUCATION

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The theme of this paper is that public communication is an essential component of an effective statewide or national emergency health care (EHC) and preventive medicine program. It is our contention that the current level of public information and education activity is not enough. We are not doing as much as should be done to reach all of our potential patients with information about all the services and benefits provided by our EHC systems.

Part of the solution is to adopt tools and practices from marketing. At the core of marketing is the marketing concept which states that it is the primary goal of organizations to identify and satisfy consumer needs and to build long-term relationships with consumers. "Consumer" is a word we don't usually use in EHC. From a marketing perspective, any potential patient is a consumer. In addition, for internal programs aimed at motivation or retention, our own employees, volunteers, and professional and paraprofessional people are much like consumers.

Advertising, promotion, selling, and public relations are the basic tools that marketing uses. These are also activities that we traditionally associate with public information and education. A marketing approach differs in that an effort is made to produce integrated communication programs with messages specifically developed to appeal to consumers. These programs are based on in-depth research and careful testing.

In marketing health care services, we are facing special problems because we're not talking about refrigerators or cars or hot dogs; health care is not a product. Services are different from products, and health care services are very different from other services such as dry cleaning and haircuts. Health care services are "high involvement services" with characteristics that require innovative marketing approaches. These characteristics include:

1. Intangibility;
2. Close personal contact. For example, between the physician and the patient there is an intimacy established that is not found in other services;
3. Simultaneous production and consumption. The patient "consumes" care as it is given;
4. Customization and personalization. Every patient's injury or illness is different and every patient is treated differently;
5. Difficulty of user evaluation. Most people have no reliable standard for judging quality;
6. Variation with the provider. There can be considerable difference in quality from one provider to another; and
7. No trial use. You only get it when you need it.

MARKETING RESEARCH FOR EMS

The first step in developing a marketing program for high involvement services such as EHC is to learn as much as possible about consumers of the service. For this reason, during the past five years, the State of Connecticut, Department of Health Services, Offices of Emergency Medical Services, has completed four studies that attempt to define the attitudes, perceptions, use, and provision of emergency medical services (EMS).

The first survey employed a custom-designed computer program to generate random telephone numbers for all telephone exchanges in the state (1). Over 500 interviews concerning consumer attitudes and use of EMS were completed. Many of the results of this first study were controversial and pointed to the need for more research on this important subject. A second consumer survey, conducted a year later, used the same methodology with 613 respondents (2). The questionnaire was more focused and included asking consumers how they would respond to hypothetical medical situations.

A third survey elicited responses from abut half of the 200 ambulance companies in Connecticut (3). This written questionnaire asked about attitudes about service, patients, and communication.

The last study used an eight-page questionnaire sent to 2,700 randomly selected names from Connecticut's list of 13,455 EMTs (4). A response rate of 36 % was achieved. The results are indicative of EMTs' attitudes about their work, the EMS system, patients, joining and leaving EMS, and emergency departments.

Each of the studies, together with a literature review, has provided knowledge and insights into a particular part of the EMS system (5, 6, 7). In addition, the studies have permitted comparisons and observations about the interrelationship between these three groups of respondents: consumers, ambulance companies, and EMTs. In many cases, ideas about what people think and how they behave have been disproved. The information has caused us to rethink our design and application of public information and education programs and to reassess how we communicate with diverse audiences about emergency health care.

CONSUMER ATTITUDES AND USE OF EHC

To illustrate the importance of marketing research and a marketing approach in EMS, we will take an in-depth look at our research on consumers. The 1988 study used a random telephone sample with 600 completed interviews. The sample was a good match to

Connecticut's adult population(2). At the beginning of the survey, people were presented with three hypothetical situations:

1. If you're at home and you have pain in the abdomen and a fever of 101, what would you do?

2. If you're at home and you get bad burns on your face and hands, what would you do?

3. If you're at home and you have pain and pressure in the chest, pain in the arm, and difficulty in breathing, what would you do?

Table 1 shows the responses to this series of questions.

TABLE 1

Response to Medical Situations

Action	Percent
Non-Use of EMS	39%
Mixed Use of EMS	5%
Call EMS	56%

We found out that 39% of respondents would not call EMS for any of the three symptoms and 5% would call for the less severe symptoms but not for the chest pain. A total of 56% would call EMS, but this includes some who would delay before getting EMS. We consider the non-users and those who would delay use to be a serious problem in Connecticut. Experiences in other countries will be different but all systems will have some who will not use EHC for a variety of reasons.

One question we asked was, "How knowledgeable are you about medical matters in general?" Among those who consider themselves "not at all" or "not very" knowledgeable about medical matters, 44% - 45% would make appropriate use of EMS, compared to at least 58% appropriate use for those who consider themselves somewhat knowledgeable (2). In short, the more consumers know about medical matters in general, the more likely they are to make appropriate use of EMS. Based on results like these, we suggest that it is important for EHC providers and other medical professionals to keep the public informed about all kinds of medical issues. Every time something comes on the radio or television, whether it's about EMS or not, if it's medical, it adds to the medical information pool and their feeling of knowledge, and the probability that they will use EMS.

TABLE 2

Medical Knowledge and Use of EMS

Level of Knowledge about Medical Matters	Percent Who Would Use EMS
Not at All	44%
Not Very	45%
Somewhat	58%
Very	61%
Extremely	60%

We asked respondents to evaluate the ambulance service in their towns using a five-point scale with ratings from poor to excellent (Table 3). Only 38% of those who said they do not know enough about their local ambulance service to rate it would use EMS. When respondents gave a fair rating, appropriate use rose to 54% - a substantial gain. A 65% - 69% use factor was noted for those who rated their service "very good" or "excellent" (2). Clearly, the higher their estimation of the service, the more often people used it appropriately. It could be said that if we do not let the public know about EHC services then we are the ones who are putting them at risk.

TABLE 3

Evaluation of Ambulance Service and Use of EMS

Rating of Ambulance Service	Percent Who Would Use EMS
Don't Know	38%
Fair	54%
Good	52%
Very Good	65%
Excellent	69%

We also asked consumers to evaluate different aspects of EMS in their community (2). The identical question was asked of EMTs.

TABLE 4

Comparison of Consumer and EMT Evaluations of EMS

Evaluation Area		Percent Excellent or Very Good
Level of Treatment Given by EMTs	EMTs	84%
	Public	50%
EMS Crew Concern for Patients	EMTs	83%
	Public	53%
Quick Delivery to the Hospital	EMTs	78%
	Public	55%
Overall Quality of Ambulance Service	EMTs	76%
	Public	48%
Quick Response Time	EMTs	72%
	Public	46%
Ambulance Equipment Available	EMTs	69%
	Public	44%

Table 4 shows that in every category, EMTs rate their service and their companies more highly than the public. Clearly, the public doesn't see EHC as we see ourselves. This underscores the importance of knowing what consumers think in order to improve perceptions of EHC programs and providers.

In summary, an effective public education program requires accurate and current information about the market for EHC. Research in Connecticut shows that the public is reluctant to use the EMS system and may give relatively low ratings to providers. Attitudes toward EMS and a lack of information can serve as barriers to system use. Now we turn to ways to improve public use and perceptions of EHC.

MARKETING EMS: SOME CONSIDERATIONS

Developing a marketing program for any aspect of a high involvement service like EHC is an immense challenge. As noted earlier, it is intangible, difficult to evaluate, and permits no trial use. Further, what works in one community or country may not be at all effective in another. Nevertheless, we are going to suggest some guidelines and practices that have worked well in the past or, based on our research, should be successful in improving appropriate EHC use.

The Marketing Program

Marketing uses an integrated program that sends consistent messages to the public according to an overall plan. A marketing plan has several components.

The first is the product and/or service mix. People need to know what you offer: emergency care only, routine transfers, wheelchair transports, disaster planning for businesses? Do you provide basic life support or advanced life support? What is the product you are offering your consumer?

Second, consumers should know the price or value of the services you offer. Only 54% of consumers can properly identify whether it is a volunteer, commercial, or municipal company that provides their EMS (2). Volunteers may not charge for service, but the public doesn't know that unless they have been told. Similarly, paid companies should describe their fees in economic terms consumers can understand. Whether revenues are from donations, tax subsidies, or fees, people need to know they are paying for and receiving fair value.

The distribution component includes the areas and facilities you serve and base locations. If the company serves only a local area, or if it limits the distance it will travel, make sure people know those parameters. If there is more than one location where vehicles are located, people should know where those are. Finally, they should know when to call and how to call.

Fourth, is the communication program centered on outreach to elements of the community. Special efforts may be made to communicate with consumers who are senior citizens or in group homes and half-way houses, as well as those who have disabilities or health problems.

The last and most important component of your marketing program is your personnel, paid or volunteer. It is the EMT, the lowest person on your organization chart, who probably provides most of the service to the public. EMTs give direct patient care and leave lasting impressions with the patient, family, and bystanders.

Marketing EMS in Connecticut

The development of marketing programs may be undertaken by any segment of the EHC community. Connecticut has a decentralized EHC system as do most of the United States. Other countries are much more centralized, and their program development tends to emanate from one lead agency. In the United States, most program development is done by regional organizations and local ambulance companies. Communication activities in Connecticut include: bumper stickers for awareness and recognition; billboards on secondary roads; brochures explaining the regional EMS system; booklets and brochures explaining a particular town's response system and how to get help; and a coloring book to distribute during elementary school programs.

Messages to Consumers and EMTs

There are many ways to deliver the EHC message. One of the most common is the use of fear. While fear is usually not a good motivator, there are companies which use this appeal. In one case a commercial company's advertisement pictured a straight razor with the headline, "You could be cutting your own throat." The copy stated: "A quick call to just any ambulance service could be a short cut that could end up hurting you or a member of your family." This advertisement had very interesting repercussions. The company's location is surrounded by towns with volunteer response companies Since patients can call any company they want, some of the volunteers were concerned that they would lose clientele to this private company. The appropriate response in those surrounding towns would have been for the volunteers to get out and tell their townspeople about the services they were offering, but that did not happen, they missed a golden opportunity.

A fear approach has also been used in recruiting posters. In one example, the top half of a poster states, "You need it," and shows a large group of technicians near an ambulance. At the bottom it states, "It needs you," and there is a "For Sale" sign on the ambulance. Our survey of EMTs indicates that people are more likely to volunteer their time, energy, and money to organizations which are ongoing and healthy and are perceived to be doing a good job.

We would suggest that for EMTs more powerful motivators are the opportunity to help others and to receive group acceptance. Pictures of EMTs displaying camaraderie and close, warm relationships will result in recruits and engender trust and approval of the EMS system. Heroes are an American stereotype that have been used successfully in campaigns to promote trust in the EMS system. The hero concept also can be a good recruiting tool for paid and volunteer staff, fostering the idea that "I can do something to make a difference."

EHC can offer consumers other kinds of benefits. For most consumers, the opportunity to do exciting or even ordinary things, the time to be with family and loved ones, or the chance at life itself can be the gain from using the EHC system in the community.

Communication Channels: Experience in Connecticut

To get EHC messages to all segments of the community, we make use of many intermediaries. Corporations and businesses distribute brochures in pay envelopes, display information posters on bulletin boards, and mail fliers with their billings. Small businesses in towns and villages display posters, put brochures on the counter, and pack information in bags with purchases.

Organizations frequently welcome speakers on topics of interest to their members. A presentation tailored to each group to meet its members' needs will reach leaders and the membership. Time spent developing these talks may benefit EHC providers by identifying potential recruits, generating donations, or providing another communication vehicle through the organization's newsletter

Public schools use coloring books to reinforce "show and tell" demonstrations for children. These sessions are planned to familiarize children with the ambulance and technicians and to teach them how to call for help when they need it. The coloring books can be taken home so parents also become aware of the EMS system.

Universities use an EMS marketing case to teach market segmentation in public administration and marketing courses. Students develop advertisements, posters, and other materials to reach specific audiences. Each class introduces 30 or 40 future public officials to EMS each year

Public officials and lawmakers are crucial to the success of EHC programs. When a lawmaker feels free to call with problems or to get information, it is possible to influence legislation, regulations, and program funding. Town officials need knowledgeable people to consult for planning programs and response patterns for citizens.

Nurses and other health care providers are usually the people most involved in teaching patients. Discharge planners and office nurses talk to people who are likely to have medical emergencies. They can tell patients what services are available in their town and what signs or symptoms should cause them to call for emergency help immediately. They can also advise about the problems which do not warrant an emergency response.

The media frequently use EHC to make news Journalists are very important contacts because their presentation, positive or negative, can have a great influence on public acceptance or rejection of EHC programs. Time spent in background briefing and developing broad EHC concepts will foster a balanced presentation of the issue. It is also wise to be available when important events occur so reporters can get factual information immediately.

To summarize the major principles of a marketing program:

1. See the world from a consumer's point of view Recognize that EHC providers have a different picture than do those with less knowledge.

2. Learn about your consumers. Find out what the public is thinking and what they are doing. Some organizations now conduct small surveys in their towns to gauge local use patterns, attitudes, and needs.

3. Include marketing as part of your annual plan. At some point each organization plans the objectives for

the upcoming year. If a commitment to a marketing program is included and budgeted, it will get done.

4. Be consistent to be effective. If the organization's goal is to promote the health and safety of the community then all of the activities of the organization and its members should foster that goal. Sending out mixed messages will confuse people.

5. Attempt total coverage of the market. Look at the major groupings of consumers which are found in your community and plan to present at least one message which will have an impact on each group.

6. Advertise health care as people, not equipment. People are the warm, caring, and sharing heart of EHC programs. Avoid appeals are based on fear.

7. Don't worry about the budget. Good ideas don't cost a lot of money. Some of the best ideas come from students and others whose creative minds look at EHC from a new and different perspective.

8. Be seen as excellent - it makes a difference.

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CITIZENS' CARDIOPULMONARY RESUSCITATION TRAINING PROGRAM IN A DEVELOPING COUNTRY - MALAYSIAN EXPERIENCE

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INTRODUCTION

In Malaysia, coronary heart disease (CHD) and cardiovascular diseases rank first among the ten leading causes of death. The incidence of these diseases has been steadily increasing since 1961, similar to the incidence of CHD in more advanced countries. While this incidence in countries like USA has been dropping gradually over the last decade, this is not the picture in Malaysia. Why is this so? There has been no conclusive study done locally so we can only draw comparisons from the experience of other countries that have this problem.

The increasing affluence of the Malaysian Society, increasing industrialization with the associated increased stress in the society in achieving this affluence, changes in the traditional dietary habits and lifestyle, and increase in smoking among the local population, widely encouraged by aggressive and often camouflaged means of promotion by multinational tobacco companies could be some of the causes of increasing incidence of heart diseases here. In Malaysia, it has been found that CHD is occurring in a relatively young population - a population that is economically active and highly productive to the nation.

Basic Life Support (BLS) is the foundation upon which any life support system rests. No matter how elaborate a hospital emergency medical system might be, such a system is doomed to failure unless all doctors, nurses, medical assistants and a certain percentage of the population are trained in BLS. It is the person who is present within the first four minutes of sudden cardiac arrest who determines whether or not the victim will live.

The concept and practice of CPR have grown rapidly in many developed nations since 1973. A major impetus behind the high level of enthusiasm has been an increasing awareness of the magnitude of the problems of premature cardiovascular morbidity and mortality. It is well known that more than 50% of deaths due to myocardial infarction occur outside the hospital and most of them within the first two hours after the onset of symptoms.

Experiences of several communities with an advanced approach to the cardiac arrest victim (ie., where there are large numbers of laypersons trained in BLS and with a rapid response system of well trained paramedics, have demonstrated that more than 40% of victims with proven ventricular fibrillation out-of-hospital can be successfully resuscitated if CPR is provided promptly within four minutes and closely followed by Advanced Cardiac Life

Support (ACLS). In the absence of prompt bystander CPR, successful resuscitation of the prehospital cardiac arrest victim is reduced to about 10% despite the availability of a well trained paramedic team with a rapid response time.

Unfortunately, the knowledge and the ability to provide effective CPR is lacking in our country. This ignorance occurs not only among the laypersons but also in rescue personnel, ambulance staff, and a large proportion of doctors and nurses. The reasons for this pathetic state of affairs are:

1. There was no proper teaching of CPR during the undergraduate course or the internship period for doctors or during the training years for medical assistants and nurses before 1986.

2. There was no systematic teaching backed up by practice on manikins or drilled responses. There was also no testing of practical skills.

3. Variable skills were acquired by trial and error when emergencies occurred. In this context, efforts at resuscitation, even when a doctor was present, were often unsuccessful since a dying patient was not the best practice manikin for CPR.

4 Since doctors train nurses and other paramedical support personnel, what is taught superficially to the former gets transmitted downstream to continue the inefficiency.

5. CPR training for laypersons was virtually non-existent except in certain organizations like the Red Crescent Society and St. John's Ambulance Brigade. Evaluation of these training programs showed that the guidelines used by these organizations were out of date, and many programs did not even have manikins for practice

NATIONAL CPR PROGRAM

Based on the experiences of other developed communities and in view of the unsatisfactory situation prevailing on our country, a broad-based CPR training program was deemed essential. The Critical Care Section of the Malaysian Society of Anesthesiologists was acutely aware of this problem and was concerned. It applied to the Academy of Medicine for help in starting this project. The Tun Abdul Razak Award for CPR was awarded. The Critical Care Section then applied to the Ministry of Health for its support to make this a viable and sustained project for the benefit of the country However, the Health Ministry support for this project was limited to training of its own employees. The training of laypersons was not included. This is rather unfortunate but understandable because in 1986 when the project was implemented, the nation was going through a severe recession and financial resources were limited.

General Objectives

The general objective of the National CPR Project under the Ministry of Health was initiated to organize a training program for doctors, nurses, and medical assistants in CPR

Specific Objectives

The specific objectives of the program were:

1. To train a group of dedicated instructor trainers in Basic Life Support and Advanced Cardiac Life Support according to the Standards of the American Heart Association (AHA) at the central level,

2. To train health care personnel primarily to provide a core of instructors at the state level;

3. To organize BLS courses in various peripheral hospitals in the interim period before the state level teams could take charge of training;

4. To set standards for evaluation and testing in order to certify those who achieve satisfactory levels of training; and

5. To train ACLS providers for various hospitals in the country.

Implementation

1. Phase I - Four health care providers from the General Hospital in Kuala Lumpur attended a course on modified BLS organized by the Ministry of Health in Singapore These instructors then organized a pilot program in February-May 1986. A group of forty doctors, nurses, and medical assistants from various parts of the country and medical schools were trained in BLS.

2. Phase II - In June 1986, the training faculty from the AHA was invited to conduct BLS and ACLS instructor courses in Kuala Lumpur. The BLS-certified health care providers from the pilot program formed the candidates for the courses conducted by AHA. On completion of these courses, the instructors were given the task of initiating CPR programs in their respective hospitals

3. Phase III - Expansion of the CPR training program to regional hospitals was implemented in 1987. Due to limited financial resources, many states have not

implemented their own training programs. Instead, the central training team still conducts the BLS providers course.

4. Phase IV -
   a) The national CPR training program is now in the fourth phase, where it is incorporated into the undergraduate medical curriculum as well as the postbasic courses for nurses and medical assistants; and
   b) At the central level, the program is now being extended to the voluntary organizations like the Red Crescent Society and to Government Departments like the Police and Fire Services.

CITIZENS CPR TRAINING PROGRAM OF MALAYSIAN MEDICAL ASSOCIATION (PERAK)

This program can be considered as an off-shoot of the national program. Since the national program did not have provisions for large-scale training of laypersons, the Perak Branch of the Malaysian Medical Association (MMA Perak) decided to launch the Citizens' CPR Training in the Perak State as a non-profit community service program.

Objectives

1. To promote awareness of the magnitude of the CHD problem among our population, and to educate the public on primary prevention of coronary heart disease and secondary prevention;

2. To train both laypersons and health care providers in BLS. The primary target group of our program is the layperson. Since there was no structured CPR training for health care providers in both the private and public sector hospitals in our state, we have extended this program to them as well; and

3. To disseminate information on recent developments in CPR to various hospitals in the state, as well as to assist them in setting up Emergency Care Teams, like the Code Blue Team, to provide CPR services within hospital settings.

The objectives were formidable indeed and where did we start? From the very beginning, for it is a very good place to start.

The Perak Branch of the Malaysian Medical Association (MMA Perak) formed a committee to implement the program, and the first task of this committee was to look for funds to purchase equipment and to conduct the courses. Obtaining funds like everywhere else is a big problem but we were lucky in many ways.

There are many well wishers and philanthropic organizations in our country. The first one to respond to our request for donations was the Chairman of the Critical Care Section of the Malaysian Society of Anesthesiologists who donated a manikin from the Award for CPR he received from the Academy of Medicine. The Critical Care Section is also the cosponsor of this program providing technical assistance. The Malaysian Society of Anesthesiologists reciprocated this gesture by donating another manikin.

The Lions Club of Ipoh is another organization which came to the support of our program, and is also a cosponsor. The Lions Club of Ipoh is well known for its special program in caring for children with heart diseases and is also active in promoting healthy living by organizing no-smoking campaigns, hypertension and diabetes screening. This Club donated two manikins and continues to give support to the program. Another philanthropic organization that donated to the program is the Perak Turf Club.

Involvement of service clubs like the Lions or Rotary in a program of this nature can be of immense help; they have a far-reaching network of influential contacts and easy access to the various media for publicity. Generally, their organizational capabilities are superb, and we are richer in experience by associating them with our program because they are tenacious in seeing to it that their projects succeed.

After securing enough financial support, a group of instructors had to be trained to teach laypersons and health care providers. Thirty doctors, nurses, and medical assistants who volunteered to serve in the program were trained by the Training Team from the Ministry of Health with financial help from the MMA Foundation. With this core of instructors, the program had a modest beginning in June 1987, when it was launched with a public lecture and display of CPR in an indoor stadium.

Course Content

The AHA program was chosen as the basis of our program. The reasons for this choice are:

1. Structured courses are available;
2. The courses are well tested in many communities;
3. The course materials are easily available;
4. The program includes comprehensive manuals for instructors and providers;
5. The materials are characterized by meticulous attention to detail; and
6. The courses are suitable for new programs.

Two types of courses are offered in our program:

1. Heart Saver Course (AHA Course A):
   This course consists of one-rescuer adult CPR and management of adult airway obstruction. This course is primarily for laypersons as recommended by the AHA; and

2. Basic Life Support Course (AHA Course C):
   This course consists of one-rescuer CPR for adult, infant, and child; two-rescuer CPR for the adult; and management of airway obstruction in conscious and unconscious victims - adult, child, and infant. This course is for health care providers and selected groups of laypersons like lifeguards, police, and fire services personnel.

In addition to the practical training, the participants in both types of courses are given lectures on Basic Anatomy and Physiology of the Cardiovascular System and Respiratory System. The second lecture on coronary heart disease includes:

- Aspects of primary prevention of coronary heart disease, prudent heart living, risk factors detection and modification; and

- Aspects of secondary prevention including recognition of signs and symptoms of a heart attack, teaching how to gain access into the Emergency Medical Services System (calling an ambulance) and the importance of prompt bystander CPR.

At the end of each course, the participants who wish to be certified are given a written test as well as a performance test. Satisfactory performance in each of the modules is necessary for certification.

The program is under the supervision of the National CPR Committee of the Critical Care Section which provides all teaching aids and course materials, certified all instructors, and evaluates the regional programs.

TABLE 1

CPR Courses From June 1987 to December 1988

The data on number of participants, percentage certification, and other details are given below:

Course	# of Courses	# of Participants	Percent Certified
Heart Saver Course	18	217	72.4%
BLS Course	7	89	79.7%

A total of 281 lay people and 25 health care providers participated in these classes. The average age of the participants was 23.4 years (ranging from 11 to 55 years). Participants included school children; members of Red Crescent, St. Johns Ambulance; Members of Service Clubs; Employees of Clubs, Hotels, Beach resorts, Fitness Centers, Gyms; Instructors of the Outward Bound School, Lumut, Perak, Malaysia; Members of the Sea-Rescue Unit, Lumut, Perak, Malaysia; Health Care Providers; and Relatives of Patients with CHD.

PROGRAM ORGANIZATION

1. Principal Sponsor: State Branch of MMA;

2. Cosponsors:
   - Critical Care Section of the Malaysian Society of Anesthesiologists;
   - Lions Club;

3. Program Organizing Committee: Establish secretariat: Get an Executive Secretary (part-time Honorarium);

4. Core of Instructors - CCS: Identify course directors; Good mixture of various language groups:
   - Health Care Providers;
   - Suitably qualified layperson;

5. Finance:
   - Instructor training = MMA Foundation;
   - Purchase equipment = Donations;
   - Operational costs = Course fees;
   - Development costs = Grants from;

6. Government: Donations;

7. Planning venue and dates for courses:
   - Easily accessible to public (hospital);
   - Availability of audio-visual aids;
   - Permission to use the venue;

8. Publicity:
   - Radio, television, newspapers;
   - Printed materials - posters, handbills;
   - Talks in clubs, schools, consumer associations, women's organizations, etc.;
   - Service club network;

9. Registration of participants:
   - Preregistration essential;
   - Expect 10-20% dropout;
   - Overbook by 10-20% to maintain optimum number per course;
   - Reduces wastage of resources;
   - Course material mailed two weeks before course;

10. Establishment of liaison with National CPR Committee of CCS:
    - Obtain course materials, teaching materials - tapes, and slides;
    - Update course contents;

11. Continuing active participation and educational activities of instructors;

12. Provision for uniform system of data collection;

13. Development of a mechanism to maintain quality control;

14. Liaison of prehospital program with hospital-based ACLS team;

15. Present drawback: ACLS trained rapid response teams not available widely: Role of Ministry of Health vital to rectify this situation as voluntary bodies are not able to provide this service;

16. Course Organization: Confirm venue at least four weeks before course;
    - Preregister participants at least three weeks before the course;
    - Mail course materials at least two weeks before the course (cover letter, course manual, performance sheets);
    - Confirm instructors;
    - Match instructors to participants if possible (eg., for physicians, recruit an instructor who is a physician);
    - Plan one instructor to one manikin to four participants;
    - Confirm Course Director to deliver the didactic part of the course, to administer the written test and to provide overall supervision;

17. Check equipment;

18. Arrange refreshments;

19. Prepare participant list, scoring sheets, and name tags;

20. On the day of the course:
    - Register participants;
    - Introduce the course and the instructors;
    - Provide lectures;
    - Provide video presentation;
    - Provide hands-on training;
    - Test participants;
    - Schedule a data for retesting;

21. Average duration of courses:
    - Heart Saver Course = six to eight hours;
    - BLS Course = eight to ten hours;

22. After the course:
    - Evaluate the performance of course participants and instructors;
    - Complete instructors report;
    - Prepare and mail certificates;
    - File participant data;

Problems

Volunteer Instructors: Volunteer dropout is the biggest problem. For various reasons - like transfer of personnel to other states, resignation, emigration to other countries, or sheer loss of interest - our volunteer core of instructors has shrunk. This has made it necessary for us to look for new volunteers and it is quite a battle to convince them to be trained and to retain them.

Laypersons/Cancellations: There has been no problems so far in getting enough participants for each course. However, in our experience, there was 10 to 20 percent cancellation of registration by the preregistered participants, and our solution to prevent wastage of resources was to overbook by this percentage to maintain the optimum number for each course.

Laypersons/Language Problem: Malaysia is a multiracial and multilingual country. The national language and the medium of instruction in schools is the Malay language, and the standard of achievement in the English language has fallen dramatically in the last two decades. The younger participants seem to have problems understanding the course materials sent to them, though it is in fairly simple English. Recognizing this problem, steps have now been taken to translate all these materials into the local national language, and soon these will be available to participants not proficient in the English language.

Health Care Providers/Retraining: Retraining of some health care providers who had some form of CPR training before was occasionally problematic. We often met with initial resistance to learning the new guidelines. However, we soon broke down their defenses with patient explanation and reasons for the new standards.

Health Care Providers/Resistance to New Guidelines: Resistance to implementing new guidelines by hospital staff may also be a problem. To achieve compliance, it is best to convince the top-level administrator who will then be able to instruct subordinates to implement the new guidelines.

ROLE OF THE CRITICAL CARE SECTION (CCS) OF THE MALAYSIAN SOCIETY OF ANESTHESIOLOGISTS

The CCS and the National Heart Association of Malaysia were primarily responsible for initiating the National CPR program through the Ministry of Health though this is now primarily confined to employees of the Government hospitals. The CCS has now recognized the important of extending the hospital CPR program into the community and will assume responsibility for implementing the program nationwide by taking the following actions:

- Establish liaison with interested organizations in each state (ie., State Branch of Malaysian Medical Association);
- Train instructors for the program in each state;
- Provide teaching aids and course materials through bulk purchase or printing;
- Set standards for teaching, testing, and evaluation of the program and approve the state programs and provide overall supervision;
- Provide for uniform data collection nationwide;
- Develop mechanisms to maintain quality control:
  - Periodic evaluation of the program;
  - Recertification of instructors;
- Establish liaison with the American Heart Association which provides the essential worldwide assistance in CPR programs; and
- Coordinate with the Ministry of Health to develop rapid response emergency medical system and ACLS teams.

SUMMARY

Coronary heart disease is the number one killer disease in Malaysia. However, most health care providers and laypersons lack the knowledge and ability to perform effective CPR. The organization of the cardiopulmonary resuscitation training program in Malaysia, both at the national level and at the regional level, has been discussed.

ACKNOWLEDGEMENT

This program would not have been possible if not for the assistance rendered by several organizations within Malaysia. These included both governmental and non-governmental agencies. The program is dependent upon a core of volunteer instructors whose dedication to this community service is greatly appreciated. Fatimah Hospital, Ipoh Specialist Center and General Hospital, Ipoh, allowed the use of their premises for conducting the courses.

The Medical-Anaesthetic Associates have graciously agreed to the use of their office facilities for the Secretariat of the program. Efficient secretarial services are provided by Ms. Wendy Wong.

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AWARENESS AND PREPAREDNESS FOR EMERGENCIES AT LOCAL LEVEL: A PROCESS FOR HANDLING TECHNOLOGICAL ACCIDENTS

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In late 1986, following various industrial accidents that occurred in both highly industrialized and industrializing countries, resulting in adverse impacts on the environment, the United Nations Environment Programme (UNEP) suggested a series of measures to help governments, particularly in developing countries, minimize the occurrence and harmful effects of chemical accidents and emergencies. In particular, even if it is believed that all industrial accidents are preventable, one must be realistic enough to prepare response plans in the event that such accidents occur. Such preparation should lead to a better understanding of local hazards, and thus to preventive actions.

In this context, the UNEP Industry and Environment Office (IEO) have developed, in cooperation with industry, a Handbook on Awareness and Preparedness for Emergencies at Local Level (APELL), designed to assist decision-makers and technical personnel in improving community awareness of hazardous installations, and in preparing response plans should unexpected events at these installations endanger life, property or the environment.

APELL has two main goals:

- Create and/or increase community awareness of possible hazards within the community; and

- Based on this awareness, develop a cooperative plan to respond to any emergencies that these hazards might present.

The APELL Process advocates a cooperative approach to technological accidents. APELL has also been prepared by UNEP/IEO in a cooperative way, with the Chemical Manufacturers' Association (CMA) and the Conseil Européen des Fédérations de l'Industrie

Chimique (CEFIC). It has involved other international organizations (and in particular the CEC, OECD, WHO, UNIDO) and non-governmental associations.

THE APELL PROCESS

Why APELL?

Recent events raise the issue of safety and emergency preparedness for all people in all nations of the world.

Everybody still has in mind the dioxin-containing release in Seveso in 1976, the propane explosion in Mexico City in 1984, the release of methylisocyanate at Bhopal in 1984, the fire and discharge of contaminated waters in the Rhine in 1986 from a warehouse in Basel.

It is now universally acknowledged that every disaster, whatever the cause, has an environmental impact.

While most industrial accidents can be contained within the boundaries of the industrial plant, there are those cases where impacts extend beyond its boundaries to affect the plant neighborhood and have adverse short- or long-term consequences affecting life, life-support systems, property, or the social fabric. The extent of loss caused by such accidents depends to a large extent on the actions of the first responders to an emergency, within the industrial facility and the local community around it.

Clearly, adequate response to such situations calls for well coordinated actions of individuals and institutions from the local community. This can only be achieved if there is awareness in the community of the possible hazards and of the need for mutual preparedness to cope with their consequences.

The APELL Handbook describes a process for such a cooperative action to improve community awareness and emergency preparedness.

What is APELL?

APELL involves two basic aspects:

- To create, and/or increase community awareness of the possible hazards involved in the manufacture, handling and use of hazardous materials, and of the steps taken by authorities and industry to protect the community from them; and

- To develop, on the basis of this information, and in cooperation with the local communities, emergency response plans involving the entire community, should an emergency endangering its safety arise.

Thus APELL consists of two parts:

- Provision of information to the community which will be called "Community Awareness"; and

- Formulation of a plan to protect the public, which will be called "Emergency Response".

APELL addresses all emergencies related to any industrial or commercial operation with potential for fire, explosion, spills or releases of hazardous materials. How to determine which industrial and commercial operations should be concerned by the APELL Process is in principle the result of a risk assessment. In most cases however simple judgement and common sense may identify the facilities which may present a potential for a major accident. Also the criteria (lists of substances and threshold levels) set up in international or national regulations or recommendations may provide guidance.

APELL is flexible. It is clear that the various countries differ in culture, value systems, community infrastructure, response capabilities and resources, and in legal and regulatory requirements. Their industries present different potential dangers and risks. However, all these differing situations have one common need: the ability to cope with an industrial accident affecting the local community. The APELL Handbook provides the basic concepts for the development of local action plans, which can be adapted to the local conditions.

Since the containment of health and environmental impacts depends upon the speed and scope of the initial local response, the emphasis is thus directed at local level participation. The Handbook recognizes, however, the fundamental roles of national governments, ministries, and the chief executive officers of industries to support and assist these efforts at the local level.

Finally, this Handbook is neither a unique model for the coordination of the efforts of all participants in the APELL Process, nor is it a detailed manual of the actions and requirements for initiating and implementing the APELL Process successfully. It is more a policy document that sets out the objectives and overall organizational framework for APELL. The objectives remain unchanged yet the mechanics of the operation will change from place to place, and must be adapted to specific local conditions and requirements.

What are the Objectives of APELL?

APELL's overall goals are to prevent loss of life or damage to health and social well-being, avoid property damage, and ensure environmental safety in the local community. Its specific objectives are:

- Provide information to the concerned members of the community on the hazards involved in industrial operations in its neighborhood, and the measures taken to reduce these risks;

- Review, update, or establish emergency response plans in the local area;

- Increase local industry involvement in community awareness and emergency response planning;

- Integrate industry emergency plans with local emergency response plans for the community to handle all types of emergencies; and

- Involve members of the local community in the development, testing and implementation of the overall emergency response plan.

Who are the APELL Partners? and What are Their Responsibilities?

At the local level there are three very important partners who must be involved if APELL is to succeed:

- Local authorities: these may include province, district, city or town officials, either elected or appointed, who are responsible for safety, public health and environmental protection in their area;

- Industry: industrial plant managers from either state-owned or private companies are responsible for safety and accident prevention in their operations. They prepare specific emergency preparedness measures within the plant and establish review of the industrial plant's operation. But their responsibilities do not stop at the fence. As leaders of industrial growth and development, they are in the best position to interact with local authorities and leaders, to provide awareness on how the industrial facility operates, and on how it could affect its environment and to help prepare appropriate community response plans in the event of an emergency. The involvement and active participation of the work force is also important; and

- Local community and interest groups, such as environmental, health, day care, media, and religious organizations, and leaders in the educational and business sectors that represent the concerns and views of their constituents in the community.

At the national level, governments have an important role to provide the cooperative climate and support under which local participants can achieve better preparedness. Through leadership and endorsement, national authorities should foster participation of everyone at the local level. Industry associations should also get involved.

There are other partners. The APELL Process is designed to harmonize with other initiatives and efforts in reducing risk and hazards as well as their consequences.

STARTING THE APELL PROCESS

How Will APELL Work?

All industrial facilities have a responsibility to establish and implement a "facility emergency response plan". A key foundation for such a plan is a safety review of facility operations. This safety review, which is central to a company safety plan, examines in detail those items that affect safe operation of the facility. One part of this in-depth review by the facility management is the preparation of an emergency response plan. It is worth noting that several components of the emergency response plan involve notification and communication, with both authorities and citizens of the local area surrounding the industrial facility.

In addition to the existence of facility emergency plans, there may also be national government emergency plans or programmes in place. The APELL Process is designed to build, using all emergency plans that may already exist as a basis, a coordinated single plan that will operate effectively at the local level where first response efforts are so critical. While national organizations and plans exist for emergency response, there is always the need for an effective support structure at the local level.

In order for local authorities and local leaders to play their most effective roles with respect to awareness and preparedness for emergencies, there must be close and direct interaction with representatives of those industrial facilities to which the local area plays host. Indeed, local authorities and leaders and industrial representatives need to find the means to build a bridge between local government responsibilities and industry responsibilities. The APELL Process recognizes this need for a bridge.

The Coordinating Group is clearly the mainspring of the APELL Process. Members of the Coordinating Group must be able to command the respect of their various constituencies, eg. industry, local group, etc., and be willing to act cooperatively in the interest of local well-being, safety and property. The Leader(s) of the Coordinating Group ideally should be able to ensure motivation and cooperation of all segments of local society regardless of cultural, educational, economic and other dissimilarities among these segments. This attribute of the Leader(s) of the Coordinating Group needs to be kept firmly in mind when selecting individuals to act in the role of Leader(s).

In sum, the Coordinating Group's role arises since industry is primarily responsible for protective actions "inside the fence" while local government is responsible for the safety of the general public. The role of the Coordinating Group is to provide the bridge between industry and local government with the cooperation of community leaders and develop a unified and coordinated approach to emergency response planning and

communication with the community. It should be clear that the Coordinating Group has not itself a direct operational role during an emergency, but is preparing the various parties involved to be ready and know their tasks should an accident occur.

How to Form the Coordinating Group

The key organizational step to make the APELL Process work is the formation of a Coordinating Group representing the various constituencies that have or should have a voice in the establishment of an emergency response plan. The group should include members from local authorities, local community leaders and industry. It is important to bear in mind that all affected parties have a legitimate interest in the choices among planning alternatives. Strong efforts should therefore be made to ensure that all groups with an interest in the planning process are included.

In particular, plant managers of industrial facilities in the local area need to be active participants in the Coordinating Group. In turn, local authorities and community leaders need to know that these plant managers are acting with the blessing and authority of the highest officers of their respective organizations, in order to ensure the success of the APELL Process.

The APELL Process may be initiated by any member of the three involved groups: local authorities, local community leaders, or industry managers.

BUILDING COMMUNITY AWARENESS

The Need for the Local Community to Know About Hazardous Installations

Citizens in local communities have expressed concern that potentially hazardous materials which could affect their health and environmental safety may be produced or used in their community. These citizens want to know if these materials are present; their concern is often termed the "Right-to-Know".

In addition they need to be informed about potential risks of hazardous installations to understand why an emergency plan has been established, how it works, and what actions are to be taken in case of emergency.

Such principles are embodied in many regulations or recommendations such as the guidelines for World Industry set forth by the International Chamber of Commerce.

What and How to Communicate

There is really nothing mysterious about a community awareness programme. A fenced-in industrial plant can look threatening to the public. But much of the mystery disappears when people know what the plant uses and manufactures, that it has a good safety plan and safety record, and that an effective emergency plan exists.

No one can prescribe the activities necessary for a local awareness programme that will fit every industrial facility or complex at every location. However, industry managers, local authorities or community leaders should consider the following points:

- Define the local community concerned;
- Inventory existing local community contacts;
- Contact other industrial facilities to coordinate community activities;
- Plan an initial meeting of the Coordinating Group;
- Develop fact sheets or kits on each industrial operation;
- Develop fact sheets on community preparedness;
- Assign responsibility for communications tasks;
- Look for communication opportunities;
- Select methods of communications appropriate for local circumstances; and
- Get outside help.

The Do's and Don'ts of Information

In preparing and building this community awareness, the following considerations should be borne in mind:

- All parties active in the APELL Process have a duty to keep the public informed as to the progress. Moreover all parties have a responsibility to insure that the public does not receive conflicting or confusing messages;

- Developing relationships with the media is not a magical process, but rather one that requires time and effort on the part of plant managers, local authorities, community leaders and the Coordinating Group as a whole; and

- Media relation efforts, like local area cooperation programmes cannot be started after trouble has arisen.

Some of these considerations may seem obvious, but recent events show that they are not.

ACHIEVING PREPAREDNESS FOR EMERGENCIES

Issues to be Addressed

Among the first steps in the planning process are the gathering of information and assessment of the current situation. One of the first tasks facing the Coordinating Group is the collection of basic data. This can be done

through personal contacts by Coordinating Group members or by surveys sent to local industry and government offices to:

1. Identify local agencies making up the community's potential local awareness and response preparedness network;

2. Identify the hazards that may produce an emergency situation;

3. Establish the current status of community planning and coordination for hazardous materials emergency preparedness and assuring that potential overlaps in planning are avoided;

4. Identify the specific community points of contact and their responsibilities in an emergency;

5. List the kinds of equipment and materials which are available at the local level to respond to emergencies;

6. Identify organizational structure for handling emergencies;

7. Check if the community has specialized emergency response teams to respond to hazardous materials releases;

8. Define the community emergency transportation network;

9. Establish the community procedures for protecting citizens during emergencies; and

10. Set up a mechanism that enables responders to exchange information or ideas during an emergency with other entities.

The above issues cover only some of the major considerations or issues that should be resolved within or by the Coordinating Group. More details will be found in the APELL Handbook.

A Ten-step Approach to the APELL Process for Planning for Emergency Preparedness

Based on experience, a ten-step approach to implement the APELL Process can be set forth which leads to a useful and effective integrated community emergency response plan. Significant effort will be required to complete each step. Listed below are the ten steps which are also presented in a flow chart.

- Identify the emergency response participants and establish their roles, resources and concerns;
- Evaluate the risks and hazards that may result in emergency situations in the community;
- Have participants review their own emergency plan for adequacy relative to a coordinated response;
- Identify the required response tasks not covered by existing plans;
- Match these tasks to the resources available from the identified participants;
- Make the changes necessary to improve existing plans, integrate them into an overall community plan and gain agreement;
- Commit the integrated community plan to writing and obtain approvals from local governments;
- Educate participating groups about the integrated plan and ensure that all emergency responders are trained;
- Establish procedures for periodic testing, review and updating of the plan; and
- Educate the general community about the integrated plan.

The APELL Handbook describes the content of each step and provides a checklist useful for completing it.

CONCLUSION

In preparing the APELL Handbook, UNEP/IEO wishes to provide a tool which will enable national and local authorities, together with industry, to be better prepared to prevent and respond to industrial accidents. Of course, we know that this is just an element, a starting point, and that other tools will need to be developed.

In particular we hope that we will be able to start a network to exchange information and experiences throughout the world on the subject. UNEP looks forward to this international cooperation.