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CONTINUING EDUCATION FOR GRADUATE PARAMEDICS: PRESENT PRACTICES AND EXPRESSED NEEDS

by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Continuing Education for Graduate Paramedics: Present Practices and Expressed Needs," submitted by Margaret J.A. Edwards in partial fulfillment of the requirements for the degree of Master of Arts.

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ABSTRACT

The purpose of this study was to gather baseline descriptive data concerning the present practices of continuing education of graduate paramedics in Alberta, and their expressed continuing educational needs. The study also examined notable relationships between the practices reported, the needs expressed, and the paramedics' places of employment, positions, ages, and years of graduation from SAIT. The results of this study provided valuable information to those agencies or individuals involved in the development of continuing education programs for paramedics.

Data were gathered through the use of a survey questionnaire, which was mailed to all paramedics who were employed by one of the provinces' ambulance services and were either registered with REPAA in April, 1980, or graduates of the 1979 Emergency Paramedical Care class at SAIT.

The findings revealed that the typical paramedic in Alberta can be characterized as being male, an urban staff paramedic, 26-30 years of age, and a graduate of the two-year program (1978 to present) at SAIT.

The continuing education practices reported, in descending order from highest to lowest percentage, were: reading journals, attending hospital-presented inservice, attending employer-presented inservice, and attending seminars/workshops.

A ranking of possible continuing education topics indicated that the five most important areas of continuing educational needs were: E.C.G. Interpretation, Cardiology, Trauma, Pharmacology, and Intubation Techniques. It was further noted that even the lowest ranked topic represented a continuing education need to 39 per cent of the respondents.

In the examination of the data matrixes concerning the demographic variables and practices, the rural/urban dichotomy accounted for the more notable relationships involving continuing education practices: the more notable relationships appeared to emerge in the area of age differences.

The implications of this study, in summary, suggested the need for the development of (1) minimum standards for paramedic practice, (2) individualized continuing education programs, and (3) novel methods of continuing education delivery.

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INTRODUCTION

Background to the Study

Throughout the history of the medical profession, the profession itself has given rise to many related occupational groups. The physician in pre-nineteenth century times was self-contained. He diagnosed the patient, cared for the patient, treated the patient, and was also involved in the preparation of remedies. In the nineteenth century, the pharmacist became responsible for the preparation of medications or remedies; nursing assumed responsibility for the physical care of the patient, but the physician still determined the diagnosis and treatment of the patient's condition. With the advent of medical specialties such as pathology and radiology, in the late nineteenth and early twentieth centuries, came other occupational groups such as laboratory technicians and x-ray technicians, to aid the physician in making a diagnosis. This splintering of occupational groups from the medical profession has continued throughout the twentieth century.

The late 1960s evidenced the establishment of yet another occupational group by the medical profession, the Emergency Paramedic, whose function was to provide pre-hospital care to the ill or injured. The concept of pre-hospital care was not new. Throughout history patients have been transported to centres of healing: by litters in

biblical times, by horse-drawn vehicles in the Napoleonic Wars, and by vehicles provided by agencies such as the International Red Cross. Each of the major armed conflicts of the twentieth century saw advances being made in patient transport and field medicine (Gazzaniga, 1979). By 1959, Russia had evolved a civilian system for pre-hospital care utilizing physicians and paraphysicians manning ambulances (Gazzaniga, 1979). In 1966, F. Partridge, a physician, introduced the concept of "flying squads" of physicians and paraphysicians to Belfast, Ireland. At this time in Canada and the United States, ambulance or emergency care services were often operated by funeral homes or morticians, or business men, with only minimally trained assistants. Little or no emergency care was provided at the scene of an emergency. The casualty was merely transported to a medical facility. Gazzaniga (1979:20) emphasized the need for pre-hospital care by stating:

> This extension of patient care into the pre-hospital area has become even more important as more facts become known. For instance, trauma kills about 15,000 people a year in the U.S. It is estimated that a minimum 15 percent of accident victims die at the scene from injuries that are potentially reversible by properly trained medical personnel . . . . Additionally, the largest single cause of deaths in the U.S. is coronary artery disease (700,000 deaths per year) and approximately 60 percent of these patients die in the first two hours following the onset of symptoms. Tragically, most of these patients die in ventricular fibrillation, which is potentially reversible with the proper equipment and personnel.

With adequate information, it can be seen that pre-hospital care greatly enhances a patient's chances of survival, and the foregoing quotation pointed out the need for properly trained medical personnel. In 1968, R. Stewart, a physician working in Los Angeles County, California, became a leader in the establishment and development

of paramedical education (Gazzaniga, 1979).

The first program for training paramedics in Canada was begun in 1971 at the Southern Alberta Institute of Technology (SAIT) in Calgary, Alberta. A one-year program, it combined both theory and practical training in pre-hospital emergency care, and graduates were called "Emergency Paramedics." Due to an ever-expanding field of knowledge and a need for more practical experience, the program was increased to two years in 1977. As of January, 1980, 130 paramedics have graduated from SAIT. Of those graduates, 76 per cent are currently employed as graduate paramedics in the centres of Banff, Calgary, Fort McMurray, Grande Prairie, High River, Medicine Hat, and St. Albert, all in Alberta.

Statement of the Problem

The rapid development of a new occupational group, the Emergency Paramedic, has been traced. In Alberta, this development is evident in the graduation of 130 Emergency Paramedics from SAIT over a period of eight years. Of this group, 100, as of April, 1980, are practicing within the province of Alberta

Somewhat obviously, it has been up to eight years since some of these paramedics graduated from their training program. Previous research has demonstrated a need for medical personnel, such as doctors, nurses, and dentists, to continue maintenance and upgrading of both knowledge and skills, if the practitioner is to remain competent in the field (Chouinard, 1976). Professional groups have seen this maintenance of competence as so vital that they have established

criteria describing the minimum number of hours of continuing education a year that are mandatory for continued licensure.

Both the government of Alberta and the Registered Emergency Paramedic Association of Alberta (REPAA) have recognized the need for continuing education for the graduate paramedic. The Alberta Health Care Commission has appointed a "paramedic education consultant" whose duties involve continuing education in addition to the basic education of the paramedic. REPAA has drafted a resolution proposing that a minimum number of hours of continuing education must be taken per year for a graduate paramedic to retain membership in the association (see Appendix A).

At the outset of this study, the problem seemed to be that, although some recognition of the need was established, there was no information concerning the status of continuing education for the graduate paramedic in the province of Alberta.

Statement of Purpose

The purpose of this study was, therefore, to gather descriptive baseline data concerning the present practices of continuing education of graduate paramedics in Alberta, and their expressed continuing educational needs. Also examined were the relationships between the practices and needs of the paramedics and their places of employment, position, age, and year of graduation from SAIT.

The following five questions were delineated to guide the research:

1. What are the distributions of place of employment,

position, age, and year of graduation from SAIT for graduate paramedics in Alberta?

2. What are the present continuing education practices of graduate paramedics in Alberta?
3. What are the expressed continuing educational needs of graduate paramedics in Alberta?
4. What are the notable relationships that appear to exist between present practices of continuing education and the paramedic's place of employment, position, age, and year of graduation from SAIT?
5. What are the notable relationships that appear to exist between expressed continuing educational needs and the paramedic's place of employment, position, age, and year of graduation from SAIT?

Significance of the Study

Both REPAA and the Alberta paramedic education consultant require baseline information upon which to base the development of continuing education programs. The results of this study, based on the reports of present practices, could serve to indicate some of the more frequently utilized methods of obtaining continuing education. In identifying major practices of continuing education, new programs could be developed to include these methods. The findings could also provide an indication of the types of continuing education programs that would be useful to a graduate paramedic.

It was hoped that any relationships found from the comparison of practices/needs with location, position, age, and year of graduation, would provide information about practices or needs that are specific

to a unique group of graduate paramedics. Such findings would then, hopefully, allow continuing education programs to be further modified to provide for the needs of these graduate paramedics in Alberta.

Definition of Terms

For purposes of this study, the following definitions have been utilized:

Pre-hospital care--emergency medical treatment administered to the ill or injured person at the site of occurrence or enroute to a medical facility, by qualified personnel.

Graduate emergency paramedic (paramedic)--a graduate of the Emergency Paramedical Care program at SAIT; whether a graduate of the one-year program (1972-1976) or the two-year program (1978 onward).

Continuing education (or inservice education)--purposive maintenance of previously learned theory and skills, or the learning of new theory and skills, necessitated by the development of new techniques.

Continuing education practices--all activities by which the paramedic gained continuing education; that is, maintained previously learned skills, or knowledge, or learned new theory and skills necessitated by the development of new techniques; for example, reading professional journals, attending formal seminars or workshops, attending formal, employer-presented inservice, attending formal certification courses, and informal discussion with colleagues.

Continuing education needs--areas of either theory or skills which the paramedic judged to be requirements for the maintenance of

his personal level of competence.

Inservice--a colloquial term, used to describe continuing education programs provided by an employer or a hospital.

REPAA--the association of graduate paramedics in Alberta, in which eligibility for membership is graduation from the Emergency Paramedical Care program at SAIT. Began in 1974, current membership is 88. While the association has no formal legal power, Alberta ambulance services employ only paramedics registered with REPAA, effectively giving the association control of paramedic registration.

Delimitations

The research was delimited to the following:

1. A survey of graduate paramedics registered with REPAA in April, 1980, and the June 1979 graduates of the Emergency Paramedical Care Program at SAIT, who were employed by one of Alberta's ambulance services.

2. A description of continuing educational practices and expressed continuing educational needs of paramedics identified above. Establishment of actual changes in competence in skills, or knowledge of the individual graduate paramedic, were excluded.

3. The relationships delineated in the problem statement. Other factors such as sex, marital status, or other educational qualifications were excluded.

4. The use of frequencies and cross-tabulations in terms of methodological treatment.

Limitations

The following limitations apply to this research:

1. The standard statistical limitations of a survey questionnaire where (a) distribution is dependent on the information of names and addresses being complete and accurate (as provided by REPAA and SAIT); and (b) voluntary responses are unpredictable.

2. The problems associated with mailed survey questionnaires, as outlined by Moser and Kalton (1971:303-407):

   a. The structure and content of the questionnaire.

   b. The willingness of respondents to provide accurate responses.

   c. The respondent's opinion to any given item may have been largely latent; thus, suggesting some uncertainty as to whether the correct answer was "known."

   d. The respondent's opinion on any issue is probably many-sided, and answers then depend on the aspect uppermost in his mind at the time.

3. The survey questionnaire assumed the mutual exclusiveness of continuing educational practices which, in fact, may not have been seen by all respondents, thus limiting the interpretation of the data.

4. The accuracy of responses was dependent upon the paramedic's memory and perception of time in reporting educational practices.

5. The use of forced-choice items resulted in the loss of certain types of information and may have affected the analysis of the data.

Chapter 2

REVIEW OF RELATED LITERATURE

Introduction

The literature related to continuing education for graduate paramedics appears to be minimal, and for paramedics as a group has concentrated on providing information concerning the technical aspects of patient care.

As there have been few published works relating to the thesis research, literature was drawn generally from the sociological area and specifically from the experience of similar groups. The review of this literature was an effort to establish a theoretical basis for the need of continuing education for paramedics, and this need seemed to emerge from within the broad area of professionalization.

Definition of Professionalization

Anselm Strauss (1975:65) has stated that "Physicians have literally created whole groups of technical assistants, setting them up in business." If the historical development of the paramedic were to be traced, then the above statement could be demonstrated to be appropriate. As discussed in Chapter 1, the paramedic developed as an aid to the practice of pre-hospital medical care. Strauss (1975:65) continued:

One interesting question about the American Medical Terrain is which of the various groups (other than physicians) working there claim, or aspire to claim, an actual professional title.

The professionalization of many groups was predicted in the early thirties by Carr-Saunders (1933:493):

> It may be that, while the extension of professionalism upwards and outwards will be fairly rapid, its extension downwards, though gradual and almost imperceptible, will be continuous.

With the development of greater technical skills and the demand for these skills, many occupational groups such as paramedics do, indeed, aspire to professionalization. Wilensky (1964:137) described this aspiration:

> Many occupations engage in heroic struggles for professional identification; few make the grade. Yet there is the recurrent idea among students of occupations that the labour force as a whole is in one way or another becoming professionalized.

Thus, many groups such as paramedics aspire to some degree of professionalization, and further exploration must then describe "professionalization" and its component parts.

In accordance with the views of Vollmer and Mills (1966) the writer wishes to avoid discussion of whether or not the paramedic occupation is really a profession; rather, the concepts of professionalization are examined.

In 1933, Carr-Saunders stated that any attempt to define professionalization would be premature. Vollmer and Mills (1966:vii-viii) have now provided such definitions:

> Use "professionalism" to refer to an ideology and associated activities that can be found in many diverse occupational groups where members aspire to professional status.
>
> The concept of "professionalization" can be used to refer to the dynamic process whereby many occupations can be observed to

> change certain crucial characteristics in the direction of a "profession" even though some of these may not move very far in this direction. Professionalization is a process, then, that may affect any occupation to a greater or lesser degree.

The next question would be: "What are those certain crucial characteristics described by Vollmer and Mills?" Generally, the approach has been to analyse the established professions of law, medicine, and the clergy to derive a set of common characteristics (Brooker, 1978; Carr-Saunders, 1933; Moore, 1970; Strauss, 1975; Vollmer, 1966; Wilensky, 1964). The characteristics of a profession common to all the authors that have been chosen for further discussion include:

1. A full-time occupation
2. A systematic body of theory
3. A formal, professional organization
4. Autonomy
5. A service orientation

As early as Carr-Saunders (1933), the approach of tallying whether or not an occupational group met these characteristics was changing toward the idea of a continuum of professionalization. Carr-Saunders (1933:4) noted that:

> The typical profession exhibits a complex of characteristics and that other vocations approach this condition more or less closely owing to the possession of some of these characteristics fully or partially developed.

The idea was re-echoed by Vollmer and Mills (1966:62):

> Therefore, it seems more useful to analyze and describe the characteristics of occupational institutions in terms of the concept of professionalization, assuming that many, if not all, occupations may be placed somewhere on a continuum between the "ideal type of profession" at one end and the completely

> unorganized occupational categories, or "non-professions" at the other end.

The continuum of professionalization remains a predominant theme to the present day (Moore, 1970).

Components of Continuum of Professionalization

Having defined professionalization and established the concept of a continuum, a description of the various characteristics, each in themselves a continuum, can be dealt with. Wilensky (1961) initially presented the first characteristic: full-time activity at the "task." This characteristic was elaborated upon by Vollmer (1966), who stated that the professional practises a full-time occupation which comprises the principal source of his earned income. This sets the professional apart from the amateur. The need for such a full-time occupation subsumes a specific societal need for the service. Goode (1969) further confirmed the criterion of a full-time occupation in response to the needs of the society.

The second characteristic, a systematic body of theory, was well introduced by Greenwood (1957:11):

> It is often contended that the chief difference between a professional and non-professional occupation lies in the element of superior skill . . . . Because understanding of theory is so important to professional skill, preparation for a profession must be an intellectual as well as a practical experience.

The movement of an occupational group toward professionalization can be traced through the changes in approach to training members for the occupation. Vollmer (1966) observed that one can generalize that, as an occupation moves toward professional status, apprenticeship

training yields to formalized education because the function of theory as a ground work for practice acquires increasing importance. An elaboration that provides a description of that specific body of theory was made by Greenwood (1957:11):

> A profession's underlying body of theory is a system of abstract propositions that describe in general terms the classes of phenomena comprising the profession's focus of interest. Theory serves as a base in terms of which the professional rationalizes his operations in concrete situations. Acquisition of the professional skill requires a prior or simultaneous mastery of the theory underlying the skill.

This brief description by Greenwood has been elaborated by Goode (1969) into seven major characteristics, with respect to knowledge, that affect the acceptance of an occupation as a profession. For the purpose of an example, Goode's (1969:277) first two characteristics elaborated similar areas:

1. Ideally, the knowledge and skills should be abstract and organized into a codified body of principles.

2. The knowledge should be applicable, or thought to be applicable, to the concrete problems of living.

The literature describing the contents of a systematic body of theory for professions is plentiful and descriptive, but there is always agreement that this is a necessary characteristic in the process of professionalization.

The third characteristic identified is the establishment of a formal professional organization. Vollmer (1966:2) described this characteristic:

> Thus we find a trend toward more formal occupation associations and more formalized occupational codes of behaviour in many diverse lines of work. This we describe as a movement toward professionalization.

The writings of Carr-Saunders (1933:6) provided another dimension:

> A survey of the history of the professions in modern times thus shows that when a profession becomes clearly defined, the competent and reasonable practitioners form an association, two of the chief objects of which are to bring up to the qualifications of all who hold themselves out as practicing the craft to a certain minimum standard and to enforce the rules of honorable conduct.

An even more complete description of the place of formal organization formation in the process of professionalization was contributed by Moore (1970:10):

> The subscale [characteristic] of organization with respect to achievement of, or approximation to, professional status appears to have the following order:
>
> (a) recognition of common occupation interests . . . ;
>
> (b) some mechanism of control to maintain standards of performance; and control of access to the occupation.

The mechanism of control within professional groups would appear to stem from an underlying code of ethics, as confirmed by Vollmer (1966:14):

> Every profession has a built-in code which compels ethical behaviour on the part of its members . . . . The ways and means whereby a profession enforces the observance of its ethical code . . . are achieved informally and formally.

The formal organizations can not only control access to the profession as stated by Moore (1970), but can also control the actual education of those granted access. Greenwood (1957:13) declared: "By granting or withholding accreditation, a profession can, ideally, regulate its schools as to their number, location, curriculum content and caliber of instruction."

In summary, then, the formal organization would seem to hold

the control for many aspects in the life of a profession, thus making it a necessary characteristic in the process of professionalization.

Concurrent with the above characteristics of formal organizations is that of professional autonomy, which Wilensky (1964:137) described as "the traditional model of professionalism which emphasizes autonomous expertise." Moore (1970:16) further elaborated the position of autonomy in the process:

> Autonomy is in effect an ultimate value for self-identified members of an occupational category . . . . As technical specialization steadily increases, so must the relative autonomy of the specialist . . . it must follow that the achievement of something like genuine autonomy depends upon such clear-cut criteria as avoidance of the self-service of laity . . . organization to the effective point of controlling admission to the occupation, specialized education to the point and quality that one can readily distinguish the professional and merely experienced layman, and effective norms to assure competent performance.

It would appear, then, that the profession should function autonomously in the organization and transmission of a specialized body of theory and in the maintenance of professional standards. Greenwood (1957:13) provided an apt summary of autonomy in his declaration that: "When an occupation strives toward professionalization, one of its aspirations is to acquire this monopoly of judgement."

The final characteristic to be considered in the process of professionalization is that of the professional's service orientation. Wilensky (1964) established the importance of this characteristic: "The service ideal is the pivot around which the moral claim to professional status revolves." This service orientation is the criterion or characteristic most commonly noted in the literature (Carr-Saunders, 1933; Greenwood, 1957, Illich, 1977; Moore, 1970; Wilensky

1964), and it was expanded further by Wilensky (1964:141):

> In short, the degree of professionalization is measured not just by the degree of success in the claim to exclusive technical competence, but also by the degree of adherence to the service ideal and its supporting norms of professional conduct.

Service orientation was defined by Goode (1969:278) as follows:

> The ideal of service . . . may be defined as the norm that the technical solutions which the professional arrived at should be based on the clients' needs, not necessarily the best material interest or needs of the professional himself.

In achieving this ideal of service to the public, Moore (1970:13) defined three sets of related norms:

> Although this criterion [service orientation] can be defined rather narrowly, we can properly attend to three subsets of related norms: rules of competence, rules of conscientious performance, and rules of loyalty or service.

Of these three, the subset of performance has been briefly discussed in relation to the function of a formal organization; and that of loyalty has been described in the discussion of formal organization and autonomy. Further discussion of the third subset, rules of competence, now becomes necessary.

In describing competence as an aspect of professionalization, Moore (1970:14) also asserted that "competence is for a purpose: conscientious performance," and that the subset of rules of competence can be further divided:

> Competence refers not simply to standards for admission to a profession . . . but also to the maintenance and improvement of both individual and collective standards.

One of the functions of an autonomous, formal organization, as previously discussed, is to control access to the profession and, in

so doing, to maintain the rules of competence for the profession. Thus, there is a need to focus on the maintenance and improvement of standards, and the literature revealed the following data.

Moore (1970:16) addressed the need for maintenance of standards in his observation that:

> Despite the patent difficulty of doing so in the contemporary world, the professional is supposed to keep current with developments in his field, so that his clients do not seriously suffer relative harm from his failure to do so.

Moore (1970:14) added another dimension to the need for maintaining and upgrading standards by warning that: "The duty of keeping current is owed not only to clients, but also to peers since poor performance may reflect discredit on the occupation as a whole." Greenwood (1957:12) also stressed the maintenance and upgrading of standards as an important facet of professionalization:

> Professional members convene regularly in their associations to learn and to evaluate innovations in theory. This produces an intellectually stimulating milieu that is a marked contrast to the milieu of a non-professional occupation.

Indeed, in order to maintain or upgrade standards of theory or skills, the professional must pursue a program of continuing education. The government of Alberta (1977:10) recognized the need for continuing education in its document *Policy Governing Future Legislation for the Professions and Occupations:*

> 9(d) Continuing Education
>
> All professions and occupations should develop formalized continuing education programs for their members through the resources of their own associations and through co-ordination with educational institutions.

This need has been recognized not only by the provincial

government but also by many associations. In describing recommendations for homemaker/health aide training--a program requiring significantly less knowledge and skill than the paramedic--the following was included: "Throughout employment, aides need to participate regularly in structured inservice training. Such training reinforces basic skills, adds new learning . . . ." (U.S. Government, 1969:9).

Because there has been no publication to date describing the need for continuing education for the paramedic, parallels must be drawn to elicit this information. These parallels arise most logically from nursing, an occupation similar to that of the paramedic in the body of specialized medical theory and skills.

The 1969 International Council of Nursing "Code for Nurses" instructs that: "The nurse carries personal responsibility for nursing practice and for maintaining competence by continual learning" (Goldiak, 1977:171). The international aspect of the concern for continuing education was demonstrated in the 1975 report of the Nursing Committee of the Health Council of Israel:

> The need for further study in nursing is the "command of the hour" . . . . In the world of today, there is a need for on-going education. Thus, a professional is obliged to continue to study. (Goldiak, 1977:171)

Goldiak (1977:181) further reflected this need back to the rules of conscientious performance in warning that: "Learning is a constant change in behaviour. Continuing education promotes this change and thus improves nursing care."

Continuing education has other functions, in addition to the maintenance of skills and theory, in the words of Brooker (1978:28):

> Programs in continuing education can provide confidence both in renewed knowledge and learning skills, and in contact with other nurses' shared values and problems. . . . The function of continuing education programs ought to be for guidance, encouragement and as a resource base.

Having described a need for continuing education and its functions, Brooker (1978:28) then outlined guidelines for its provisions:

> In the planning of continuing education, special arrangements for formal instruction must not overwhelm opportunities for independent learning experience . . . . Professional progress should mean a growing competence in self-learning rather than a growing dependence on others.

In reviewing parallel nursing literature, an attempt has been made, again, to demonstrate the need for and functions of continuing education. No attempt was made to discuss actual testing with respect to losses of either theory or skills over a period of time, but rather to rely on the conclusions of various authors to demonstrate the need for continuing education in medical care occupations.

Since the need was shown for continuing education in the occupation of homemaker/health aide, which requires less medical theory and skills than a paramedic, and in nursing, which requires equal or greater medical theory or skills than a paramedic, it can be interpolated that a similar need exists for paramedics. Stewart (1976:1), one of the founders of the concept of paramedic services, concluded: "Those of us charged with the responsibility of ensuring the quality of pre-hospital patient care can attest to the importance of on-going education for . . . paramedics."

Chapter 3

THEORETICAL FRAMEWORK

The inclusion of a theoretical framework in a descriptive study was prompted by a number of considerations:

1. A sharper focus could be given to the concerns of the research at hand.
2. A more definitive outline of critical relationships could be made.
3. A closer mesh of methodology and findings and theoretical concerns could be realized.

Having located the concept of continuing education within the literature related to professionalization, the writer then considered ways in which the identified components were related to continuing education.

It appeared that most of the characteristics did have reciprocating relationships with continuing education, in that the components both affect and are affected by continuing eduction. The first component cited in the literature was that an occupation should provide full-time employment. The effect of full-time employment for paramedics is that it can provide many opportunities for inhouse continuing education, and also numerous incentives; for example, time off work to attend seminars, employer paid fees, and salary increments upon completion of courses. The reverse is also true; that is, if the paramedic does not maintain his theoretical knowledge and skills

through continuing education, his work performance may suffer, causing him to be placed on probation or to be released.

The presence of a systematic body of theory was the second component drawn from the literature. Currently, this characteristic would seem to have only a one-way relationship with continuing education. The body of knowledge upon which the practices of a paramedic are based is constantly changing as new techniques are discovered and previously held theories are elaborated upon. The only possible way for the paramedic to learn these new techniques or elaborated theories is to participate in some form of continuing education. The continual change in the body of theory demonstrates the distinct necessity for continuing education. As the occupation or profession grows in age and scope, often an element of research or discovery emerges in response to the need stated by paramedics, which is to develop a better technique for managing a particular emergency. When such research emerges, a two-way relationship will be established by continuing education feeding new techniques into the existing body of theory.

The relationship between the third component, a service orientation, and continuing education may also be described as a two-way relationship. The paramedics who demonstrate competence in their performance have assisted in establishing the criteria for standards that are to be maintained by their fellow paramedics. Conversely, unless a paramedic has maintained appropriate standards of theoretical knowledge and skills, through continuing education, he will not be considered to be competent, as demonstrated through job performance.

The fourth component cited was the establishment of a formal,

professional organization. The relationship between such an organization and continuing education can, again, be shown to be a two-way relationship. The formal organization affects maintenance of standards by controlling licensure based on mandatory continuing education. In order for the paramedic to maintain membership in the professional organization and, therefore, to be eligible for employment, a stated minimum number of hours of continuing education must be accumulated each year. The reputation of the occupation is contingent upon the competent performance of its members. To maintain this competence and, thus, the professional reputation, the paramedic must maintain standards of both theory and skills through continuing education.

Autonomy is the final characteristic cited in the literature. The autonomy of the individual paramedic described the self-direction that is necessary to maintain the individual's standards of theory and practise through self-determined continuing education. This is, however, a very close, two-way relationship. Only if the paramedic has maintained his theory and skills will he have a basis upon which to make autonomous decisions. Thus, autonomy seems to be required to maintain standards and make continuing education decisions, while a basis in new theory and skills gained through decisions either about one's own education or the care of the patient reflects such autonomy.

From the demonstration of the relationships between the components of professionalization and the maintenance of standards through continuing education, the concepts cogent to this study can be drawn. The key concepts isolated show that continuing education is necessary for the maintenance of:

1. competence, as demonstrated through performance, needed to be eligible for employment;
2. knowledge of continual, new developments in theory and skills;
3. the service ideal, providing the patient with the best possible care; and
4. the reputation of the occupation, and, thus, the degree of autonomy that it is accorded. (see Figure 1)

Continuing education has been established as necessary to the process of professionalization throughout all the cited components. It appears appropriate, therefore, to describe some of the current continuing education practices and to assess these needs for paramedics so that agencies might plan more effectively for the process of continuing education for them.

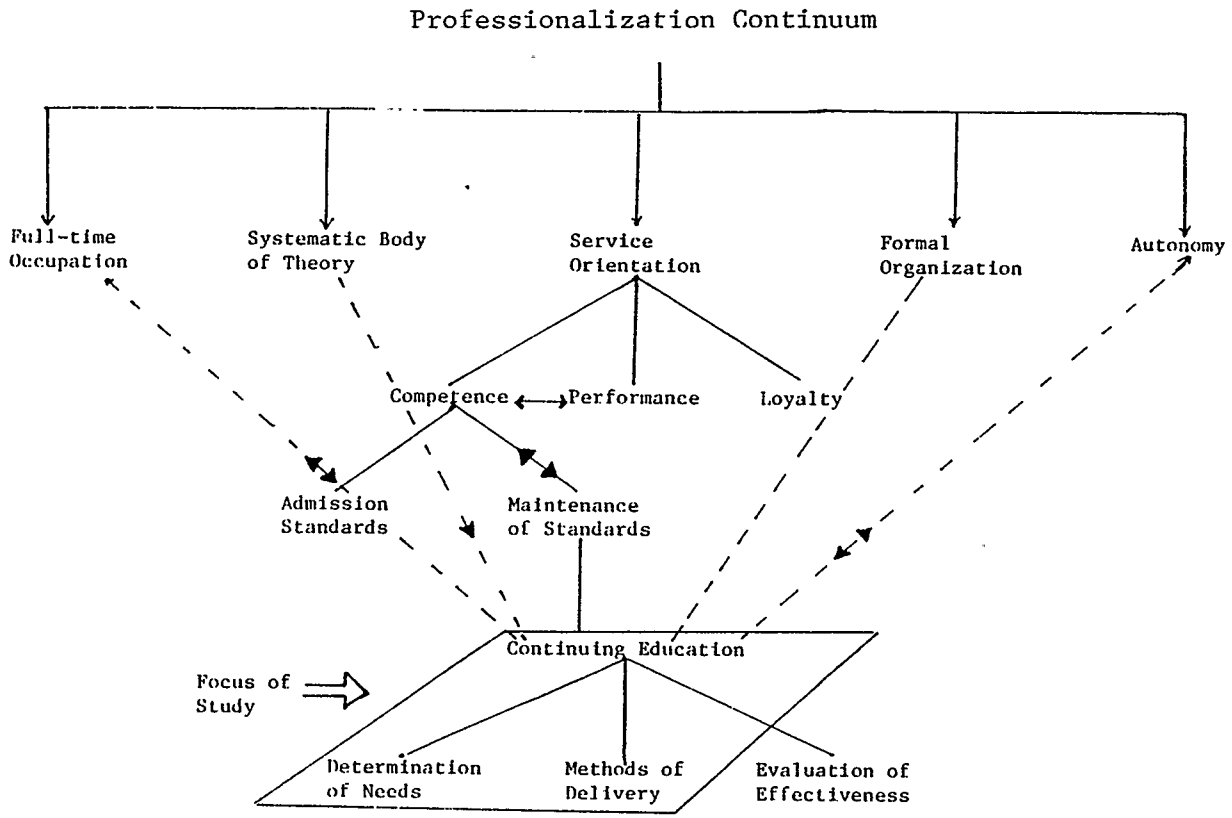

Figure 1

THEORETICAL MODEL OF THE
RELATIONSHIP OF CONTINUING EDUCATION
TO THE PROCESS OF PROFESSIONALIZATION

Chapter 4

METHODOLOGY AND RESEARCH DESIGN

Type of Research

It was decided that a descriptive analysis of the data collected would provide the information required to fulfil the purposes of this study; that is, to gather base-line data concerning the present practices of continuing education of graduate paramedics in Alberta and their expressed continuing educational needs. According to Isaac and Michael (1971:18):

> The purpose of the descriptive research is to describe systematically the facts and characteristics of a given population or area of interest, factually and accurately. It is the accumulation of a data base that is solely descriptive. It does not necessarily seek or explain relationships, test hypotheses, make predictions or get at meanings and relationships, although research aimed at these more powerful purposes may incorporate descriptive methods.

This study was designed with the intention of accumulating such data, and was based on answering the five research questions:

1. What are the distributions of place of employment, position, age, and year of graduation from SAIT for graduate paramedics in Alberta?
2. What are the present continuing education practices of graduate paramedics in Alberta?
3. What are the expressed continuing educational needs of graduate paramedics in Alberta?
4. What are the notable relationships that appear to exist between present practices of continuing education

and the paramedic's place of employment, position, age, and year of graduation from SAIT?

5. What are the notable relationships that appear to exist between expressed continuing educational needs and the paramedic's place of employment, position, age, and year of graduation from SAIT?

The Population

The population consisted of 100 graduate paramedics, all of whom were members of REPAA, or of the SAIT 1979 graduating class, and who were employed by an Alberta ambulance service in April, 1980. The total population was sampled and 61 of the 100 paramedics returned completed questionnaires.

Instrumentation Rationale

In reviewing the literature related to types of survey research instruments, many alternative methods were discovered (Anderson, 1975; Bell, 1978; Burgess, 1978; Popham, 1975). Numerous strategies were found that could be useful in determining the continuing education practices/needs of graduate paramedics.

The first method considered was a checklist, or sample questionnaire, where answers could simply be checked off. The advantages of this method were that the instrument could be completed quickly and it was usable with groups or individuals. The disadvantages seemed to outweigh the advantages: preparation of the list of questions was seen to be very time consuming and the instrument would not allow for open-ended questions (Bell, 1978). Thus, because the checklist method would

not elicit the desired original input from the graduate paramedic, it was rejected for use in this study.

The second method considered was observation, where either the researcher or an assistant would gather data on the continuing education practices and needs of the paramedic through the use of observational skills. Advantages of this method would include the identification of specific needs related to job performance, and the ability to obtain precise data concerning the observed continuing education practices (Anderson, 1975; Bell, 1978). Again, the advantages were seen to be outweighed by the disadvantages. The time necessary to perform an appropriate number of observations would be prohibitive. While the observer would be able to gather precise data concerning the paramedic at work, some continuing education practices may be completed in the home, out of the observation setting. Also, the intent was to gather information about the expressed needs of the graduate paramedic, not the inferred or referred needs observed by the researcher. Data gathered by more than one observer would be difficult to standardize and, therefore, to analyse; thus, reliability and validity would also be questionable to establish. For these reasons, the observation method of data collection was rejected.

The third method considered was a personal interview (Anderson, 1975; Bell, 1978; Burgess, 1978), whereby the researcher could actually question the paramedic concerning current continuing education practices and needs. Such a technique could provide the interviewer with the opportunity to clarify either the questions or the responses and also elicit elaboration of either continuing education practices or needs.

Again, the disadvantages appeared to predominate: gathering a reasonable sample of data would consume an inordinate amount of time because paramedics from all services would have had to be contacted personally and they were widely scattered throughout Alberta. Also, when asked direct questions, some paramedics may have had difficulty either identifying or articulating continuing education practices or needs. In an interview setting, a respondent may not feel free to answer questions honestly because of a seeming lack of confidentiality. For these reasons, then, the interview method was also rejected.

A fourth method considered was the written survey, a tool that is able to gather, systematically and consistently, a large amount of data (Anderson, 1975; Bell, 1978; Popham, 1975). It also provides written responses that do not require subjective observation or note-taking for analysis. The ample data collection allows comparisons to be made within and between groups as well as providing an opportunity for diverse input from the surveyed group. The distinct advantage is that it can rather easily reach a wide geographic distribution. Items on the survey questionnaire can incorporate the checklist method while simultaneously allowing for open-ended questions. The disadvantages include the high cost of postage and a poorer projected rate of return than is found in other methods. Also, an opinion expressed on a questionnaire may not reflect actual commitment on the part of the respondent to particular continuing education practices or needs.

After careful consideration of the foregoing methods available for data collection, the written survey method was selected because it would allow the researcher to:

1. gather data covering a wide range of subjects in a short time;
2. compare respondent groups;
3. provide complete confidentiality; and
4. reach distant paramedic services.

After choosing the questionnaire as the data-collecting instrument, the next step involved the construction of the instrument. Because no surveys similar to the thesis topic had been reported in the literature, it was necessary to develop an original questionnaire.

The next operation was to identify guidelines described in the literature (Bell, 1978; Orlich, 1975), then delineate areas to be questioned, and finally, draft the instrument. In its construction, an attempt was made to maintain a balance between forced choice and open-ended questions.

Validity and Reliability

Steps were also taken toward establishing the reliability and validity of the survey questionnaire. As Guilford and Fruchter (1973:396) explained: "By a perfectly reliable measurement, we mean one that is completely accurate or free from error." Hardyk and Petrinovich (1975:154) also decribed reliability in terms of accuracy: "Reliability refers to the accuracy with which something can be measured." Because the objective of this survey was not to test or measure but rather to gather descriptive data from individual paramedics, it seemed more appropriate for the instrument to exhibit objectivity than "perfect reliability." As Asher (1946:93) said:

"Objectivity is reliability and reliability is objectivity." The objectivity of the questionnaire and, thus, its reliability was established through a panel of experts who utilized a prescribed set of criteria to select and sequence each question in the survey instrument.

In seeking to establish the validity of the untested questionnaire, the following procedure was carried out:

1. Fellow graduate students from the Department of Educational Administration, University of Calgary, all of whom had some experience with continuing education, were requested to review the questions for clarity, relevance, readability, and omissions. Their responses resulted in some revision to the questionnaire.

2. Several further modifications were made based upon the recommendations of the following panel of experts who were requested to assess the instrument according to the criteria outlined in Appendix B:

R. Chapman, Ph.D.	Statistician, Shell Canada Resources
W. Donald, M.D.	Medical adviser to the City of Calgary Ambulance Service
G. Elford, R.E.P.	Provincial paramedic education consultant
P. Laverock, R.E.P.	Instructor, SAIT Emergency Paramedic Care Program
R. McManus, B.Sc., R.E.P.	President, REPAA; instructor, SAIT Emergency Medical Technician Program
P. Raymer, R.E.P.	Instructor, SAIT Emergency Medical Technician Program
A. Stephen, M.Sc.	Assistant Director of Instruction, SAIT

3. A small pilot study involving four graduate paramedics was undertaken to assess further the various components of the questionnaire; subsequently, several minor revisions were made.

In view of the above procedures, the researcher deemed that a reasonable measure of content validity had been attained.

Variables

The major variables included in the instrumentation were divided into the following three categories which provided the major thrust of this study:

1. Demographic: place of employment, position, age, and year of graduation from the SAIT program for paramedics
2. Practice: the identification of continuing education practice variables; for example, reading relevant journals or attending employer-presented inservice programs.
3. Needs: the identification of the strength of a continuing education topic from 0 (no need) to 1 (low need) to 5 (high need).

Procedures

The following procedures were implemented in gathering the data.

Selection of Population

The mailing list of the REPAA was utilized to obtain the name and address of graduate paramedics, and the members of the SAIT 1979 graduating class employed with provincial ambulance services. These

sources provided a list of 100 graduate paramedics.

Collection of Data

Because the writer-researcher had been an instructor in the SAIT paramedic training program, although not a paramedic, it seemed appropriate to obtain the sanction of the REPAA to conduct the study. The president of REPAA was approached following that body's drafting of a resolution which called for mandatory continuing education to maintain REPAA registration. The president presented the research proposal to an REPAA executive meeting, which agreed to sanction the study and encourage members to respond. On March 29, 1980, the annual meeting of the REPAA convened and the proposal was presented to the membership, at which time the president emphasized the confidentiality of the survey, the absence of provincial government or SAIT funding or influence, and urged participation in the survey.

A list of graduate paramedic respondents was then drawn up as described in "selection of population." An envelope containing a letter from the president of REPAA (Appendix C), a covering letter from the researcher (Appendix D), a survey questionnaire (Appendix E), and a stamped, return-addressed envelope was mailed to each prospective respondent on April 26, 1980. Thirty-one days following the initial mailing a follow-up letter was mailed (May 26, 1980) to each prospective respondent as was indicated would be the case in the initial covering letter (Appendix F).

Treatment of Data

Each returned questionnaire was assigned an identification

number, all were coded onto data sheets, and subsequently transferred to IBM cards. The data cards were verified and corrected as necessary.

The information coded from the survey questionnaire was analysed according to the frequencies and crosstabs programs from the SPSS package (Nie et al., 1970).

Chapter 5

PRESENTATION OF DATA

Introduction

One of the major purposes of this study was to gather base-line descriptive data, as no previous research had been conducted into continuing education for graduate paramedics in Alberta. Such base-line data may be gleaned from the demographic variables, the practice variables, the needs variables and the relationships among specific variables. The data obtained with regard to these variables will be reported as a response to the corresponding question posed initially.

In addition to the questions initially posed for analysis, some further questions on the survey instrument elicited some useful data regarding the readership of specific journals, the identification of preferred methods of continuing education delivery, the quality of continuing education that is presented, and possible motivational factors involved in the participation of paramedics in continuing education programs. While these areas are not of major consequence to this study, they do, however, provide information for speculation regarding further research. A brief discussion of these findings is also presented.

Data Presentation

1. What are the distributions of place of employment, position, age, and year of graduation from SAIT for graduate paramedics in Alberta?

The responses to Question 1 provided the data required for the analysis of the demographic variables.

Place of Employment

Table 1 data show that the majority of respondents were employed in southern Alberta, and that 68 per cent were employed in the city of Calgary.

Table 1

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS, BY PLACE OF EMPLOYMENT

Place of Employment	No. of Respondents	Percentage of Total
Fort McMurray	5	8.0
St. Albert	4	7.0
High River	1	1.5
Medicine Hat	4	7.0
Grande Prairie	4	7.0
Calgary	42	68.0
Banff	1	1.5
Totals	61	100.0

The three services employing paramedics in northern Alberta: Fort McMurray, St. Albert, and Grande Prairie, are separated from each other by many miles, in contrast to the relative closeness of services in southern Alberta. A noteworthy observation is that cities in central and north-central Alberta do not employ paramedics.

Table 2 depicts the percentage of surveyed respondents who participated in the study. Of all rural paramedics, 76 per cent responded to the survey, while only 56 per cent of all urban paramedics did so.

Table 2

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS, BY URBAN AND RURAL PARTICIPATION

Participation	Total Surveyed	N	Percentage of Total Possible
Urban and Rural	100	61	61.0
Urban	75	42	56.0
Rural	25	19	76.0

Present Position

As data in Table 3 show, the majority (82 percent) of respondents were staff paramedics. The remaining 18 per cent were directors of ambulance services, supervisors, and "other" categories. It was also found that all directors and the majority of supervisors were

employed by rural ambulance services.

Table 3

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS, BY PRESENT POSITION

Present Position	N	Percentage of Total
Director of Ambulance Service	3	5.0
Supervisor	5	8.0
Staff Paramedic	50	82.0
Other	3	5.0
Totals	61	100.0

Present Age

Table 4 data show that the majority of the respondents (67 per cent) were less than 31 years of age, and the modal age group was 26-30 years.

Table 4

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS, BY AGE GROUP

Age Group	N	Percentage of Total
20-25 years	10	17.0
26-30 years	30	50.0
31-35 years	14	23.0
36-40 years	5	8.0
41-45 years	0	0.0
46-50 years	1	2.0
50+ years	0	0.0
Totals	60	100.0

Only one respondent was more than 45 years of age, indicating that Alberta paramedics are relatively young. It is reasonable to suggest, however, that a younger membership would be expected in an occupation/profession that, in Canada, has existed for less than ten years.

Year of Graduation from SAIT

Table 5 shows that respondents who graduated from SAIT in 1972 to 1976, following a one-year program of study, accounted for 45 per cent of the total. The remaining 55 per cent graduated in 1978 and 1979, following a two-year program of study. The modal graduation year was 1978; there was no graduating class in 1977, because of the change in program length from one to two years.

Table 5

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS YEAR OF GRADUATION FROM SAIT

Graduation Year		N	Percentage of Total
1972		6	10.0
1973		3	5.0
1974	one-year program	4	7.0
1975		8	13.0
1976		6	10.0
1978	two-year program	17	28.0
1979		16	27.0
Totals		60	100.0

These data are also utilized in the discussion of Questions 4 and 5.

2. What are the present continuing education practices of graduate paramedics in Alberta?

Table 6 data show the total number of hours per year reported for each continuing education practice (hereinafter designated as C.E.), the mean number of hours each paramedic spent per year, and the percentage of total number of hours of C.E. for which the specific practice was responsible.

Table 6

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS' ANNUAL HOURS OF CONTINUING EDUCATION PRACTICE, BY TYPE OF PRACTICE

Practice	N	Total Hours	Mean Hours	Percentage of Total Hours
Reading Journals	61	1274	21	34.0
Home-Study Courses	0	0	0	0.0
Employer-Presented Inservice	51	765	15	24.0
Hospital-Presented Inservice	57	1162	20	32.0
Seminars/Workshops	54	372	6	10.0
University Courses	0	0	0	0.0
Totals		3573	62	100.0

The results show that, at 34 per cent, the reading of journals accounted for the greatest percentage of C.E. hours. The mean number of hours spent per paramedic per year, was 21, representing a range of 6 to 25 hours per year. A rather striking disparity became more evident when data were considered on a monthly basis, which showed a

range of between one-half hour to two hours per month. The journals read could be grouped into two broad categories: physician-specific and paramedic-specific. The physician-specific journals would provide a more detailed and in-depth presentation of material than would the paramedic-specific journals. Further discussion of actual journals read is presented later in this chapter.

Hospital-presented inservice (C.E.), accounted for 32 per cent of the total number of C.E. hours reported, closely following journal reading. The calculated mean number of hours spent in hospital-presented C.E. per paramedic per year, was 20 hours. The range of the reported time spent in hospital-presented inservice per year was from 0 to 43 hours. It is noteworthy that there appears to be a very broad range within which the total hours reported fall. Hospital-presented inservice would include such activities as: (1) spending a shift with the hospital IV team, (2) attending ICU rounds or Nursing Grand Rounds, (3) attending hospital study days (for example, the Edith Henry Study Day at the Calgary General Hospital), and (4) attending nursing inservice presentations on such topics as diabetes, convulsions, or congestive heart failure.

Participation in employer-presented inservice accounted for 24 per cent of the total number of C.E. hours. The mean was 15 hours (ranging from 0 to 28) for each paramedic per year, much lower than the means for journal reading and hospital-presented inservice. Supplementary data indicated that employer-presented inservice could include: (1) use of new equipment such as M.A.S.T., or defibrillators

and (2) C.P.R. re-certification.

Seminars and workshops accounted for only 10 per cent, or the lowest of the total reported C.E. hours. The calculated mean per year was six hours, and the range was rather narrow at 0 to 15 hours. The majority of the reported seminar hours resulted from attendance at either (1) the Emergency Physicians' Conference sponsored by the University of Calgary Faculty of Medicine, and/or (2) Interphase, the annual Canadian Paramedic Convention held in Calgary (April, 1979) and in Montreal (April, 1980).

There was no university or home-study courses reported.

3. What are the expressed continuing education needs of graduate paramedics in Alberta?

In attempting to gather data to respond to this question, the survey instrument suggested 23 possible topics that could represent areas of C.E. needs to the paramedic. It is noteworthy that respondents added no further topics in the space provided.

Respondents were requested to indicate whether or not any of the suggested topics represented an area of C.E. need, and responses are summarized in Table 7.

The data show that all topics represented rather significant paramedic C.E. needs. It is interesting to note that though Radio Communication received the lowest percentage score it was still viewed as a need by 39 per cent of the respondents.

The topics were then ranked in order from the greatest to the least percentage of "yes" responses thus indicating a continuum of

Table 7

PERCENTAGE DISTRIBUTION OF RESPONSES TO NEED FOR SUGGESTED CONTINUING EDUCATION TOPICS

Suggested Topic	Yes	No
Theory		
Patient Assessment	86.0	14.0
Cardiology	98.0	2.0
Psychiatry	71.0	29.0
Neonatology	87.0	17.0
Paediatrics	85.0	15.0
Anatomy	70.0	30.0
Pharmacology	96.0	4.0
Trauma	89.0	11.0
Medicine	92.0	8.0
Transport	49.0	51.0
Medivac	70.0	30.0
Radio Communication	39.0	61.0
Telemetry	53.0	47.0
Lab Findings	63.0	37.0
Management	65.0	35.0
Skills		
I.V. Therapy	90.0	10.0
E.C.G. Interpretation	98.1	1.9
M.A.S.T. Use	86.0	14.0
Defibrillation	81.0	19.0
Suturing	66.0	34.0
Intubation	90.0	10.0
C.P.R.	83.0	17.0
Rescue	85.0	15.0

C.E. needs. The ranking in Figure 2 shows that the skill and theory topics appear to be almost randomly distributed throughout, with neither skills nor theory loaded at either the higher or lower ranks.

After establishing the need (yes/no) for each topic, the paramedic was asked to assign to all those affirmative responses a personal importance rating of 1 (low) to 5 (high). The use of such an importance rating scale allowed the paramedic the choice of identifying more than one important need. In considering the importance ratings assigned, an arbitrary decision was made whereby a rating of three, four, or five for a given topic was viewed as being an indication that the topic involved represented an important C.E. need to the paramedic. A rating of one, or two for a given topic, was considered to be the identification of a minor area of C.E. need. The results of the importance rating of topics are presented in Table 8. The results presented in Table 8 demonstrate the diversity of importance ratings given to each topic. This would seem to underscore the need for individual determination in C.E., in order to meet each specific paramedic's needs. Some attempts, however, can be made to rank these topics based on the importance rating given them by the respondents.

The first ranking procedure did not take the importance loading into account. In order to take account of the importance loadings, an arbitrary indexing procedure was used. Index figures were obtained by the following method: the percentage of respondents indicating each importance rating (1 to 5) for each topic was multiplied by the

1. E.C.G. Interpretation
2. Cardiology
3. Pharmacology
4. Medicine
5. I.V. Therapy, Intubation
6. Trauma
7. Neonatology
8. M.A.S.T. Use
9. Paediatrics, Rescue
10. Patient Assessment
11. C.P.R.
12. Defibrillation
13. Psychiatry
14. Anatomy, Medivac
15. Suturing
16. Personnel Management
17. Laboratory Findings
18. Telemetry
19. Transport
20. Radio Communication
21. Radio Communication
22. Radio Communication
23. Radio Communication

Figure 2

RANKING OF SUGGESTED CONTINUING EDUCATION TOPICS BY PERCENTAGE OF RESPONSES IN DESCENDING ORDER

Table 8

PERCENTAGE DISTRIBUTION OF IMPORTANCE RATINGS
FOR SUGGESTED CONTINUING EDUCATION TOPICS

Topic	Importance Rating				
	1	2	3	4	5
Theory					
Patient Assessment	14.0	7.0	16.0	16.0	47.0
Cardiology	0.0	4.0	8.0	12.0	76.0
Psychiatry	16.0	22.0	35.0	13.5	13.5
Neonatology	9.0	13.0	20.0	22.0	36.0
Paediatrics	7.0	16.0	27.0	23.0	27.0
Anatomy	32.0	13.5	30.0	11.0	13.5
Pharmacology	6.0	10.0	8.0	16.0	60.0
Trauma	6.0	2.0	17.0	13.0	62.0
Medicine	6.0	4.0	25.0	21.0	44.0
Transport	23.0	27.0	23.0	15.0	25.0
Medivac	16.3	16.3	27.0	16.3	24.0
Radio Communication	30.0	20.0	15.0	10.0	25.0
Telemetry	36.0	25.0	14.0	7.0	18.0
Laboratory	33.0	39.0	15.0	6.5	6.5
Personnel Management	24.0	18.3	21.0	18.3	18.3
Skill					
I.V. Therapy	4.0	15.0	17.0	13.0	51.0
E.C.G. Interpretation	4.0	0.0	10.0	6.0	80.0
M.A.S.T. Use	11.0	9.0	23.0	20.0	37.0
Defibrillation	9.6	9.6	9.6	31.0	40.0
Suturing	20.0	11.0	43.0	9.0	17.0
Intubation	4.0	4.0	9.0	11.0	72.0
C.P.R.	5.0	16.0	9.0	9.0	61.0
Rescue	11.5	7.0	20.5	25.0	36.0

1. Cardiology
2. E.C.G. Interpretation
3. Intubation
4. Trauma
5. Pharmacology
6. C.P.R.
7. Medicine
8. I.V. Therapy
9. Defibrillation
10. Patient Assessment
11. Rescue
12.
13. M.A.S.T. Use, Neonatology
14. Paediatrics
15. Medivac
16. Suturing
17. Personnel Management
18. Psychiatry
19. Radio Communication
20. Transport
21. Anatomy
22. Telemetry
23. Laboratory Findings

Figure 3

RANKING OF SUGGESTED CONTINUING EDUCATION TOPICS BY TOTALS OF IMPORTANCE RATINGS ASSIGNED TO THE TOPICS

respective importance rating number (1 to 5). Resulting aggregate totals for each topic formed the basis for the indexing of topics by importance ratings.

The ranking of the possible C.E. topics, based on importance ratings, is presented in Figure 3.

The differences in ranking between Figure 2 and Figure 3 would seem to reflect the discriminating effects of the importance ratings.

These results could serve as an indicator of the relative importance of each topic as a C.E. need. In planning C.E.programs for graduate paramedics, such a ranking as was presented in Figure 3 could provide valuable indications of the direction in which the choice of topics could proceed, if programming to meet individual needs were not available.

It was deemed to be useful by the researcher to discuss the ranked topics by considering the five highest ranked, the five lowest ranked, and the remaining middle group of topics represented by ranks six to eighteen in Figure 3.

In considering the ranking of possible topics in Figure 3, it is interesting to note that the five top-ranked topics have something in common. It would appear that these five highly ranked topics; E.C.G. Interpretation, Cardiology, Pharmacology, Intubation, and Trauma are characterized by their essential involvement in the care of the critically ill patient, The greatest user of paramedic services, the patient experiencing cardiac distress, would

require the utilization of knowledge and skills in all five areas. Cardiology knowledge would provide the theory and plan for treatment following the interpretation of the E.C.G., and the basis for assessment in determining the need for Intubation. Pharmacology would provide the paramedic with continuing high-level knowledge about the indications, actions and contraindications for the use of drugs, particularly in the care of the critically ill. Efficient Intubation would provide the patient with an adequate airway, and facilitate the use of artificial ventilators. E.C.G. Interpretation and Intubation are both highly technical skills which must be practiced continually to maintain proficiency in their performance. Such proficiency in these skills could not be gained solely by self-study, but must involve supervised practice. While some knowledge in Cardiology and Pharmacology could be gained by the individual paramedic through journal reading, it would be very difficult for the individual to keep abreast of the vast amount of new knowledge concerning these topics that is constantly being generated without the aid of other C.E. programs. "Trauma" as a topic could involve these four topics in addition to many others. Because of the scope of the topic "Trauma", it was determined by the researcher that little definitive information related to Trauma subtopics could be gained from this analysis. It did appear that the division of topics to include the five mentioned above was useful in further focussing the needs expressed by the graduate paramedic.

In considering the middle group of topics, numbers 6 to 18, in

Figure 3, it seemed useful to group the topics into four categories to facilitate discussion. In the first category of broad topics "Medicine" was placed. This topic area could essentially include all others because of the scope of the term. It was felt that although this topic was too broad to provide definitive information concerning Medicine subtopics, a need for more C.E. in this area was expressed.

The second category included those topics that are always utilized in the care of patients, Patient Assessment and Psychiatry. Inductive reasoning would suggest that because knowledge and skills of these topics were utilized with each patient, they did not represent as great a need as did some of the other more critical topic areas. In caring for every patient, the paramedic utilizes his knowledge to correctly assess the condition of the patient. Such a correct assessment is vital to competent paramedical practice. Because each patient is an individual person, the paramedic must use the communication skills and the knowledge of individual and group behaviour gained from studies in Psychiatry to best meet the needs of the patient.

The third category included specialized skills and knowledge required by only small groups of parmedics. Included in this group were: Neonatology, practiced only in conjunction with hospital neonatal care programs; Medivac, practiced only by rural paramedics in isolated areas; and Personnel Management, of interest largely to supervisors only. The limited applicability of these three topics to the majority of the paramedics would seem to have resulted in their

being ranked lower than the more widely utilized topic areas.

The fourth and largest category of the middle group of topics included those that could be seen as adjunct to patient care. In this category were skills that aided in patient care such as I.V. therapy, M.A.S.T. use, Rescue techniques, C.P.R., Defibrillation, and Suturing. These skills would rarely if ever be practiced in isolation but, rather, in relation to the patient in cardiac distress experiencing a medical or traumatic emergency.

It seemed useful to postulate reasons for the low ranking of the five topics numbered 19 to 23 in Figure 3. Telemetry, Transport, and Radio Communications are all mechanical skills as opposed to medical skills and none is essential in patient care. Use of Telemetry and Radio Communication provide valuable confirmation of assessment or treatment by the receiving hospital; however, patient care could still be given without such confirmation in life-threatening situations. The Transport of patients, as well as being a mechanical skill, is one that is practiced with every patient and may, therefore not present an urgent C.E. need to the paramedic. Anatomy knowledge would also be utilized in caring for every patient, and may therefore not present an important need.

The fifth topic in this group is Laboratory Findings. This topic would be utilized only minimally and only by paramedics based in a hospital. The limited use of such information could account, at least in part, for the low ranking of this topic.

The grouping of the ranked topics served to further define

the greatest C.E. needs of the graduate paramedics in Alberta.

Group Restructuring Within Variables

In seeking to respond to Questions 4 and 5, 667 tables were generated initially, utilizing the Crosstabs program of the SPSS package (Nie et al., 1970), on four demographic variables by four practice variables and 23 needs variables. Preliminary examination of these data revealed that an excessive number of categories or groups in the majority of the tables precluded concise evaluation of the data because of the number of low frequencies in certain cells. It was then deemed by the researcher that the collapsing of certain categories in the demographic variables would facilitate analysis.

The places of employment categories were reduced from eight to two on a rural/urban basis. Four categories of position were also reduced to two categories: staff paramedic; and management, which is composed of directors of ambulance services, supervisors, and training officers. Age was also collapsed to a two-category variable: those twenty to thirty years of age and those thirty-one years of age and older. The years of graduation from SAIT categories were collapsed to two on the basis of graduation from the one-year program (1972-1976) or the two-year program (1978-1979).

Subsequently, the data were re-processed according to the Crosstabs program of the SPSS package (Nie et al., 1970) and utilized as the basis for analysis. Since the analyses of Questions 4 and 5 involved extensive tables it was decided to place these Tables, 9 to 20, in the Appendices in order to facilitate continuity of the textual

matter.

4. What are the notable relationships that appear to exist between present practices of continuing education and the paramedic's place of employment, position, age, and year of graduation from SAIT?

Consistent patterns in frequency distributions usually denote relationships that are noteworthy. Where differences between variables are used to outline patterns, the presence of marked differences can be used to support the existence of notable relationships.

Place of Employment

In examining the relationships between place of employment and practice variables provided in Table 9, notable patterns in two of the practice variables seemed to emerge that would suggest a difference between rural and urban practices. The first pattern appeared to be that the total amount of journal reading reported by rural paramedics was consistently greater than that reported by urban paramedics. A plausible explanation would seem to be that because the rural paramedic does not have access to seminars or C.E. programs such as would be provided by the University of Calgary or SAIT, he is forced to rely more extensively on the literature to maintain an acceptable level of theoretical knowledge.

There also appeared to be a sharp division between rural and urban paramedics with respect to reported hospital-presented C.E. (Table 9). Rural paramedics reported a great deal more time spent in hospital-presented C.E. than did urban paramedics. This relationship

could possibly be accounted for, in part, by the fact that some rural paramedic services are stationed in a hospital emergency department, not a firehall, thus giving those rural paramedics greater access to the hospital resources.

All centres were characterized by very similar responses to the remaining practice variables of employer-presented C.E., and seminar attendance.

Position

In examining the data in Table 10, there appeared to be only one distinctive pattern of a relationship between the position variables and the practice variables. The data indicated that staff paramedics reported attending fewer hospital-presented C.E. programs accordingly than did the management group of directors, supervisors, and training officers. Such a relationship could be postulated on the basis of the availability of time for the staff paramedic and the management group to attend such C.E.. Those paramedics in the management group do not generally participate in the active response to requests for ambulance service, and would therefore appear to have more uninterrupted time available to attend such C.E. activities than would the staff paramedic on active duty.

Examination of the remaining C.E. practices of employer-presented C.E., journal reading and seminar attendance revealed that all positions were characterized by very similar responses.

Age

In examining the frequency distributions between age and the

practice variables, in Table 11, all age groups were characterized by very similar response patterns.

Year of Graduation from SAIT

In examining the crosstabulations between year of graduation and the practice variables in Table 12, all graduation years were characterized by a similarity in response patterns to each of the practice variables. There did not appear to be any suggestion that year of graduation from SAIT had any appreciable effect on the response patterns.

5. What are the notable relationships that appear to exist between expressed continuing educational needs and the paramedic's place of employment, position, age, and year of graduation from SAIT?

Place of Employment

In examining the possible relationships between the C.E. topics and place of employment in Table 13, only two distinctive patterns appeared to be present. A sharp division between urban and rural paramedics was noted in relation to the need for C.E. in medical emergencies and Medivac techniques. Medical emergencies would include the care of persons experiencing such problems as diabetic ketoacidosis, cerebral vascular accidents, appendicitis, or chronic obstructive pulmonary disease. Medivac is an abbreviation for the term "medical evacuation", which involves the aircraft evacuation of critically ill patients to specialized treatment facilities.

Rural paramedics consistently identified these two topic areas as important needs, while up to 23 per cent of the urban respondents

rated these topics as not representing a C.E. need. Some of the diversity in the need for C.E. in medical emergencies could arise in part because the urban paramedic is theoretically never more than fifteen minutes from a hospital, while the rural paramedic responds to requests for ambulance service from many small towns and isolated areas surrounding the operating base. The rural paramedic, because of distance alone, is required therefore to care for the patient for a longer period of time before arriving at a hospital facility. The knowledge and skills required not only for the emergency care of the medical patient, but also for stabilization and long-term transportation of the patient would require a different and more indepth base for the rural paramedic.

The diversity between the urban and rural paramedic need for C.E. in Medivac techniques could be accounted for, in part, because the urban paramedic would rarely, if ever, have to participate in a Medivac, while rural paramedics are much more frequently called upon to perform Medivacs. It is noteworthy that 100 per cent of the respondents from Fort McMurray, the most geographically isolated ambulance service, rated the need for C.E. in Medivac techniques as very important.

All centres were characterized by very similar responses to the remaining C.E. topics, therefore, it did not appear that place of employment played any significant role in determining the responses to these topics.

Position

In examining the crosstabulation tables between position and C.E. needs, two topics tended to be rated very highly as a need by management, directors, supervisors, and training officers and very low by staff paramedics (Table 14). The need for C.E. in Personnel Management was rated as important by 78 per cent of the management group, and only 27 per cent of the staff paramedics. The majority of staff paramedics expressed little or no need for C.E. on this topic.

Inductive reasoning would suggest that those immediately involved in Personnel Management: directors, supervisors, or training officers, would indicate a greater need for this topic. Personnel Management is not studied in the initial training at SAIT, therefore the paramedics in these management positions seem to be expressing a need to acquire such knowledge. As few management positions exist to which the staff paramedic may aspire, it does not seem that the majority of the staff paramedics were expressing a need to gain Personnel Management knowledge.

Another topic where a division appeared to exist between the management groups and the staff paramedics in relation to a C.E. need for the topic was Radio Communication (Table 14). Thirty-three per cent of the management group rated Radio Communication as an important need, while only ten per cent of the staff paramedics viewed it as an important topic for C.E.. A possible explanation of this relationship could be that because of their broader view of the paramedic service

and its relationship to the base hospitals, the management group is better able to see the need for skill in the area of Radio Communication. However, the explanation could also be that the staff paramedic who is constantly involved in Radio Communication has maintained that skill so that it is not as great a need to the staff paramedic as it is to the management group who are not as routinely involved in Radio Communication.

The importance ratings of another three topics also appeared to be polarized between the management group and staff paramedics, with the staff paramedics indicating a much greater need than the managers. Only 20 per cent of the management group viewed the need for C.E. in Neonate care as important, while 76 per cent of the staff paramedic group rated it as important. Further, just 44 per cent of the management group rated Paediatrics as an important need as opposed to 66 per cent of the staff paramedic group who viewed this topic as important. Lastly, although 70 per cent of the management group viewed E.C.G. Interpretation as a need, this percentage is still markedly below the 98 per cent expressed need of the staff paramedic group (Table 14). These patterns suggest distinctive relationships between position and some of the more technical and specialized skills of the paramedic. Those paramedics most involved in direct patient care, the staff paramedics, would seem to be expressing a need for continued training in these specific skill areas.

Further examination of Table 14, seemed to indicate that all positions were characterized by very similar responses to the

importance of the remaining C.E. topics.

Age

Upon visual inspection of the data, there appeared to be some notable patterns between age and seven needs variables. In order to reduce semantic confusion, the paramedic group from 20-30 years of age will be referred to as the younger group with the paramedic group of 31 years of age and older referred to as the older group.

In rating the need for C.E. in Medivac techniques, a slightly greater percentage of the younger group rated this topic as important (Table 15). This tendency for the younger group to rate this topic as important as compared to the older group again seemed evident in relation to the need for C.E. in Neonate care where 73 per cent of the younger group rated this topic as important as compared to only 50 per cent of the older group who viewed this topic as important (Table 15). No plausible explanation for these two relationships appears to be evident to the researcher.

The importance ratings for a further five topics also appeared to have distinct divisions between the older group and the younger group, with the older group indicating a much greater need than the younger group for C.E. in these topics. In considering the data relating to Anatomy and Physiology as a C.E. topic, the older group consistently rated this as a great need, while the majority of the younger group did not seem to view this topic as a need (Table 15). Further, the data regarding Telemetry as a C.E. need tended again to

suggest that the older group need was considerably greater than that of the younger group (Table 15). Again in the skills areas of topics, the older group rated the topic of E.C.G. Interpretation consistently higher than did the younger group (Table 15). In considering the importance of a new skill, the use of M.A.S.T., the older group rated this topic more highly as an area of need than did the younger group (Table 15). In examining the data relating to the C.E. need of Suturing techniques, a skill recently added to the paramedic repertoire, a pattern again suggested that the older group rated this topic much higher in terms of importance than did the younger group (Table 15). Finally, the tendency that emerged from the examination of the importance ratings assigned to Rescue techniques as a C.E. need, again appeared to be that the older group rated this topic as a need consistently higher than did the younger group (Table 15).

In summary, it would appear that patterns within this analysis suggest a strong relationship between age and C.E. needs for the topics identified. These patterns suggest that the older group expressed a greater need for C.E. in topic areas which have undergone considerable change in recent years. It could also be postulated that the older group of paramedics is better able to see more sides to each topic, and because of experience, realize the depth of many topics which they then identified as a C.E. need.

In the examination of the remaining topics in Table 15, respondents in all age groups appeared to be characterized by similar responses.

Year of Graduation from SAIT

In the examination of the data considering relationships between needs and year of graduation, only one marked tendency seemed to emerge. In considering the topic of Radio Communication techniques, five times as many respondents graduating from the one-year program rated this topic as an important C.E. need as did those from the two-year program. Such data would seem to suggest a relationship between year of graduation and the need for C.E. in Radio Communication techniques (Table 16). Many recent developments in the field of Radio Communication could account, in part, for the suggested relationship. Those paramedics graduating from the one-year program, at least four years ago, would seem to require more information and procedures for the use of many of the new techniques in Radio Communication.

Further examination of Table 16, would seem to indicate that the respondents graduating from both one and two year programs at SAIT were characterized by similar responses to the importance of the remaining topics as C.E. needs.

Supplementary Questions

In addition to the five questions upon which the study is based, four additional areas were briefly considered. The supplementary questions posed on the questionnaire were designed to gather general information which could be utilized to give some direction to further research.

The first area was related to the question of present C.E. practices in that it sought to examine further journal reading reported

by the respondents. The data summarized in Table 17, revealed that 85 per cent of the respondents read the journal Emergency Medicine, which was also rated as most consistently useful. The second highest readership, 75 per cent of the respondents, was of a Canadian publication, Canadian Emergency Service News, which all members of REPAA receive. This journal, however, rated lowest with regard to usefulness. The readership and comments of usefulness for the other journals were equitably distributed with no remarkable findings. In the space provided for other journals to be included, fourteen respondents wrote in the journal Paramedics International, and included comments praising its content.

The second area considered, asked the respondent to rank the possible approaches to C.E. according to the usefulness of the approach. The results are summarized in Table 18. In comparing Table 6 to Table 18, it would appear that although reading journals accounted for the greatest number of C.E. hours, the respondents rated it as least useful. The order of usefulness of the next three approaches coincides with the rank order of the percentage of C.E. hours reported for each. Hospital-presented, employer-presented, and seminar-presented C.E. followed each other in order of hours spent in the activity per year and in order of reported usefulness of the practice in meeting C.E. needs.

In addition to the speculative rating of approaches, the respondents were also asked to state whether or not the quality of employer-presented and hospital-presented C.E. was appropriate to their

needs. Table 19 summarizes these results. Eighty-five per cent of the respondents reported that the quality of employer-presented inservice was not appropriate to their needs, and 80 per cent reported that hospital-presented inservice was also not appropriate to meeting their C.E. needs. Further examination of the quality of C.E. presentations would seem to be indicated, on the basis of these data.

The fourth area asked the respondents to rate factors according to their importance in stimulating paramedic participation in C.E.. The results of this question are summarized in Table 20. Based on the percentage of respondents indicating the factor as 1 (most important), personal interest seemed to be the most important factor motivating participation in C.E. programs. The demand by REPAA for proof of C.E. for membership was ranked as the second most important motivating factor while salary increments based on C.E. ranked third. The payment of an hourly wage followed closely, in fourth position. Many respondents commented that it was their opinion that C.E. should be done during regular working hours, with the payment of the usual wage, and not on the paramedic's free time. The remaining motivational factors were rated as not important by the respondents.

Chapter 6

SUMMARY, MAJOR AND SUPPLEMENTARY FINDINGS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

Summary and Major Findings

The purpose of this study was to obtain information from graduate paramedics in Alberta that would facilitate a description of the present C.E. practices and expressed C.E. needs of the graduate paramedic. Specifically, the areas of description included (1) demographic data, (2) the reported C.E. practices of the respondents, (3) the expressed C.E. needs of paramedics, and (4) the relationships between the demographic data, and the practices and needs information.

The study was further guided by focussing on five questions which also guided development of the survey instrument. Questionnaire returns were coded and key punched onto data cards which were in turn, processed through the computer facilities at the University of Calgary.

In fulfilling the mandate of a base-line descriptive study, the summary of the main findings parallelled the initial questions posed. As these questions are listed in Chapters 1 and 4, they are now referred to by number only.

With respect to Question 1, the findings revealed the average paramedic in Alberta to be (1) male, (2) employed by an urban ambulance service, as a staff paramedic, (3) in the age group 26-30

years, and (4) a graduate of the two-year program (1978 to present) at SAIT.

In answering study Question 2, the data showed that paramedics participated in only minimal amounts of C.E., and, from highest to lowest percentages of total hours they were: reading journals, attending hospital-presented inservice, attending employer-presented inservice, and attending seminars/workshops, for an average of 62 hours per year. The number of hours reported tended to be higher in hospital-based services, who also indicated a greater satisfaction with the C.E. opportunities provided.

The information provided in answering the third question, made possible the ranking of C.E. topics according to importance ratings. Even the lowest ranked topic represented a C.E. need for 39 per cent of the respondents. Despite reports of little participation, according to the data acquired and respondents' comments, there was a very strong expression of both a need and a desire for any and all C.E. topics. The five topics which ranked consistently higher were: E.C.G. Interpretation, Cardiology, Pharmacology, Intubation Techniques, and Trauma.

For Question 4 variables, of the 16 possible combinations, only three notable patterns seemed to appear. Place of employment, that is, the urban-rural dichotomy of C.E. practices, seems to have accounted for the majority of these patterns.

In analysing the 92 possible combinations of Question 5 variables, only 15 notable patterns seemed to emerge from the collected data of which age, involved in over half of these patterns,

appeared to be the most dominant. Because of the variation in C.E. needs, the necessity for a comprehensive needs assessment prior to the inception of a C.E. program seems to be underscored. Continuing Education Programs should be formulated specifically to meet the individual needs of paramedics, regardless of their location, position, age, or graduation year.

Supplementary Findings

A summary of the findings supplementary to the main purpose of the study included:

(1) A larger readership was reported for the physician-specific journals than for the paramedic-specific journals.

(2) The physician-specific journals were consistently accorded higher quality ratings than were the paramedic-specific journals.

(3) The order of approaches to continuing education from highest to lowest, ranked according to their perceived usefulness to the respondent, were hospital-presented inservice, employer-presented inservice, seminars/workshops, home study, and journal readings.

(4) An overwhelming majority of the respondents indicated that the quality of both hospital-presented inservice and employer-presented inservice was not appropriate to their C.E. needs.

(5) The four top-ranked factors seen as motivating paramedic participation in C.E. were: personal interest, the maintenance of REPAA membership, education-based salary increments, and the payment of an hourly wage during participation in such programs.

Implications

The findings of this study suggested many implications for provincial and municipal governments, the profession or occupation, existing services, new services, and institutions such as hospitals and universities, and training agencies.

Provincial Government

The implications of this study for the provincial government would, unfortunately, appear to be long-term. In reviewing relevent literature, the theoretical reason for C.E. for graduate paramedics was shown to be the maintenance of an individual's skills and knowledge. Before one can measure the maintenance or lack of maintenance of skills or knowledge, there must be a statement of minimum standards for practice. Although the provincial government has shown concern over paramedic practice standards, there appears to be no urgency to legislate minimum standards for paramedic practice. The implications of this lack of minimum standards of practice are far-reaching in the resulting lack of direction given to development of C.E. for graduate paramedics.

Municipal Governments

The findings of this study indicated that paramedics attend very few seminars or workshops, principally because they are conducted in the United States, where paramedic services are much more prevalent, and would require extensive and costly travel for the Alberta paramedic. The implication here could be stated in the form of a challenge, to municipal governments to increase the C.E. budget for

their paramedic services, so as to increase the expertise of their paramedics. Such a practical step would aid in the increased availability of high quality seminars and workshops wherein information gained would assist local paramedics in supplying high-quality pre-hospital care to the community.

The Profession and the REPAA

If the profession is to fulfil the mandate given to it by the provincial government; that is to provide for the C.E. of its members, it must also establish standards which paramedics can maintain through C.E.. The need for such standards, as established in accord with the provincial government, implies that the profession and its representative association (REPAA) must work closely with the provincial government toward the rapid establishment of such standards. While the competence levels of individual paramedics were not measured in this study, it is suggested that such evaluations cannot be conducted until standards are developed.

The analysis of the study data illustrated the great disparity in the importance ratings of C.E. topics. These differences in the C.E. needs of individual paramedics have implications for the development of the content and method of delivery of programs proposed by REPAA. Because of the variety of expressed needs, it is suggested that there should be the establishment of a set of standard methods suggested by REPAA for the assessment of C.E. needs. Such a specific assessment would provide the association or the service involved with a comprehensive view of the needs of the paramedic to

be served.

An outgrowth of such a needs assessment would seem to be the establishment of individualized programs as opposed to blanket programs of C.E.. The implication arising from this need for individualized C.E. programs would seem to be the necessity for the development, by REPAA, of many program options for the individual.

The need for the development of more options for individualized C.E. programs leads to a further implication regarding the delivery of such programs as deemed useful by the needs assessment. The findings of this study indicate relatively low participation in the more traditional approaches to the delivery of C.E. such as employer-presented inservice or journal reading. The implication of these findings would appear to be the need for the development of new learning methodologies to facilitate an individualized approach to C.E.. The development, by REPAA, of such delivery approaches as: video and audio tape lending, programmed learning or reading programs would begin to provide the resource necessary for the individual paramedic to meet his specific C.E. needs.

One of the supplementary findings of this study; that the majority of responding paramedics were not satisfied with the quality of C.E. presentations, also has implications for the profession. Inductive reasoning would suggest that an initial step would be the establishment, by REPAA, of standards for C.E. presentations. After the establishment of such standards, it would be easier to develop a standard mechanism for the evaluation of C.E. presentations by the participants. The use of standardized evaluation procedures would

then permit the comparison of C.E. programs by REPAA.

The literature cited ascribed to the professional association, in this instance REPAA, the responsibility for providing C.E. for its members. The findings of this study, particularly in the area of motivational factors, indicated that the respondents in this study supported this theoretical premise. The summary implication would appear to be that REPAA must take up the challenge to fulfil this great responsibility to its members.

Existing Services

In considering the importance ratings given to various possible C.E. topics by rural and urban paramedics, the constraint to develop need-specific C.E. programs becomes increasingly evident. The C.E. needs of urban and rural paramedics will differ because of the differences in availabilty of support services and the nature of the requests for ambulance services. The implications for existing services, whether rural or urban, would seem to be that a needs-assessment of employees is the essential first step in planning for any C.E. program. Unless the C.E. programs are planned specifically to meet the needs of the paramedics involved, C.E. programming fails to achieve its greatest potential.

The comments of several groups of paramedics about preferred practices of C.E. have implications for existing services seeking new methods of C.E. deliveries. In addition to the practices considered in the ranking in this study, two groups of rural, hospital-based services reported satisfaction with the practice of each paramedic

presenting a specific topic each month. The urban paramedics reported satisfactory experiences with a preceptor program. Existing services may wish to consider these two methods of C.E. delivery or develop other methods designed to meet the specific needs of a particular service.

One of the supplementary findings of this study, a ranking of factors operating or proposed as active in motivating paramedic participation in C.E. programs, has implications for ambulance services. After further study of these factors, there may need to be policy changes made with regard to motivational factors such as payment for C.E. time or education-based salary increments. The alteration of some present policies, such as those mentioned for possible changes, might have an effect on the C.E. practices of paramedics concerned.

Since the inception of this study, at least two new services have come into existence. This study could suggest, to such new services, ways in which to ensure maximum usage of C.E. time and programs in such areas as initial needs assessment, novel methods of C.E. delivery, and evaluation of C.E. programs. Initial use of some of the motivating factors suggested would be less problematic than attempting to implement them at a later date.

Other Agencies

Supplementary data tended to indicate that paramedics employed by hospital-based services were involved in more C.E., which they rated highly, than those employed by the non-hospital-based services.

The comments provided by the respondents indicated that while they tended to rate hospital-presented inservices as the preferred method of C.E. delivery, they found much of the inservice not to be directly relevant to their needs. The implications arising from this data would suggest that hospitals prepare C.E. programs specifically directed towards meeting the C.E. needs of paramedics. The positive comments regarding the concept of preceptorships, involving an emergency physician directly in a teaching relationship with a paramedic, would seem to suggest the advisability of consideration of this concept by other hospitals. As the receiving centres for the patients of the paramedic services, hospitals necessarily have a large stake in the continued competence of the paramedic.

As was noted previously, the response to the traditional methods of C.E. delivery has been reported as minimal. It is also of interest to note that there were no reported home-study or university courses taken by paramedics in the previous year of 1979. The implications of these two statements would be focussed toward the province's universities, particularly departments of extension, to develop pertinent C.E. programs that could be delivered through extension facilities. Such courses would aid the individual paramedic in the area of self-directed learning to meet individual specific C.E. needs.

In seeking alternative methods for maintaining the competence of the paramedic, the local community can be a valuable source of teaching and speaking opportunities. Such opportunities would, not only compel the paramedic to be knowledgeable concerning his topic,

but also demonstrate to the employing community, such competence.

Training Agencies

At present only one institution, SAIT, is responsible for the training of parmedics in the province of Alberta. The review of the literature suggests that it is the professional (occupational) school that is charged with the responsibility of producing a competent member of the profession. The implications for the Emergency Paramedical Care program at SAIT, from this study, would be the assumption of a greater degree of responsibility in the training of students in the importance and methods of C.E.. The training program could provide the paramedic with the theoretical basis for the need for and importance of C.E.. Strong role models, within the training program, demonstrating the place of C.E. in their own professional careers, could assist students in sensing the value of C.E. to their instructors. Establishing C.E. practices such as journal reading beginning in their student days, could be encouraged. While a student, the future paramedic should be encouraged to both attend, and participate in planning C.E. programs. Such a basis in C.E. in the training program would seem to better prepare the paramedic for the lifelong pursuit of C.E. in his chosen field.

Individual Paramedic

A major area of professionalization with related implications that can be drawn from this study, is that of "individual autonomy". In moving along a continuum of professionalization, the individual begins to take an increasing amount of responsibility for further

personal C.E. and the maintenance of skills. In those activities included in this study which could be classified as self-regulating; reading journals, and taking home-study courses, there was a varied response. Although journal reading accounted for the greatest amount of reported C.E., one hour and forty minutes of C.E. per month does not seem to be comparable to the vast amounts of medical and paramedic-specific literature that is produced. None of the respondents reported taking a home-study course in the past year. The implication here would seem to be that the individual paramedic must take up the challenge of formulating and implementing an individualized plan to maintain his own knowledge of both theory and skills if he is to remain a competent practitioner.

Suggestions for Further Research

In response to this study, the researcher identified a minimum of five suggested areas for further study.

1. An indepth statistical analysis of the relationships between the demographic variables and the practices and needs variables could provide more definitive information concerning the special practices or needs of specific groups of paramedics.

2. A field study of the tested, as opposed to the reported, efficacy of the various methods of C.E. delivery would provide a more solid basis for decisions regarding appropriate methods of presentation of C.E. for graduate paramedics.

3. A study aimed at the identification of motivational factors influencing the participation of paramedics in C.E. programs would

provide valuable information to the providers of such programs.

4. A logitudinal, follow-up study of the process of needs assessment, program proposal, and presentation would be useful in evaluating various aspects of both C.E. and professsionalization.

5. Finally, a study in approximately three years' time to determine any changes appearing in the ranking of C.E. practices, needs or motivational factors of graduate paramedics in Alberta, in response to the new REPAA demand for C.E. for relicensure, would provide valuable feedback concerning the impact and ramifications of mandatory C.E. for graduate paramedics in Alberta.

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APPENDICES

APPENDIX A

REPAA RESOLUTIONS

REPAA
REGISTERED EMERGENCY PARAMEDIC ASSOCIATION OF ALBERTA
BOX 3822
POSTAL STATION 'B' - CALGARY
T2M 4N6

MINUTES OF THE R.E.P.A.A. EDUCATIONAL COMMITTEE MEETING

DATE: December 6, 1979

PLACE: Edmonton Inn, Edmonton, Alberta

PRESENT: Ron McManus
Bill Coghill
Garry Alford
Bob Janzen
Rene May

PURPOSE:

The meeting was held to establish accreditation guidelines for members of the Registered Emergency Paramedic Association of Alberta.

Accreditation Evaluation

The R.E.P.A.A. educational committee recommend that a Registered Emergency Paramedic be required to collect 60 credits over a two year period to remain registered.

The individual may accumulate more than 60 credits but will not be allowed to carry them over a two year period, i.e. if you accumulate 120 credits in the first year, you may not keep those for more than two years.

It is recommended that there be four levels where credits could be awarded to the paramedic's performance:

- Field Experience
- In-Service
- Teaching
- Convention and Courses

1. Field Procedures

It is recommended that Field Procedures account for no more than 30% of the total two year accreditation program.

Field procedures will be reviewed by the R.E.P.A.A. educational committee and credits will be awarded according to their weight.

REPAA
REGISTERED EMERGENCY PARAMEDIC ASSOCIATION OF ALBERTA
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POSTAL STATION 'B' - CALGARY
T2M 4N6

2. In-Service

It is recommended that in-service attendance account for no more than 70% of the total two year accreditation program.

In-service attendance will be reviewed by the R.E.P.A.A. educational committee and credits will be awarded according to their weight.

3. Teaching

It is recommended that classroom instructional time account for no more than 20% of the total two year accreditation program.

It is recommended:

- That the number of credits allowed an instructor for teaching C.P.R. and St.John First Aid courses be reviewed by the educational committee for approval.
- In order for an instructor to teach for the Alberta Heart Foundation, Canadian Red Cross, St. John Ambulance or any other University, Community College or Technician Institution who offers E.M.S. related courses, he will be required to prove to the committee that a satisfactory number of hours are being taught each year for accreditation.
- In the case of unrecognized courses, the instructor must submit a course outline to the committee for accreditation evaluation if the fore-mentioned instructor wishes to be accredited.

4. Convention and Courses

It is recommended that convention and course attendance of one day or more will account for no more than 50% of the total two year accreditation program.

The convention and/or course outline should be submitted to the committee for evaluation prior to attendance, in order that a credit weight may be assigned to the various areas of the outline.

A certificate or registration receipt must be submitted to the committee outlining lectures attended in order for accreditation approval.

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Other areas that are recommended for accreditation evaluation are:

1. University and/or Technical Administrational courses taken by individuals registered with R.E.P.A.A.

2. University and/or Technical Labour courses taken by individuals registered with R.E.P.A.A.

APPENDIX B

CRITERIA FOR THE JUDGEMENT OF THE QUESTIONNAIRE

CRITERIA FOR THE JUDGEMENT OF THE QUESTIONNAIRE

Please examine this questionnaire to determine the clarity of the instructions, the necessity of the content presented, any significant omissions in content, and the appropriateness of the question sequence.

Please make your comments or corrections on the questionnaire.

The following questions are advanced as guidelines to standardize the evaluation of the questionnaire.

1. Are the instructions clear?
2. Is the question appropriate to the general purpose of this study?
3. Is the question clearly worded?
4. Are there significant omissions in the content of the questions? If so, please describe these areas.
5. Is the sequence of the questions appropriate?
6. Is there a response set within the sequence of the questionnaire?

Please indicate any other comments which may not fall within the scope of the above questions.

Thank you for your co-operation.

APPENDIX C

LETTER FROM THE PRESIDENT OF REPAA

REPAA

REGISTERED EMERGENCY PARAMEDIC ASSOCIATION OF ALBERTA

P.O. Box 6859
Postal Station "D", CALGARY, Alberta
T2P 2E9

April 18th, 1980

Dear Member:

I wish to mention a study in the form of a questionaire which will be mailed to each of you. The study will form the basis for a thesis for a Master's Degree, and is being prepared by Ms. Margaret Edwards. It will deal with continuing education, and will be very useful to us in our efforts to establish further guidelines. Ms. Edwards has our complete approval and we urge you to co-operate. Please take a few minutes and complete it. We must emphasize that the material is not for SAIT's use, nor for the use of your employer. Furthermore, the questionaires are anonymous and do not have a printed code, or any other method of identifying the respondent.

Yours truly,

R. J. McManus
President, R.E.P.A.A.

/jd

APPENDIX D

COVERING LETTER

10624 Shillington Cres.S.W.
Calgary, Alberta. T2W 0N7
April 22, 1980.

Dear Sir,

At the general meeting of R.E.P.A.A., on March 29, 1980, the membership was informed of a survey on continuing (inservice) education that was to be carried out in the near future. This survey is also discussed in the April newsletter of R.E.P.A.A.

I am presently a graduate student in the Faculty of Education at the University of Calgary, and have taught in the Emergency Paramedic program at S.A.I.T. for the past two years. This association with paramedics has prompted this survey.

The purpose of this survey is to provide base-line information on the continuing (inservice) education practices and needs of you, the graduate paramedic. The results of this survey will be of interest to all paramedics concerned about continuing education. Also, R.E.P.A.A. will be interested in such information in the planning of continuing education for its members. If you would like a copy of the results, please feel free to write to me at the above address.

Although R.E.P.A.A. has endorsed this survey, and will be able to utilize the results, it is not involved in funding this survey. No other agency, such as S.A.I.T. or the Provincial Government, is involved in commissioning or funding this survey. Only a personal interest in continuing education for graduate paramedics has prompted me to study this area.

An important aspect of this survey is that it is completely confidential. There are no obvious or hidden identification marks on the questionaire, as it is not my purpose to be able to identify the replies. Because of this confidentiality, you will receive a follow-up reminder letter, as I will be unable to determine which survey questionaires have been returned.

In order for the results of this survey to be of use to you or your association, it is <u>essential</u> that all questionaires be returned. A pre-addressed and stamped envelope has been included.

If you have any questions or concerns regarding this survey, please feel free to call me collect at Calgary 253-5210, after 5:00pm.

Thank you for your time and assitance in helping to establish the position of continuing (inservice) education for graduate paramedics in Alberta.

Yours truly

Margie Edwards

Margaret Edwards

APPENDIX E

SURVEY QUESTIONNAIRE

CONTINUING (INSERVICE) EDUCATION
QUESTIONNAIRE

1. Current place of employment:

Fort McMurray ☐
St. Albert ☐
High River ☐
Medicine Hat ☐
Grande Prairie ☐
Calgary ☐
Banff ☐
Other, please state_____

2. Present position: (check only one, highest level)

Director of Ambulance services ☐
Supervisor ☐
Staff paramedic ☐
Other: please state_____

3. Present age:

20 - 25 years ☐
26 - 30 years ☐
31 - 35 years ☐
36 - 40 years ☐
41 - 45 years ☐
46 - 50 years ☐
50 + years ☐

4. Year of graduation from S.A.I.T. _____

5. Please list any medical/technical certificates or degrees held.

Certificate	Year awarded	School

6. Check the total number of hours spent in inservice education presented by your employer, in the following areas, over the past 12 months. If your employer is a hospital, PLEASE, leave this question blank and complete all other questions.

	Topics	0	1-3hrs	4-6hrs	7-10hrs	10+hrs
Theory	Cardiology					
	Psychiatry					
	Pediatrics					
	Neonate care					
	Pharmacology					
	Trauma					
	Medical emergencies					
	Transport					
	Medivac					
	Radio communication					
	Telemetry					
	Personnel management					
	Others:					
Skills	I.V. therapy					
	E.C.G. interpretation					
	M.A.S.T. use					
	Defibrillation					
	Suturing					
	C.P.R.					
	Intubation					
	Rescue and extrication					
	Others:					

7. Is the quality of employer - presented inservice education appropriate to your needs?
YES _____ NO _____
If no, please comment on aspects needing to be upgraded such as; topics chosen for presentation, manner of presentation and any others.

8. Check the total number of hours spent in inservice education presented by a local hospital, in the following areas, over the past 12 months.

	Topic	0	1-3hrs	4-6hrs	7-10hrs	10+ hrs
Theory	Cardiology					
	Psychiatry					
	Pediatrics					
	Neonate.care					
	Pharmacology					
	Trauma					
	Medical emergencies					
	Transport					
	Medivac					
	Radio communication					
	Telemety					
	Personnel management					
	Others:					
Skills	I.V. therapy					
	E.C.G. interpretation					
	M.A.S.T. use					
	Defibrillation					
	Suturing					
	C.P.R.					
	Intubation					
	Rescue and extrication					
	Case room practice					
	Others:					

9. Is the quality of hospital-presented inservice education appropriate to your needs? YES____ NO____ If no, please comment on aspects needing to be upgraded, such as: topics chosen for presentation, manner of presentation and any others.

10. List any seminars, workshops, or conferences, not presented by your employer or local hospital, that you have attended over the past 12 months.

Seminar/ Workshop/ Conference	Presenting agency	Length of program, in hours

11. Indicate the time spent, per month, reading the following journals. Please rate the usefulness of each journal read, from : 1=very useful, 2=sometimes useful, 3= not useful.

Journal	0	15-30min	30-60min	over 60min	Rating
Canadian Emergency Services News					
Emergency Medicine					
Emergency Medical Services: The Journal of Emergency Care and Transportation					
Emergency: The Journal of Emergency Services					
Journal of Emergency Medical Services					
Other, please state					

12. Please comment on any negative and/or positive qualities of any of the journals that you read.

13. List any home-study or university courses that you have taken over the past 12 months. (not necessarily paramedic related)

Course	Presenting agency	Length of course in hours

14. Rank the following approaches to inservice (continuing) education, according to their usefulness in meeting your inservice education needs, with 1=best approach, 2=next best approach, etc.

Approach	Rank
Reading journals	
Hospital presented inservice	
Employer presented inservice	
Seminar/Workshop/Conference	
Home-study course	
Others: please state and include in ranking	

15. Of the following continuing (inservice) education topics, please check which ones represent your needs. If you check yes, please rate the topic according to its importance to you.

	Topics	No	Yes	1(low)	2	3	4	5(high)
Theory	Patient assessment							
	Cardiology							
	Psychiatry							
	Neonate care							
	Pediatrics							
	Anatomy and Physiology							
	Pharmacology							
	Trauma							
	Medical Emergencies							
	Transport							
	Medivac							
	Radio communication							
	Telemetry							
	Laboratory findings							
	Personnel management							
	Others, please state and rate:							
Skills	I.V. therapy							
	E.C.G. interpretation							
	M.A.S.T. use							
	Defibrillation							
	Suturing							
	Intubation							
	C.P.R.							
	Rescue and extrication							
	Others, please state and rate:							

16. The following have been identified as motivation factors. Please rate these factors and any others, as to their importance in stimulating paramedic participation in inservice education, with 1=very important, 2= somewhat important and 3= only slightly important.

Factors	Rank	Comments
Payment of hourly wage		
Overtime payment		
Personal interest		
Education-based salary increases		
Lieu-time		
Accumulation of credits to be used in determining promotions		
To maintain R.E.P.A.A. membership		
Others, please state and rank:		

17. Please list any other inservice education activities in which you have been involved over the past 12 months, that have not previously been mentioned in this questionaire.

18. What other suggestions or comments on the provision of inservice (continuing) education, or inservice education topics of concern to the graduate paramedic do you have?

THANK YOU SO MUCH FOR YOUR CO-OPERATION!

APPENDIX F

FOLLOW-UP LETTER

10624 Shillington Cres. S.W.
Calgary, Alberta. T2W 0N7
May 26, 1980.

Dear Sir,

In the letter of introduction to the questionaire regarding Continuing Education for Graduate Paramedics, enclosed with your April R.E.P.A.A. Newsletter, it was stated that everyone who received a questionaire would also receive a follow-up letter. Because of the confidentiality of the survey questionaire, I am unable to determine which questionaires have been returned. Therefore, this letter is again addressed to all members of R.E.P.A.A. and the S.A.I.T. graduating class of 1979.

I would firstly like to thank those of you who have returned your completed questionaire. The response to date has been very good, with half of the questionaires completed. The answers provided on the questionaire have been very complete. Thank you so much for your co-operation in helping to determine the present position of continuing education for graduate paramedics in Alberta, at this time.

If you have been unable to complete the above mentioned questionaire that was enclosed with the April R.E.P.A.A. Newsletter, I would like to strongly encourage you to do so at your earliest opportunity! I would like to be able to include the views of as many paramedics as possible in my survey of continuing education for graduate paramedics in Alberta. I would appreciate having the completed questionaires returned by June 10, 1980. If you have misplaced the questionaire or have any questions regarding the completion of the questionaire please call me collect at 253-5210 after 5:00pm. I would be happy to send you another questionaire or to answer any question you may have about the survey questionaire.

If you would like to receive a copy of the results of this questionaire, please write to me at the above address.

Thank you again for your co-operation!

Yours truly,

Margie Edwards

Margaret Edwards

Graduate Student,
University of Calgary

APPENDIX G

TABLES 9-20

Table 9

FREQUENCY DISTRIBUTION OF CONTINUING EDUCATION HOURS FOR EACH C.E. PRACTICE, BY RESPONDENT'S PLACE OF EMPLOYMENT

Place of Employment	C.E. Hours					
	Journal Reading					
	6-8	9-11	12-14	15-17	18-20	21-24
Urban	4	15	11	10	00	00
Rural	3	4	4	5	2	1
	Hospital-Presented Inservice					
	0-10	11-20	21-30	31-40	41-50	
Urban	15	10	2	2	1	
Rural	5	00	2	4	6	
	Employer-Presented Inservice					
	0-5	6-10	11-15	16-20	21-25	26-30
Urban	13	13	4	4	3	4
Rural	3	2	2	00	2	1
	Seminars/Workshops					
	0-3	4-7	8-12	13-16		
Urban	22	14	00	00		
Rural	6	9	1	1		

C.E. = continuing education

Table 10

FREQUENCY DISTRIBUTION OF CONTINUING EDUCATION HOURS FOR EACH C.E. PRACTICE, BY RESPONDENT'S POSITION

Position	C.E. Hours					
	Journal Reading					
	6-8	9-11	12-14	15-17	18-20	21-24
Management	2	4	3	2	00	00
Staff Paramedics	5	15	12	13	2	1
	Hospital-Presented Inservice					
	0-10	11-20	21-30	31-40	41-50	
Management	2	00	00	1	3	
Staff Paramedics	18	10	4	5	4	
	Employer-Presented Inservice					
	0-5	6-10	11-15	16-20	21-25	26-30
Management	1	1	2	1	1	1
Staff Paramedics	15	14	4	3	4	4
	Seminars/Workshops					
	0-3	4-7	8-12	13-16		
Management	2	7	00	00		
Staff Paramedics	26	16	1	1		

C.E. = continuing education

Table 11

FREQUENCY DISTRIBUTION OF CONTINUING EDUCATION HOURS FOR EACH C.E. PRACTICE, BY RESPONDENT'S AGE

Age Group	C.E. Hours					
	Journal Reading					
	6-8	9-11	12-14	15-17	18-20	21-24
20-30 years	5	13	8	11	2	1
31 + years	2	6	7	4	00	00
	Hospital-Presented Inservice					
	0-10	11-20	21-30	31-40	41-50	
20-30 years	15	5	4	5	4	
31 + years	5	5	00	1	3	
	Employer-Presented Inservice					
	0-5	6-10	11-15	16-20	21-25	26-30
20-30 years	12	10	5	3	2	2
31 + years	4	5	1	1	3	3
	Seminars/Workshops					
	0-3	4-7	8-12	13-16		
20-30 years	20	13	1	1		
31 + years	8	10	00	00		

C.E. = continuing education

Table 12

FREQUENCY DISTRIBUTION OF CONTINUING EDUCATION HOURS FOR EACH C.E. PRACTICE, BY RESPONDENT'S YEAR OF GRADUATION FROM SAIT

Graduation Year	C.E. Hours					
	Journal Reading					
	6-8	9-11	12-14	15-17	18-20	21-24
1972-1976	2	7	9	7	00	00
1978-1979	5	12	6	8	2	1
	Hospital-Presented Inservice					
	0-10	11-20	21-30	31-40	41-50	
1972-1976	9	4	1	2	2	
1978-1979	11	6	3	4	5	
	Employer-Presented Inservice					
	0-5	6-10	11-15	16-20	21-25	26-30
1972-1976	4	7	4	1	3	2
1978-1979	12	8	2	3	2	3
	Seminars/Workshops					
	0-3	4-7	8-12	13-16		
1972-1976	10	12	1	00		
1978-1979	18	11	00	1		

C.E. = continuing education

Table 13

FREQUENCY DISTRIBUTION OF IMPORTANCE RATINGS OF CONTINUING EDUCATION TOPICS, BY RESPONDENT'S PLACE OF EMPLOYMENT

Place of Employment	Importance Rating* 0	1	2	3	4	5
	Patient Assessment					
Urban	5	5	3	8	6	12
Rural	2	1	0	2	2	11
	Cardiology					
Urban	2	0	1	4	3	31
Rural	0	0	1	0	3	14
	Psychiatry					
Urban	14	7	3	9	3	4
Rural	4	1	6	5	2	1
	Neonate Care					
Urban	6	3	3	8	6	13
Rural	5	1	3	4	4	4
	Paediatrics					
Urban	6	4	5	10	6	10
Rural	4	0	3	3	6	2
	Anatomy and Physiology					
Urban	14	8	4	9	2	4
Rural	5	6	1	4	2	1
	Pharmacology					
Urban	3	2	3	3	6	24
Rural	0	1	2	1	3	11

*0 = no need to 5 = high need

Table 13 continued

Place of Employment	Importance Rating 0	1	2	3	4	5
	Trauma					
Urban	7	2	2	8	3	19
Rural	0	1	1	2	3	12
	Medical Emergencies					
Urban	5	3	3	12	4	13
Rural	0	0	0	1	7	11
	Transport					
Urban	24	4	5	4	2	2
Rural	9	2	2	3	2	1
	Medivac					
Urban	18	7	4	4	3	5
Rural	2	0	2	7	3	4
	Radio Communication					
Urban	28	4	2	3	2	2
Rural	9	2	3	0	0	4
	Telemetry					
Urban	21	5	5	3	2	5
Rural	8	7	2	2	0	0
	Laboratory Findings					
Urban	15	10	9	3	1	2
Rural	9	3	4	2	1	0
	Personnel Management					
Urban	13	8	5	6	3	5
Rural	9	2	1	1	3	2

Table 13 continued

Place of Employment	Importance Rating 0	1	2	3	4	5
	I.V. Therapy					
Urban	6	2	6	5	4	17
Rural	1	0	2	3	2	11
	E.C.G. Interpretation					
Urban	1	0	2	3	2	33
Rural	0	0	1	2	1	15
	M.A.S.T. Use					
Urban	9	3	5	7	5	12
Rural	0	2	0	5	4	6
	Defibrillation					
Urban	9	2	3	2	9	15
Rural	3	2	1	3	6	4
	Suturing					
Urban	14	7	2	10	2	6
Rural	9	1	3	5	1	0
	Intubation					
Urban	6	1	2	2	3	26
Rural	0	1	0	3	2	13
	C.P.R.					
Urban	11	2	3	2	2	21
Rural	1	0	4	3	2	9
	Rescue					
Urban	7	6	1	8	9	10
Rural	3	0	2	2	5	6

Table 14

FREQUENCY DISTRIBUTION OF IMPORTANCE RATINGS OF CONTINUING EDUCATION TOPICS, BY RESPONDENT'S POSITION

Position	Importance Rating*					
	0	1	2	3	4	5
	Patient Assessment					
Management	0	2	0	0	3	3
Staff Paramedic	7	4	3	10	5	20
	Cardiology					
Management	2	0	1	1	1	5
Staff Paramedic	0	0	1	3	5	40
	Psychiatry					
Management	5	1	2	1	0	0
Staff Paramedic	13	7	7	13	5	5
	Neonate Care					
Management	4	0	4	1	1	0
Staff Paramedic	7	4	2	11	9	17
	Paediatrics					
Management	5	0	0	2	2	0
Staff Paramedic	5	4	8	11	10	12
	Anatomy and Physiology					
Management	3	3	1	1	1	1
Staff Paramedic	16	11	4	12	3	4

*0 = no need to 5 = high need

Table 14 continued

Position	Importance Rating 0	1	2	3	4	5
	Pharmacology					
Management	2	1	0	0	3	4
Staff Paramedic	1	2	5	4	6	31
	Trauma					
Management	2	0	0	1	1	6
Staff Paramedic	5	3	3	9	5	25
	Medical Emergencies					
Management	2	0	0	3	3	2
Staff Paramedic	3	3	3	10	8	22
	Transport					
Management	6	1	0	1	1	1
Staff Paramedic	27	5	7	6	3	2
	Medivac					
Management	3	1	0	2	1	2
Staff Paramedic	17	6	6	9	5	7
	Radio Communication					
Management	2	1	3	0	1	2
Staff Paramedic	35	5	2	3	1	4

Table 14 continued

Position	Importance Rating 0	1	2	3	4	5
	Telemetry					
Management	5	2	1	1	0	1
Staff Paramedic	24	10	6	4	2	4
	Laboratory Findings					
Management	5	0	5	0	0	0
Staff Paramedic	19	13	8	5	2	2
	Personnel Management					
Management	1	0	1	0	4	3
Staff Paramedic	21	10	5	7	2	4
	I.V. Therapy					
Management	2	0	1	3	1	3
Staff Paramedic	5	2	7	5	5	25
	E.C.G. Interpretation					
Management	1	0	2	0	2	5
Staff Paramedic	0	0	1	5	1	43
	M.A.S.T. Use					
Management	2	0	0	2	3	2
Staff Paramedic	7	5	5	10	6	16

Table 14 continued

Position	Importance Rating 0	1	2	3	4	5
	Defibrillation					
Management	2	1	0	1	4	2
Staff Paramedic	10	3	4	4	11	17
	Suturing					
Management	5	1	1	3	0	0
Staff Paramedic	18	7	4	12	3	6
	Intubation					
Management	2	1	1	0	1	5
Staff Paramedic	4	1	1	5	4	34
	C.P.R					
Management	1	0	1	0	2	6
Staff Paramedic	11	2	6	5	2	24
	Rescue					
Management	0	1	0	2	4	3
Staff Paramedic	10	5	3	8	10	13

Table 15

FREQUENCY DISTRIBUTION OF IMPORTANCE RATINGS OF CONTINUING EDUCATION TOPICS, BY RESPONDENT'S AGE

Age Group	Importance Rating*					
	0	1	2	3	4	5
	Patient Assessment					
20-30 years	4	3	2	9	5	15
31 + years	3	3	1	1	3	8
	Cardiology					
20-30 years	2	0	1	2	6	25
31 + years	0	0	1	2	0	20
	Psychiatry					
20-30 years	12	5	7	9	4	2
31 + years	6	3	2	5	1	3
	Neonate Care					
20-30 years	6	3	2	10	10	9
31 + years	5	1	4	2	0	8
	Paediatrics					
20-30 years	6	4	4	12	9	5
31 + years	4	0	4	1	3	7
	Anatomy and Physiology					
20-30 years	16	9	2	10	2	1
31 + years	3	5	3	3	2	4

*0 = no need to 5 = high need

Table 15 continued

Age Group	Importance Rating 0	1	2	3	4	5
	Pharmacology					
20-30 years	1	2	4	2	6	24
31 + years	2	1	1	2	3	11
	Trauma					
20-30 years	5	3	2	5	6	19
31 + years	2	0	1	5	0	12
	Medical Emergencies					
20-30 years	4	3	2	6	10	14
31 + years	1	0	1	7	1	10
	Transport					
20-30 years	23	4	5	6	2	0
31 + years	10	2	2	1	2	3
	Medivac					
20-30 years	13	2	6	10	5	3
31 + years	7	5	0	1	1	6
	Radio Communication					
20-30 years	26	4	4	2	1	3
31 + years	11	2	10	1	1	3
	Telemetry					
20-30 years	20	8	6	4	2	0
31 + years	9	4	1	1	0	5

Table 15 continued

Age Group	Importance Rating 0	1	2	3	4	5
	Laboratory Findings					
20-30 years	16	9	9	4	1	1
31 + years	8	4	4	1	1	1
	Personnel Management					
20-30 years	19	6	5	4	3	2
31 + years	3	4	1	3	3	5
	I.V. Therapy					
20-30 years	6	2	5	4	4	18
31 + years	1	0	3	4	2	10
	E.C.G. Interpretation					
20-30 years	1	0	1	5	0	33
31 + years	0	0	2	0	3	15
	M.A.S.T. Use					
20-30 years	6	5	5	10	5	8
31 + years	3	0	0	2	4	10
	Defibrillation					
20-30 years	9	3	4	3	10	11
31 + years	3	1	0	2	5	8
	Suturing					
20-30 years	19	6	5	7	3	0
31 + years	4	2	0	8	0	6

Table 15 continued

Age Group	Importance Rating 0	1	2	3	4	5
	Intubation					
20-30 years	4	1	1	4	3	26
31 + years	2	1	1	1	2	13
	C.P.R.					
20-30 years	10	2	5	4	3	16
31 + years	2	0	2	1	1	14
	Rescue					
20-30 years	9	4	2	7	12	6
31 + years	1	2	1	3	2	10

Table 16

FREQUENCY DISTRIBUTION OF IMPORTANCE RATINGS OF CONTINUING EDUCATION TOPICS, BY RESPONDENT'S YEAR OF GRADUATION FROM SAIT

Graduation Year	Importance Rating* 0	1	2	3	4	5
	Patient Assessment					
1972-1976	3	4	1	6	6	7
1978-1979	4	2	2	4	2	16
	Cardiology					
1972-1976	2	0	1	3	2	19
1978-1979	0	0	1	1	4	26
	Psychiatry					
1972-1976	10	4	2	5	3	3
1978-1979	8	4	7	9	2	2
	Neonate Care					
1972-1976	7	0	2	4	4	10
1978-1979	4	4	4	8	6	7
	Paediatrics					
1972-1976	7	0	5	4	5	6
1978-1979	3	4	3	9	7	6
	Anatomy and Physiology					
1972-1976	7	7	3	7	1	2
1978-1979	12	7	2	6	3	3

*0 = no need to 5 = high need

Table 16 continued

Graduation Year	Importance Rating 0	1	2	3	4	5
	Pharmacology					
1972-1976	3	2	2	2	5	13
1978-1979	0	1	3	2	4	22
	Trauma					
1972-1976	4	0	1	7	4	11
1978-1979	3	3	2	3	2	20
	Medical Emergencies					
1972-1976	4	0	2	7	4	10
1978-1979	1	3	1	6	7	14
	Transport					
1972-1976	12	3	4	3	2	3
1978-1979	21	3	3	4	2	0
	Medivac					
1972-1976	7	3	3	7	1	6
1978-1979	13	4	3	4	5	3
	Radio Communication					
1972-1976	12	3	2	2	2	6
1978-1979	25	3	3	1	0	0
	Telemetry					
1972-1976	10	5	3	3	1	5
1978-1979	19	7	4	2	1	0

Table 16 continued

Graduation Year	Importance Rating 0	1	2	3	4	5
	Laboratory Findings					
1972-1976	11	6	5	2	1	1
1978-1979	13	7	8	3	1	1
	Personnel Management					
1972-1976	6	5	4	4	3	4
1978-1979	16	5	2	3	3	3
	I.V. Therapy					
1972-1976	4	0	2	5	4	12
1978-1979	3	2	6	3	2	16
	E.C.G. Interpretation					
1972-1976	1	0	2	3	2	19
1978-1979	0	0	1	2	1	29
	M.A.S.T. Use					
1972-1976	4	2	1	4	4	11
1978-1979	5	3	4	8	5	7
	Defibrillation					
1972-1976	7	1	2	3	6	8
1978-1979	5	3	2	2	9	11
	Suturing					
1972-1976	8	2	3	7	2	5
1978-1979	15	6	2	8	1	1

Table 16 continued

Graduation Year	Importance Rating 0	1	2	3	4	5
	Intubation					
1972-1976	5	1	1	0	2	18
1978-1979	1	1	1	5	3	21
	C.P.R.					
1972-1976	4	0	2	1	1	19
1978-1979	8	2	5	4	3	11
	Rescue					
1972-1976	2	2	1	7	6	9
1978-1979	8	4	2	3	8	7

Table 17

PERCENTAGE DISTRIBUTION OF RESPONDENTS, BY JOURNALS READ AND USEFULNESS RANKING

Journal	Respondents' Percentage Distribution	Usefulness Ranking*
Canadian Emergency Services News	75.0	5
Emergency Medicine	85.0	1
Emergency Medical Services: The Journal of Emergency Care and Transportation	58.0	3
Emergency: The Journal of Emergency Services	69.0	2
Journal of Emergency Medical Services	41.0	4
Other	27.0	

*1 (most useful) to 5 (least useful)

Table 18

RESPONDENTS' RANKING OF CONTINUING EDUCATION BY BEST APPROACH

Rank		Continuing Education Approach
Highest		
	1	Hospital-Presented Inservice
	2	Employer-Presented Inservice
	3	Seminars/Workshops
	4	Home-Study Courses
Lowest	5	Journal Reading

Table 19

PERCENTAGE DISTRIBTUION OF APPROPRIATENESS OF HOSPITAL-PRESENTED AND EMPLOYER-PRESENTED CONTINUING EDUCATION

Presenting Agency	Quality Appropriate	Quality Not Appropriate
Hospital	20	80
Employer	15	85

Table 20

PERCENTAGE DISTRIBUTION OF RESPONDENTS' RATINGS TO MOTIVATIONAL FACTORS

Motivational Factor	Rating 1	2	3
Hourly wage	45	33	22
Overtime	30	28	42
Personal interest	92	4	4
Education-based salary increments	47	30	23
Lieu time	7	27	66
Credits for promotion	28	35	37
REPAA membership	56	27	17