CHAPTER

3

HIGHLIGHTS OF PROJECT NO. 1:
1980 SURVEY OF EMS SYSTEMS

Lead Nation: CANADA

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PROJECT OBJECTIVE:

To collect and disseminate information that may be used to plan, implement, and evaluate advances in EMS systems, and to provide basic information for use by other projects in the CCMS/EMS pilot study

INTRODUCTION

One of the CCMS/EMS Pilot Study's major projects during the past two years was the 1980 Survey of the state-of-the-art of emergency medical services systems in the international community. Led by Mrs. F. Lorraine Davies and Mr. David L. Martin, the survey was conducted via a comprehensive questionnaire mailed to a dozen nations that had actively participated in earlier EMS projects sponsored by the Committee on the Challenges of Modern Society. The methodology used by the project directors and the results of the survey are reported below.

METHODOLOGY

The EMS survey questionnaire was developed by the Pilot Study Executive Committee in January 1979. It was drawn up in both French and English and circulated to twelve countries, whose emergency medical services systems are in various stages of development.

The questionnaire, which is attached as Appendix A of this report, asked for information on both general and specific aspects of the countries' EMS systems, such as the governmental authorities responsible for administering or managing the system, the regional organization, the laws and regulations governing the system, public education and training programs, system

components such as communications and transportation, the type of personnel and training requirements, the system's linkage with disaster planning, and any special features of the system.

By the end of October 1980 the following countries had sent in their responses:

Belgium	Luxembourg
Canada	The Netherlands
France	Portugal
Greece	United Kingdom
Iceland	United States
Italy	

The responses were reviewed and summarized by the project directors. A draft of the project directors' report was sent to each respondent for review and comment to ensure accuracy.

SURVEY RESULTS

The results of the 1980 EMS Survey have been organized in three parts. Parts 1 and 2 immediately follow. Part 3 is given in the Appendix.

Part 1, "Summary Description of EMS Systems," briefly discusses the evolution and current status of emergency medical services in each of the eleven nations.

Part 2, "Overview of Emergency Medical Services Systems in Eleven Participating Nations," is a set of three summary exhibits which give highlights of various organizational and operational components of the emergency medical services in the eleven countries. The intent of the exhibits is to show, at a glance, the many different approaches being used to formulate and operate emergency medical services systems. Each nation's EMS system is tailored in accordance with its geography, climate, and institutions.

Part 3, entitled "Expanded Responses to Specific Topics on the CCMS/EMS 1980 Survey," gives further particulars of the eleven EMS systems. (See Appendix B.)

PART 1:

SUMMARY DESCRIPTION OF EMS SYSTEMS IN ELEVEN PARTICIPATING NATIONS

SUMMARY DESCRIPTION: BELGIUM'S EMS SYSTEM

Belgium's emergency medical services system has been evolving over the past 14 years. A succession of Public Health Ministers have worked to expand and improve emergency care for accident victims and citizens stricken with sudden illnesses.

Belgium took its first steps in developing emergency health care in 1956 in response to the special needs of polio victims. Prior to the introduction of polio vaccines, almost 1,000 people were stricken with this disease each year. Polio victims who suffered paralysis of the respiratory system found it difficult to locate a hospital capable of giving them proper assistance. Moreover, locating an ambulance with the proper equipment to transport them to the hospital was equally problematic. As a result, the Public Health Minister created an emergency transport organization consisting of approximately fifteen ambulances, dispersed throughout the country and reserved especially for polio cases. The Ministry also provided assistance to seven specialized centers to ensure that appropriate equipment was available to treat polio complications such as respiratory paralysis. These centers were strategically located in major medical facilities.

It soon became apparent that an emergency intervention system of this kind was needed for many other types of illnesses and injuries. On April 8, 1958, therefore, Belgium modified its Public Assistance Law to include a general emergency transportation service.

The new law required the Public Assistance Commissions to supply emergency transportation to every citizen in their territory who needed emergency aid as a result of an accident or serious illness. The Commissions, however, owned no ambulances or hospitals to carry out this legal requirement, and Belgium had no emergency telecommunications network.

The Public Health Minister responded to the problem by creating a special Commission to study the situation. The Commission later made numerous recommendations, many of which strengthened the emergency communications system. For example, it recommended that the system include:

- A nationwide alert system tied to the telephone system
- A unique, central emergency telephone number
- A central point within the territory (dispatch center) to receive all calls and alert the ambulance service, hospital, police, physician, etc.

By October 1959, the Minister was able to inaugurate the first unified emergency number center -- "Rescue Center 900" -- located at Anvers. The 900 number was designated by the Telegraph and Telephone Commission. Within five years, the system was established throughout the country. The last center, at Courtrai, began operating in December 1963.

Despite the progress in emergency communications, during the period 1958 to 1963 the Public Assistance Commissions continued to have great difficulty in meeting their obligations to transport emergency cases to area hospitals.

Finally, in July 1964, a law was passed transferring to the Ministry of Public Health all responsibility for providing transportation and hospitalization to the sick and injured in emergencies occurring on public roads or in public places. The Public Assistance Commissions retained responsibility for supplying aid in other types of emergencies.

The 1964 law took effect in July 1965, when the necessary regulations were issued. The Ministry of Public Health purchased special EMS vehicles and equipment and the Minister promised to establish an emergency and intensive medical services system.

Shortly thereafter, Belgium introduced its first ambulances, specially equipped to transport cardio-respiratory patients under medical supervision. In addition, highly specialized emergency medical centers with up-to-date emergency equipment including hyperbaric chambers were set up.

Prior to 1964 all funding for emergency medical care was supplied by the Public Assistance Commissions. After the 1964 law was passed, a new fund for emergency transportation was created. The fund is supported by the state and insurance companies on a prorated basis. It is intended to guarantee payment of all costs related to medical care (transportation and hospital care) for all illnesses and injuries covered by the law. The fund is limited to emergency medical care unless the responsible physician feels that the patient's condition warrants specialized emergency care. In this event, the fund will cover additional transportation and treatment at a more specialized medical facility.

Since 1964 a number of royal decrees and several ministerial interpretations have been issued concerning EMS services. Most recently, in 1976, a law was passed that gives the Public Assistance Commissions responsibility for responding to all medical emergencies on private property.

SUMMARY DESCRIPTION:
CANADA'S EMS SYSTEM

Canada is the second largest country in the world in land mass. It has over 23 million people, most of whom reside within 100 miles of the southern border. Obviously there are serious problems in providing emergency medical services to a relatively small population scattered

over such a large geographical area, in a country which has extreme variations in climate. Transporting emergency cases long distances in extreme cold is only one of the challenges with which the country's EMS system must deal.

Under the British North America Act, primary responsibility for the provision of personal health services rests with the provincial governments. Canada is composed of ten provinces and two northern territories -- the Yukon and Northwest Territories. In all provinces and territories, hospitalization and medical services, which include hospital emergency services, are provided under the Provincial Hospital Insurance schemes.

During the past ten years the provinces have gradually begun to provide ambulance services. Currently four provinces provide road-ambulance services. Six provinces subsidize the private ambulance services with provincial funds and these ambulances operate under provincial regulations. The Province of Saskatchewan was the forerunner in providing emergency transportation; it has provided air ambulance service to residents since 1946. Air transport services are now provided by five Provincial/Territorial Governments and one Province had been studying helicopter ambulance service.

All emergency vehicles and support equipment are controlled by provincial regulations or, when these are absent, by guidelines established by the provincial Departments of Health.

Because of its large land mass, long distance communications play a major role in Canada's emergency services. Canada has no nationwide emergency telephone number, largely because the telephone companies are operated on a regional basis. However, the Province of Ontario now has a seven digit emergency number that connects directly with ambulance services. A similar emergency number operates in the greater Winnipeg, Manitoba area as well. A number of other provinces are considering establishing an emergency telephone number.

All vehicles in the emergency services are equipped with two-way radios which connect either a dispatch center or its base, which is generally located at a hospital. Allocation of radio frequencies for emergency purposes is controlled by the federal Department of Communications. Proposals have been made to the Department of Communications asking for greater control over the allocation of radio emergency frequencies. The Department of Communications also has attempted to coordinate the use of radio frequencies with those used by emergency services in various U.S. states which border on Canada.

Canada has no specific policies for designating certain hospitals to receive patients with specific medical problems. In other words, hospital categorization has not yet been universally accepted. However, a number of localities have made agreements regarding the transfer of patients for continuing care once their condition is stabilized.

Emergency departments in the country's larger teaching hospitals are now usually staffed by emergency physicians. Most of these physicians are trained in Canada. Some of the more experienced emergency physicians have applied for American Board Certification. Most emergency

physicians are medical personnel who have completed post-graduate work in surgery, internal medicine or family medicine. Some emergency physicians are former general internists. Several universities now offer three-year resident training programs in emergency medicine.

Both the Royal College of Physicians and Surgeons and the College of Family Physicians are beginning to recognize emergency medicine as a separate specialty. It is expected that criteria for preparation, accreditation, and certification in emergency medicine will be established in the near future. The Canadian Association of Emergency Physicians is also actively promoting and lobbying for the recognition of emergency medicine as a specialty.

SUMMARY DESCRIPTION:
FRANCE'S EMS SYSTEM

France's system for providing emergency medical services has been evolving for approximately twenty years. In July 1959, as part of plans to assist accident victims, the government announced the organization of a general system of emergency medical services to provide care to those in distress. This federal directive focused on policies for ambulance and hospital services.

Since this initial directive, the government has issued three other major policy directives which have further defined the EMS system. The first, issued in 1965, required certain hospitals to establish mobile units to provide first aid and emergency services. The second, in 1965, formally established the country's Emergency Medical Services (Service d'Aide Medicale d'Urgente, or SAMU). In 1970, the government passed the current law governing health transportation. In addition, in 1978, the Ministry of Posts and Telecommunications established a unified emergency telephone number, which has strengthened access to the emergency medical services.

Since 1970 the government has given hospitals both funds and technical assistance to help them upgrade their facilities and equipment and train EMS personnel. There are now 39 training centers for ambulance attendants and other health care personnel.

France's EMS system consists of a nationwide network of SAMU centers. There are 72 such centers operating today. The SAMU are located in hospitals close to the center of service regions and are directed by physicians of the region.

France's emergency medical services are organized regionally. In some regions, many departments are involved. In every region a specific hospital and a university are designated to provide anesthesia and resuscitation services. The regional concept has contributed to the establishment and development of hospital mobile units as well.

France's EMS system is part of the insured health services of France. The cost of emergency medical services is split between the national insurance health services and the patient. Mutual aid societies and private insurance companies offer plans for health care not covered by public insurance.

The Minister of Health has the prime responsibility for managing national EMS services. The Minister establishes policies, regulations, and management directives. Other ministries are responsible for certain types of services in the EMS system. For example, the Fire-Brigade, which responds to certain types of health emergencies, is under the authority of the Ministry of the Interior; the National Police, which plays an important role in community alerts, is sub-ordinate to the Ministry of Defense; and the Plan Administration Division, under the authority of the Prime Minister, is responsible for ensuring that sufficient funds are available to operate the system.

District prefets are responsible for establishing plans to provide first-aid to accident victims and others in distress within their service areas. In cities and towns where sufficient funds are available, the mayor is responsible for establishing emergency medical services.

France has both public and private hospitals and ambulance services. Approximately 400 hospitals are equipped to receive emergency cases. More than 200 of them have mobile units (ambulances). Public hospitals have a central role in the EMS system as they own medically-equipped ambulances and administer the emergency communications services. These hospitals are autonomous institutions under the auspices of the state. Private hospitals also have a major role in the treatment of emergency cases. Thousands of privately-owned ambulances operate today in France.

The Ministry of Health has the major responsibility for collecting and analyzing EMS data. Maintaining national health statistics is strongly encouraged by the Ministry of Health. This is a complex task because the information system in France is not standardized. The Ministry's Statistics Division and Data Processing Division are required to collect certain national data on emergency medical services. In addition, every SAMU is required to compile its own statistics.

SUMMARY DESCRIPTION:
GREECE'S EMS SYSTEM

Greece has never had a national emergency medical services system. Only recently has the country begun to develop a comprehensive, integrated system.

Until recently all emergency medical cases were -- and in many instances still are -- treated on an ad hoc basis by transporting a patient in need of acute care to a private health clinic, a first aid station, or to a hospital. With the exception of Athens, which has a Central

Ambulance Center, emergency transport is largely by private vehicles, mainly taxis.

Greece's health care system has two main features: (1) government and private insurance systems to fund hospital and medical care, and (2) state-owned and private hospitals or clinics, each having about 50 percent of the country's total bed capacity. The private hospitals tend to be small and dispersed. The only ambulances are government-owned and are stationed at government-owned hospitals.

The existence of two insurance systems and two separate health care delivery systems have impeded the development and growth of a comprehensive, nationally-based EMS system.

In the past few years, some progress has been made in the delivery of emergency health care in the greater Athens area. In May 1977 a state-controlled Emergency Ambulance Center was established to handle emergency calls. The Athens area has one-third of the total population in Greece and 65 percent of its hospital beds.

While the intent of the new ambulance program is to service the greater Athens area, there are not enough ambulance vehicles, equipment, and personnel to accomplish this mission. Moreover, the rest of the country is virtually without any emergency medical services. Some regional hospitals have only one ambulance and that is usually reserved to transport patients to Athens where more specialized services are available.

There are clearly major needs and problems in all areas that normally comprise an EMS system, including the critical fact that none of the hospitals in Greece have an emergency department.

A major project is soon to get underway to analyze EMS needs and suggest action-oriented strategies for designing a system tailored to the country's unique situation.

SUMMARY DESCRIPTION:
ICELAND'S EMS SYSTEM

The Minister of Health and the Head Physician of the National Health Service are responsible for managing Iceland's emergency medical services. The National Civil Defense Organization, on the other hand, is responsible for hospital and medical coordination in mass disasters. The Director General of Public Health is required by the National Health Service and the Civil Defense Law to administer those aspects of civil defense involving hospitals, medical treatment and nursing. The Law also requires hospital managers to prepare and implement measures that will enable hospitals to receive and treat the injured and to prepare and operate reserve hospitals.

Iceland's first major emergency services were organized in the capital, Reykjavik, in October 1955. They were moved to a new hospital there in May 1968. Today, Iceland's emergency health care system covers eight regions, one of which is Reykjavik.

All health and civil defense services are financed by the national budget.

In Reykjavik, the ambulance service is operated by the Fire Department. The ambulance service and police headquarters are equipped with direct telephone lines and have specifically designated radio frequencies. Elsewhere in the country, either hospitals or Red Cross Chapters operate the ambulance services, but radio frequencies are usually shared with other services.

The major needs of the EMS system are: (1) better communications equipment; (2) more qualified first-aid training and ambulance services; (3) improved physical facilities for reception and emergency care, especially in outlying regions; (4) better methods of road transportation during winter; (5) doctors; and (6) funds for air evacuation.

SUMMARY DESCRIPTION:
ITALY'S EMS SYSTEM

The Red Cross Society of Italy, in close collaboration with the Ministries of Health and Labor, organized the country's emergency medical services. The Ministry of Health has primary responsibility for administering the EMS system at the national level. Since the system is organized on a regional basis, Regional Health Authorities have the major role in managing the day-to-day operations. Regional Health Authorities develop laws and regulations governing their service areas, and are responsible for the categorization of hospitals and the training and orientation of personnel.

The Ministry of Health allocates funds to each region and, together with the Parliament, coordinates all regional EMS planning. All traditional services are coordinated by national and regional health authorities. Private institutions and organizations, which previously played a key role in the delivery of health care, have been absorbed into the state health system.

All ambulance services are owned and operated by Regional Health Authorities, which establish specifications for the design and equipment of special and life-support vehicles.

Police departments are responsible for emergency communications arrangements and linkages to hospitals and related services. A state agency, with appropriate regional clearance, allocates radio frequencies.

Italy is actively developing information and education programs in accident prevention, water safety, access to the EMS system and first aid. All media (radio, press, and television) disseminate information on these topics. Several Ministries have major roles in these programs. For example, the Ministry of Public Education sponsors accident prevention programs in the schools, particularly in relation to sports activities. The Ministry of Health and the Ministry of Labor sponsor safety and accident prevention programs for business and industry.

Italy has no centralized EMS data collection system. Information is collected at the regional level. The Ministry of Health can request this information for analysis.

A special feature of the system is Italy's Poison Control Center, which now operates in three cities. (See Chapter 7 for more information on poison control activities.)

SUMMARY DESCRIPTION:
LUXEMBOURG'S EMS SYSTEM

In the past five years, Luxembourg has made far reaching changes in its general health care services as well as special provisions for emergency treatment.

Since 1976, when the country's master plan for health care was issued, several laws and regulations have organized the health care system. The plan was based on a national inventory of existing health care resources and needs in each of Luxembourg's three service regions. The plan provided for the classification of all health care facilities and defined the procedures and other requirements for each department.

In 1979 the Minister of Health outlined standards for medical care facilities desiring to participate in the EMS system. These standards were formalized with the issuance of a Grand Duchal Regulation dated August 1979, which also required certain hospitals to provide emergency services.

The Ministry of Health, in cooperation with the Luxembourg Medical Association and the Entente des Hospitaux, is organizing the development of emergency medical services at the hospital level. The Minister has reserved a certain number of beds in each region for acute medical cases or disaster situations. Certain clinics and hospitals operate emergency services on a full-time basis. Others take turns handling emergencies on weekdays or weekends. The Medical Association has organized permanent physician services for home medical care on weekends and holidays. The Minister of Health has placed cars, driven by Civil Defense personnel, at the disposal of these physicians.

The government provides a training program for ambulance attendants, but no special EMS training courses are available at the present time for doctors except special training in anesthesiology and resuscitation for EMS specialists. However, the Medical Association and the Institute of Hygiene and Public Health organize special seminars for nurses who wish to specialize in emergency care.

A variety of national organizations offer first-aid training and accident prevention programs for business and industry.

SUMARY DESCRIPTION:
NETHERLAND`S EMS SYSTEM

The Netherlands has a national health system which provides free medical and hospital services for workers earning less than 30,000 guilders a year. Emergency health care, ambulance services, plus transportation to a specialized medical facility (if requested by a physician) are included. The workers' families are also covered. People who earn more than 30,000 guilders must pay for their own health care. Usually they buy private health insurance plans, which pay the state for some or all of the services provided by the national health system. Physicians, hospital, and ambulance services charge higher wage earners for emergency services at a graduated rate established by the government's Tariff Control Board.

The Minister of Public Health and Environmental Hygiene is responsible for the overall operation of the health system. Reporting to him is the State Supervisor of the Public Health Service, who, in turn, appoints inspectors to ensure the adequate operation of all health services, including ambulance services.

The EMS system is regulated by the Ambulance Transport Act of 1971. The main goal of the Act is to improve the treatment of the acutely ill or injured.

The Netherlands is divided into 50 ambulance regions, which serve from 24,000 to over 1,000,000 people. The number of ambulances per person ranges from one per 20,000 to one per 30,000. Each ambulance region has one "central point," or ambulance control center, from which ambulance services are coordinated and deployed.

The Ambulance Transport Act delegates to the Provincial Executive Councils authority and responsibility for (1) administering health care and ambulance services within the regions, including the determination of the number of ambulances, (2) establishing geographic limits for service, and (3) formulating rules for these services. The Provincial Councils may delegate certain responsibilities to municipalities within their service area.

The Ambulance Transport Act also establishes requirements for emergency communications, particularly in regard to the role of the ambulance control stations.

By regulation, hospitals in the Netherlands are divided into three categories. Categorization depends on the number of beds and the type of specialists in the medical facility. There are no hospitals in the Netherlands exclusively for emergencies.

The Netherlands is now developing municipal and hospital disaster plans, including procedures for ambulance services. Emergency plans for airfield and railroad disasters are being prepared.

Future plans for the EMS system include studies of (1) the country's capability to provide medical treatment in wartime; (2) hospital bed

potential in peacetime; and (3) methods of emergency casualty evacuation. The Netherlands also plans to establish a nationwide organization of traumatology teams permanently in a state of readiness.

SUMMARY DESCRIPTION:
PORTUGAL'S EMS SYSTEM

A new EMS system is rapidly evolving in Portugal. The EMS system is organized on a regional basis with three regions for services -- North, South, and Central. A national ambulance service subsidized by the government was organized in 1975. This year a separate national governing body for the system -- the Cabinet for Emergency Medicine -- was established. The President of the Cabinet is also the Director of the National Ambulance Service. These two organizations share responsibility for organizing and managing the EMS system.

All hospitals in Portugal are state hospitals, funded by the central government. They respond to local and regional needs and interests.

The National Ambulance Service is also funded by the state, which derives revenues for this service through a one percent surcharge on certain classes of insurance (automobile insurance, life insurance, and accident insurance). The ambulances themselves are owned by different state agencies, including police and fire companies. Standards for ambulances and equipment have been developed at the national level.

Portugal has specific campaigns for accident prevention which include programs for the prevention of road accidents. the handling of emergencies at sea, and the prevention of accidents at the work place. First aid programs are operated by the Red Cross. Other EMS prevention programs are aimed at high school students.

In addition to a "115" central emergency telephone system, Portugal has a number of SOS call boxes for responding to emergencies in more sparsely populated rural areas. The SOS calls are relayed to the local police or fire departments.

In addition to making a concerted effort to organize a strong emergency medical system throughout the country, Portugal has begun to develop a civil defense organization.

SUMMARY DESCRIPTION:
UNITED KINGDOM'S EMS SYSTEM

In the United Kingdom all emergency medical services are part of the National Health Service, which was organized in 1948 and reorganized in 1974. The reorganized National Health Service empowers the Secretary of State to organize the delivery of health services free of charge to all residents. This includes hospital services, services of medical specialists, and ambulance services.